

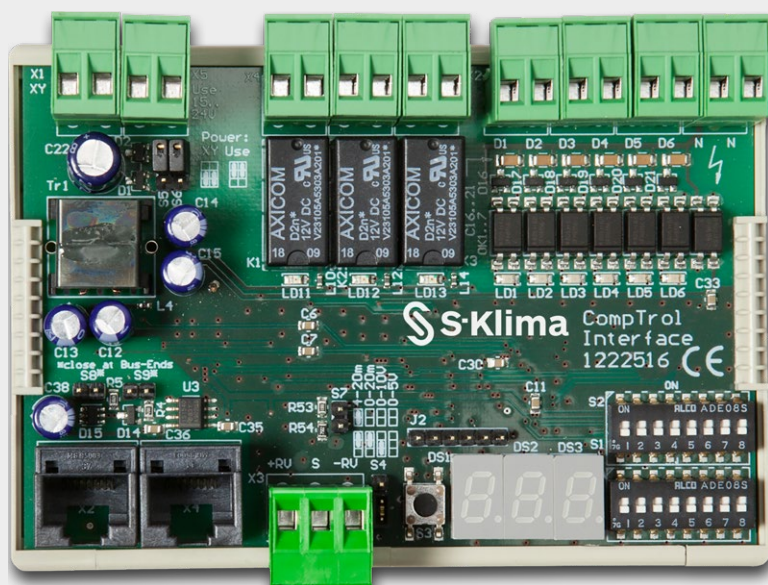
Technical Manual

CompTrol Interface

Version V4.0.x and higher

Translation of the original manual
Read carefully before use!
Keep for later reference!

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Version 31-03-2023



Support app from S-Klima – easy troubleshooting via smartphone

- Extensive error code analysis – even offline
- Refrigerant calculator for start-up and refilling
- QR code scanner for reading out unit data
- Request a call back from Customer Support

The app can be downloaded free from the Apple App Store, Google Play or Microsoft Store.



Dear Customer,

Many thanks for choosing to buy a Stulz product. Stulz has been a purveyor of sophisticated technical solutions for comfort and precision climate control applications since 1947.

In Germany, Stulz is the exclusive retailer of energy-efficient comfort air conditioning systems from Mitsubishi Heavy Industries.

Kind regards,
Stulz GmbH

Current updates to the technical documentation

You can find the latest documents and brochures at:
<http://www.s-klima.de/downloads>.



Figure 1: QR code for S-Klima website

Support app from S-Klima – easy troubleshooting via smartphone



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Figure 2: QR code for the Support app

The app can be downloaded free from the Apple App Store or Google Play.

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Contents

1	About this document.....	9
1.1	Scope.....	9
1.2	Target group.....	9
1.3	Presentation conventions.....	9
1.4	Abbreviations	9
1.5	Formatting.....	10
1.6	Nomenclature.....	10
1.7	Liability claims for defects	11
1.8	Disclaimer	11
1.9	Copyright.....	11
2	Safety.....	12
2.1	Proper use	12
2.2	Safety instructions.....	12
2.3	Required personnel qualifications.....	13
2.4	Compatible products	13
2.5	Other applicable documents	13
2.6	Transport and storage.....	14
2.7	Installation.....	14
2.8	Spare parts	14
3	Product package.....	15
4	Product description.....	16
4.1	CompTrol Interface connection assignment	16
4.2	CompTrol Interface electrical supply.....	18
4.2.1	Pin headers S5 and S6.....	18
4.2.2	Electrical supply via X/Y remote control bus (terminal X1) for a CompTrol Interface expansion module that is not in combination with a CompTrol Master expansion module.....	18
4.2.3	Electrical supply via terminal X5 for a CompTrol Interface expansion module in combination with a CompTrol Master expansion module	18
4.3	Communication connections.....	18
4.3.1	Pin headers S8 and S9.....	19
4.4	Types of connection	19
4.4.1	Analog input X3	19
4.4.2	Digital inputs X2a to X2N.....	19
4.4.3	Digital outputs X4a to X4c	19
4.4.4	X/Y remote control bus X1	20

4.4.5	Bus connections X2 and X4.....	20
4.4.6	External electrical supply X5.....	20
4.5	DIP switch S1.....	20
4.6	DIP switch S2.....	21
4.7	7-segment display.....	21
4.8	CompTrol Interface connection diagram.....	22
5	Functions of the CompTrol Interface expansion module	23
5.1	Functions of analog input X3	23
5.1.1	Temperature setpoint definition via analog signal.....	23
5.1.2	Direct frequency request via an analog signal.....	23
5.1.3	Resistive circuit.....	24
5.2	Functions via the digital inputs.....	25
5.2.1	Evaluating the analog input	25
5.2.2	Remote ON/OFF.....	26
5.2.3	Autoswing function.....	26
5.2.4	Center/Center-Remote	26
5.2.5	Mode selection (Cooling/Heating/Fan)	26
5.2.6	Preset fan speed.....	26
5.3	Special functions	26
5.3.1	Automatic fan speed control	26
5.3.2	Forced mode.....	27
5.3.3	Inversion of digital outputs	27
5.3.4	Signal boundary value monitoring	27
5.3.5	Status of the CompTrol Interface (master/slave) in the X/Y remote control bus	28
5.3.6	Alarm signal.....	28
5.3.7	Status signals	29
6	Program overview.....	30
7	Program 0 – temperature setpoint definition via analog signal.....	31
7.1	Description	31
7.2	Configuring the CompTrol Interface for program 0	31
7.2.1	Connection diagram for program 0	31
7.2.2	Setting program 0 on DIP switch S1.....	33
7.2.3	Setting the functions for program 0 via DIP switch S2.....	33
7.2.4	Setting the analog signal type on S4 and S7.....	33
7.3	Analog input.....	33
7.4	Digital input assignment in program 0.....	35
7.5	Digital output assignment in program 0	35

8	Program 2 – temperature setpoint definition with window contact function	36
8.1	Description	36
8.2	Configuring the CompTrol Interface for program 2	36
8.2.1	Connection diagram for program 2	36
8.2.2	Setting program 2 via DIP switch S1	38
8.2.3	Setting functions for program 2 via DIP switch S2.....	38
8.2.4	Setting the analog signal type on S4 and S7	38
8.3	Analog input.....	38
8.4	Window contact function Auto ON	40
8.5	Digital input assignment in program 2.....	40
8.6	Digital output assignment in program 2	41
9	Program 3 – temperature setpoint definition for equipment rooms with temperature limit alarm.....	42
9.1	Description	42
9.2	Configuring the CompTrol Interface for program 3	42
9.2.1	Connection diagram for program 3	42
9.2.2	Setting program 3 via DIP switch S1	44
9.2.3	Setting functions for program 3 via DIP switch S2.....	44
9.2.4	Setting the analog signal type on S4 and S7	44
9.3	Analog input.....	44
9.4	Setting the temperature limit value via DIP switch S2	45
9.5	Digital input assignment in program 3.....	46
9.6	Digital output assignment in program 3	47
10	Program 4 – temperature setpoint definition with hotel remote control function	48
10.1	Description.....	48
10.2	Configuring the CompTrol Interface for program 4	48
10.2.1	Connection diagram for program 4	48
10.2.2	Setting program 4 via DIP switch S1	50
10.2.3	Setting functions for program 4 via DIP switch S2.....	50
10.2.4	Setting the analog signal type on S4 and S7	50
10.3	Analog input.....	50
10.4	Digital input assignment in program 4	52
10.5	Digital output assignment in program 4	52

11 Program 5 – temperature setpoint definition with lockout function.....	53
11.1 Description	53
11.2 Configuring the CompTrol Interface for program 5	53
11.2.1 Connection diagram for program 5	53
11.2.2 Setting program 5 via DIP switch S1	55
11.2.3 Setting functions for program 5 via DIP switch S2.....	55
11.2.4 Setting the analog signal type on S4 and S7	55
11.3 Analog input.....	55
11.4 Digital input assignment in program 5.....	57
11.5 Digital output assignment in program 5	57
12 Program 6 – temperature setpoint definition for heat exchanger connection module.....	58
12.1 Description.....	58
12.2 Configuring the CompTrol Interface for program 6	58
12.2.1 Connection diagram for program 6	58
12.2.2 Setting program 6 via DIP switch S1	60
12.2.3 Setting functions for program 6 via DIP switch S2.....	60
12.2.4 Setting the analog signal type on S4 and S7	60
12.3 Analog input.....	60
12.4 Digital input assignment in program 6	61
12.5 Digital output assignment in program 6	62
13 Program 7 – temperature setpoint definition without signal boundary value monitoring.....	63
13.1 Description.....	63
13.2 Configuring the CompTrol Interface for program 7	63
13.2.1 Connection diagram for program 7	63
13.2.2 Setting program 7 via DIP switch S1	65
13.2.3 Setting functions for program 7 via DIP switch S2.....	65
13.2.4 Setting the analog signal type on S4 and S7	65
13.3 Analog input.....	65
13.4 Digital input assignment in program 7	66
13.5 Digital output assignment in program 7	67
14 Program 8 – direct frequency request.....	68
14.1 Description.....	68
14.2 Configuring the CompTrol Interface for program 8	68
14.2.1 Connection diagram for program 8	68
14.2.2 Setting program 8 via DIP switch S1	70

14.2.3	Setting functions for program 8 via DIP switch S2.....	70
14.2.4	Setting the analog signal type on S4 and S7	70
14.3	Setting the outdoor unit model via DIP switch S1	70
14.3.1	For FDC outdoor units: Set DIP switch S1 on the CompTrol Interface.....	70
14.3.2	For SRC outdoor units: Set DIP switch S1 on the CompTrol Interface.....	71
14.4	Analog input.....	72
14.5	Digital input assignment in program 8	73
14.6	Digital output assignment in program 8	73
15	Program 9 – direct frequency request with cascading	74
15.1	Description.....	74
15.2	Configuring the CompTrol Interface for program 9	74
15.2.1	Connection diagrams for program 9	75
15.2.2	CompTrol Interface connection diagram in program 9	75
15.2.3	CompTrol Interface connection diagram.....	76
15.2.4	Setting program 9 via DIP switch S1	77
15.2.5	Setting functions for program 9 via DIP switch S2.....	77
15.2.6	Setting the analog signal type on S4 and S7	77
15.3	Setting the outdoor unit model via DIP switch S1	78
15.3.1	For FDC outdoor units: Set DIP switch S1 on the CompTrol Interface.....	78
15.3.2	For SRC outdoor units: Set DIP switch S1 on the CompTrol Interface.....	78
15.4	Analog input.....	79
15.4.1	Setting the signal ranges via DIP switch S2	82
15.4.2	Example of set signal ranges without signal overlap	85
15.5	Digital input assignment in program 9	85
15.6	Digital output assignment in program 9	86
16	Program 10 – direct frequency request with the CompTrol Master	87
16.1	Description.....	87
16.2	Configuring the CompTrol Interface for program 10	87
16.2.1	Connection diagram for program 10	88
16.2.2	Connection diagram: Connecting CompTrol Interfaces to the CompTrol Master	89
16.2.3	Setting program 10 on DIP switch S1	91
16.2.4	Setting functions for program 10 on DIP switch S2	91
16.3	Configuring the CompTrol Master for program 10	91
16.4	Setting the outdoor unit model via DIP switch S1	91
16.4.1	For FDC outdoor units: Set DIP switch S1 on the CompTrol Interface.....	91
16.4.2	For SRC outdoor units: Set DIP switch S1 on the CompTrol Interface.....	92

16.5 Analog input.....	93
16.6 Digital input assignment in program 10	93
16.7 Digital output assignment in program 10	94
17 Installing the CompTrol Interface expansion module	95
17.1 General installation conditions.....	95
17.2 Service and installation clearance	96
17.3 Cable requirements	96
17.4 Installing and connecting the CompTrol Interface expansion module	98
17.5 Starting up the CompTrol Interface expansion module	100
17.5.1 Initialization	100
17.5.2 Initialization sequence	100
18 Troubleshooting.....	101
19 Error codes.....	104
19.1 Rebooting the system	106
20 Disposal.....	106
21 Technical data	107
22 Declaration of Conformity.....	108
23 Spare parts	109
24 Accessories.....	109
25 Contact	109
25.1 Manufacturer's address	109
26 Appendix I: List of tables	110
27 Appendix II: Start-up Report.....	113

1 About this document

This Technical Manual contains detailed information on installation, configuration of the implemented programs, and troubleshooting.

The Technical Manual must be kept on site at the location of use and be available at all times.

Make sure that persons responsible for operating and working on the product have fully read and understood this manual. Please call your specialist partner if you have any queries.

1.1 Scope

This Technical Manual is intended for the CompTrol Interface expansion module version V4.0.x and higher. The version number is composed of the following:

4.0.x - hardware version / 4.0.x - software version / 4.0.x - revision number.

1.2 Target group

This document is intended for qualified electricians and specialist planners. The work described in this document may only be performed by persons with the requisite qualifications (see “2.3 Required personnel qualifications” on page 13).

1.3 Presentation conventions

Safety and warning notices are indicated by signal words. The signal words indicate hazard levels with risks of injury of varying degrees of severity. The signal word IMPORTANT indicates a risk of property damage.

Signal word	Meaning	Consequences of failure to observe
 DANGER	Immediate threat of danger	Death or serious injury due to a high-risk hazard
 WARNING	Immediate threat of danger	Death or serious injury due to a medium-risk hazard
 CAUTION	Immediate threat of danger	Slight injury due to a low-risk hazard
IMPORTANT	Immediate threat of danger	Damage to property or the environment
Note	Special tips on getting the best out of the product	

Table 1: Conventions regarding the presentation of safety and warning notes

1.4 Abbreviations

Abbreviations	Name	Explanation
A	Ampere	SI unit for electrical current
AC	Alternating current	—
DC	Direct current	—
DIP	Dual in-line package	Describes small switches with two parallel terminal strips
GND	Ground	Ground wire or signal ground
I_{out}	Output current	—
K	Kelvin	SI unit for temperature

Abbreviations	Name	Explanation
LED	Light-emitting diode	—
MHI	Mitsubishi Heavy Industries	Japanese manufacturer of air conditioning units
min	Minute	—
N	Neutral wire	—
NC	Normally closed	Relay contact
NO	Normally open	Relay contact
s	Second	SI base unit for time
U_p	Supply voltage	—
U_{out}	Output voltage	—
U_{in}	Input voltage	—
V	Volt	SI unit for electrical voltage
Ω	Ohm	SI unit for electrical resistance

Table 2: Abbreviations

1.5 Formatting

Format	Name	Example
	Messages on 7-segment display	F1 (for fan speed 1).
	Terminals	Connect the cable to terminal X2-D1 .
Bold	Operating states	ON or OFF .
	Actuated components	DIP switch S2
	Values that require setting	Set the voltage to the value 7.5 V .
Italics and bold	Breakdown of text containing instructions	<i>Prerequisite, procedure, result</i>

Table 3: Formatting

1.6 Nomenclature

Full name	Name in this document
CompTrol Interface V4.0.x expansion module	CompTrol Interface
CompTrol Master V1.0.x expansion module	CompTrol Master
CompTrol Interface communication bus	CompTrol Interface bus
Stulz heat exchanger connection module FDX	Heat exchanger connection module FDX
Stulz heat exchanger connection module FDSX	Heat exchanger connection module FDSX
Stulz heat exchanger connection module FDXL	Heat exchanger connection module FDXL
Stulz heat exchanger connection module FDSXL	Heat exchanger connection module FDSXL

Table 4: Nomenclature

1.7 Liability claims for defects

Following the installation and operating instructions in this Technical Manual is a prerequisite for trouble-free operation of the CompTrol Interface and for making potential liability claims for defects.

Read the Technical Manual before working with the product.

1.8 Disclaimer

Following the installation and operating instructions in this Technical Manual is a prerequisite for safe operation of the product and for attaining the specified product characteristics and performance features. Stulz shall not be liable for any injury or property damage or any financial loss resulting from non-compliance with the installation and operating instructions. In such cases, all liability for material defects is excluded.

1.9 Copyright

All brand and product names are trademarks or registered trademarks of the respective copyright owners. *CompTrol* is a registered trademark of Stulz GmbH.

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Technical data subject to change without notice.

2 Safety

The system operator must ensure that the safety and warning notes in this documentation are observed and adhered to. The system operator must furthermore ensure that any persons working on the system have read and understood the documentation in its entirety.

Non-compliance with the safety and warning notes may put staff, the environment and the system at risk, and voids any claims for compensation.

Safe and reliable operation of the system is only ensured if it is used in accordance with its proper use. The limit values set out in the technical data must never be exceeded.

If anything is unclear or you require additional information, please call your specialist partner.

2.1 Proper use

The CompTrol Interface is an expansion module for the remote control bus of indoor units from Mitsubishi Heavy Industries.

The CompTrol Interface performs the following tasks:

- Connects an external controller to the remote control bus of indoor units from Mitsubishi Heavy Industries.
- Simultaneously controls up to 16 indoor units.
- Adjusts the temperature setpoint via four adjustable analog signal types.
- Forwards unit status signals (alarm signal, compressor signal, remote ON/OFF, defrost signal, operating signal or heating signal, window contact signal).
- Specifies the frequency setpoint for the compressor in the outdoor unit via an analog signal.

The CompTrol Interface is mounted on a DIN rail in a switch gear cabinet with the aid of a DIN rail bracket. The CompTrol Interface is intended solely for indoor use, and may only be used with compatible products. Any other use besides or beyond this shall be regarded as improper use.

Stulz cannot be held liable for damage resulting from such use. The system operator is the sole bearer of the risk. The CompTrol Interface may only be used in accordance with the instructions in the Stulz technical documentation.

2.2 Safety instructions

DANGER

Danger of death from electric shock.

There is an immediate danger of death from electric shock if live parts are touched.

The CompTrol Interface may only be installed, connected, and started up by specialist electricians.

- To change the settings of DIP switches or to remove connections, always switch off the electrical supply to the system and the CompTrol Interface, and secure so they cannot be switched back on for the duration of the work.

IMPORTANT**Danger due to incorrectly configured components.**

During setup and configuration, it may be necessary to configure further components for use with the CompTrol Interface.

- Before starting up, always check the current configuration of all affected components such as wired remote controls and compressors (also see the documentation of the respective components).
-

IMPORTANT**Damage to the CompTrol Interface by reversing the polarity of terminals X5-(+) and X5-(-).**

- Ensure the correct polarity for terminals **X5-(+)** and **X5-(-)**.
-

2.3 Required personnel qualifications

All electrical work must be performed exclusively by authorized specialist electricians.

A specialist electrician is a person who, through their specialist training and experience, has the skills required for

- switching on/off, enabling, grounding, and marking electrical circuitry and equipment,
- installing and configuring IT systems,
- skilled maintenance and use of protective devices in accordance with the relevant safety standards,
- providing first aid to injured persons.

2.4 Compatible products

The CompTrol Interface is compatible with the following products from Mitsubishi Heavy Industries and Stulz:

- CompTrol Master (program 10, CompTrol Interface V4.0.3 and higher)
- KX series air conditioning units from Mitsubishi Heavy Industries (programs 0 and 2 to 7)
- FDS series air conditioning units from Mitsubishi Heavy Industries (programs 0 and 2 to 10)
- S series air conditioning units from Mitsubishi Heavy Industries (programs 0 and 2 to 10)
- SX series air conditioning units from Mitsubishi Heavy Industries (programs 0 and 2 to 7)
- FDX and FDXL heat exchanger connection modules (programs 0 and 2 to 10)
- FDSX and FDSXL heat exchanger connection modules (programs 0 and 2 to 7)
- CompTrol Signal DC expansion module (programs 0 and 4 to 10)

2.5 Other applicable documents

Besides this technical documentation, the following documents must also be observed:

- CompTrol Master Technical Manual
- Technical Manual for the FDX heat exchanger connection module
- Technical Manual for the FDXL heat exchanger connection module
- Technical Manual for the FDSX heat exchanger connection module
- Technical Manual for the FDSXL heat exchanger connection module
- KX series Technical Manual
- FDS series Technical Manual

- S series Technical Manual
- SX series Technical Manual
- CompTrol Signal DC Technical Manual
- Construction Site Technical Manual: Quick guide for the construction site

2.6 Transport and storage

Check the delivery immediately on receipt for completeness and transport damage. Notify your specialist retailer of any transport damage immediately. Do not install or operate the unit if there is evidence of transport damage which may jeopardize the unit's operational reliability.

The unit is packaged in a cardboard box. Open the box carefully to prevent damage to the surface of the unit.

If the unit is to be placed in interim storage after delivery, take the following precautions for protection against corrosion and damage:

- Store the unit in a dry location.
- Store the unit in its packaging if possible.

Dispose of the packaging responsibly. To avoid the risk of asphyxiation, keep plastic packaging out of reach of children and dispose of it after opening.

2.7 Installation

When installing the unit, always pay attention to the notes on installation (see “17 Installing the CompTrol Interface expansion module” on page 95) and the power source specifications (see “21 Technical data” on page 107).

The electrical installation and wiring must comply with the applicable local regulations, the specifications of the VDE (German Association for Electrical, Electronic & Information Technologies), and the local mains grid operator.

2.8 Spare parts

We recommend the use of original spare parts. Original spare parts and spare parts/accessories approved by Stulz GmbH are a guarantee of safety.

The spare parts list can be found in section “23 Spare parts” on page 109. To order spare parts, call your specialist retailer.

3 Product package

- CompTrol Interface expansion module
- CompTrol Interface quick-start reference guide
- 6 x jumpers

The CompTrol Interface Technical Manual and Start-up Report are available to download from the S-Klima website:

<http://www.s-klima.de/downloads>.



Figure 3: QR code for S-Klima website

4 Product description

The CompTrol Interface is an expansion module for the X/Y remote control bus of indoor units from Mitsubishi Heavy Industries. It connects the X/Y remote control bus to the control unit of the building services management system (BMS).

The CompTrol Interface is integrated in the X/Y remote control bus as an additional user. It acts as an additional wired remote control. The CompTrol Interface can control up to 16 indoor units.

Depending on which program is selected, the CompTrol Interface reads an analog signal (4 to 20 mA, 0 to 20 mA, 0 to 5 V DC, or 0 to 10 V DC) at analog input **X3-S** and transmits the value to the indoor unit in the form of a setpoint (see “4.4.1 Analog input X3” on page 19). Various functions are available, see “5 Functions of the CompTrol Interface expansion module” on page 23.

4.1 CompTrol Interface connection assignment

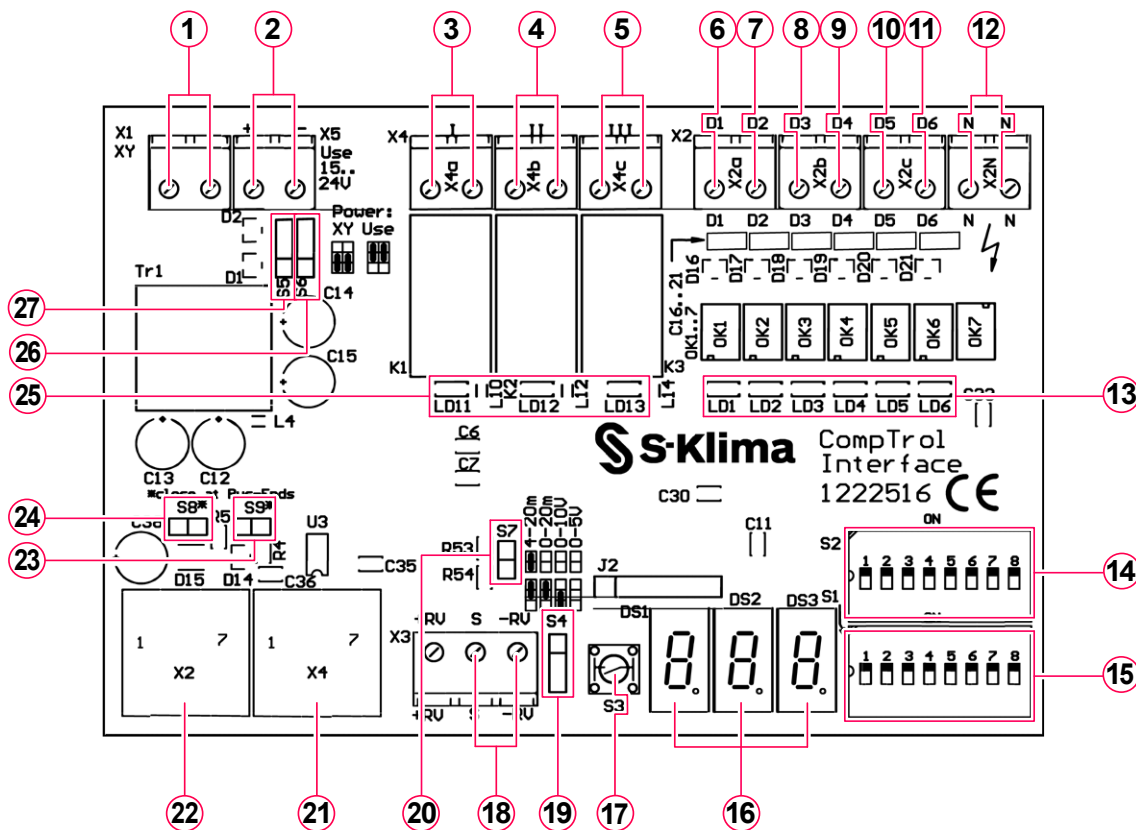


Figure 4: Connection assignment

No.	Designation	Description
1	X1-X, X1-Y	Terminal of X/Y remote control bus, also the electrical supply (see “Table 5: Type of electrical supply” on page 18)
2	X5-(+), X5-(-)	External electrical supply (see “Table 5: Type of electrical supply” on page 18); necessary in combination with CompTrol Master
3	X4a-I	Alarm signal, volt-free, up to 230 V AC / 130 V DC / 0.5 A / NO, can be inverted with S2-6
4	X4b-II	Compressor signal or operating signal, volt-free, up to 230 V AC / 130 V DC / 0.5 A / NO, can be inverted with S2-6

No.	Designation	Description
5	X4c-III	Defrosting signal, heating signal, window contact signal, or temperature limit alarm, volt-free, up to 230 V AC / 130 V DC / 0.5 A / NO, can be inverted with S2-6
6	X2a-D1	Assignment depends on the program, 20 V DC to 130 V DC or 24 V AC to 230 V AC
7	X2a-D2	Assignment depends on the program, 20 V DC to 130 V DC or 24 V AC to 230 V AC
8	X2b-D3	Assignment depends on the program, 20 V DC to 130 V DC or 24 V AC to 230 V AC
9	X2b-D4	Assignment depends on the program, 20 V DC to 130 V DC or 24 V AC to 230 V AC
10	X2c-D5	Assignment depends on the program, 20 V DC to 130 V DC or 24 V AC to 230 V AC
11	X2c-D6	Assignment depends on the program, 20 V DC to 130 V DC or 24 V AC to 230 V AC
12	X2N-N, X2N-N	Shared neutral wire for digital inputs D1 to D6
13	LD1 to LD6	Status display of digital inputs D1 to D6
14	S2	DIP switch for selecting program-dependent functions and the 7-segment display
15	S1	DIP switch for setting the relevant program, and also for setting the installed outdoor unit model in programs 8 and 9
16	DS1, DS2, DS3	7-segment display
17	S3	Button (inoperative)
18	X3-S, X3-(-RV)	Analog input, analog signal to terminal S , GND to terminal -RV
19	S4	Pin header for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
20	S7	Pin header for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
21	X4	Bus connection for connecting to a CompTrol Master; necessary in combination with CompTrol Master
22	X2	Bus connection for connecting to a CompTrol Master; necessary in combination with CompTrol Master
23	S9	Pin header
24	S8	Pin header
25	LD11 to LD13	Status display for digital outputs X4a-I , X4b-II , and X4c-III
26	S5	Pin header for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)
27	S6	Pin header for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)

4.2 CompTrol Interface electrical supply

The CompTrol Interface has two types of electrical supply. It can be supplied with power by either the X/Y remote control bus **X1** (terminals **X1-X**, **X1-Y**) or an external power supply unit (terminals **X5-(+)** and **X5-(-)**). The type of electrical supply is determined by the position of the jumpers on pin headers **S5** and **S6** (see “Table 5: Type of electrical supply” on page 18).

4.2.1 Pin headers S5 and S6

Type of electrical supply

The position of the jumpers on pin headers **S5** and **S6** determines the current type of electrical supply.

S5	S6	Electrical supply via X1	S5	S6	Electrical supply via X5
		Electrical supply via X/Y remote control bus			External electrical supply via terminals X5-(+) and X5-(-)

Table 5: Type of electrical supply

Note

- If the CompTrol Interface is connected to a CompTrol Master via terminals **X2** and **X4**, it must be supplied with power via an external power supply unit.
- An external power supply unit is not included in the product package; see CompTrol Master Technical Manual.

4.2.2 Electrical supply via X/Y remote control bus (terminal X1) for a CompTrol Interface expansion module that is not in combination with a CompTrol Master expansion module

The X/Y remote control bus is designed as a power bus with reverse polarity protection, and supplies the CompTrol Interface with the required operating voltage (see “Table 5: Type of electrical supply” on page 18). An external power supply unit is not required.

4.2.3 Electrical supply via terminal X5 for a CompTrol Interface expansion module in combination with a CompTrol Master expansion module

When combined with a CompTrol Master, the CompTrol Interface must be supplied with the necessary operating voltage via an external electrical supply (terminals **X5-(+)** and **X5-(-)**) (see “Table 5: Type of electrical supply” on page 18). Terminal **X5** does not have reverse polarity protection. An electrical supply via the X/Y remote control bus is not possible. An external power supply unit is required.

4.3 Communication connections

The CompTrol Interface has two bus systems. The remote control, indoor unit, and CompTrol Interface communicate with one another via the X/Y remote control bus **X1** (terminals **X1-X**, **X1-Y**). One CompTrol Master can communicate with a maximum of five CompTrol Interfaces via the CompTrol Interface bus (terminals **X2**, **X4**).

4.3.1 Pin headers S8 and S9

The position of the jumpers on pin headers **S8** and **S9** determines whether the CompTrol Interface is in the middle or at the end of the CompTrol Interface bus. The pin headers only need to be set if the CompTrol Interface is connected to a CompTrol Master (see CompTrol Master TM).

4.4 Types of connection

4.4.1 Analog input X3

An analog signal (4 to 20 mA, 0 to 20 mA, 0 to 5 V DC, or 0 to 10 V DC) at analog input **X3-S** determines the temperature or frequency setpoint, depending on which program is selected. The analog signal uses the ground connection **X3-(-RV)** as a reference.

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type.

S4	S7	Analog signal type	S4	S7	Analog signal type
		4-20 mA			0-20 mA
		0-10 V DC			0-5 V DC

Table 6: Analog signal type

The DC signal is evaluated proportionally at analog input **X3-S**. The referenced value tables are program-dependent and described together with the corresponding program.

4.4.2 Digital inputs X2a to X2N

The assignment of digital inputs varies depending on the program, and largely determines the behavior of the selected program.

All digital inputs are electrically isolated. The input voltage range is 20 V DC to 130 V DC or 24 V AC to 230 V AC. The current status of the digital inputs is indicated by LEDs (**LD1** to **LD6**).

4.4.3 Digital outputs X4a to X4c

Each of the three digital outputs **X4a-I**, **X4b-II**, and **X4c-III** is designed as a volt-free relay contact. They have a load capacity of 230 V AC/130 V DC, 0.5 A. The switched state of the relays is indicated by LEDs (**LD11** to **LD13**). A lit LED indicates that the corresponding relay is energized and the contact is closed.

A relay's switched state changes when the condition for a signal is met. You can configure which signal is supplied at each output for your program using DIP switch **S2-2**. The switching function of the relays can be inverted with DIP switch **S2-6**. See descriptions of the individual programs for more details.

4.4.4 X/Y remote control bus X1

X1-X and **X1-Y** are the connection terminals for the X/Y remote control bus. This bus enables communication between the remote control, indoor unit, and CompTrol Interface.

The X/Y remote control bus is designed as a power bus with reverse polarity protection, and supplies the CompTrol Interface with the required operating voltage (see “4.2 CompTrol Interface electrical supply” on page 18).

4.4.5 Bus connections X2 and X4

X2 and **X4** are the bus connectors of the CompTrol Interface. Via this bus, the CompTrol Master and a maximum of five CompTrol Interfaces can communicate with one another (see CompTrol Interface Technical Manual). Bus connections **X2** and **X4** form a serial I²C data bus.

4.4.6 External electrical supply X5

X5-(+) and **X5-(-)** are the connection terminals for the external electrical supply. Terminal **X5** does not have reverse polarity protection. This type of electrical supply is required if the CompTrol Interface is connected to a CompTrol Master via terminals **X2** and **X4** (see “4.2 CompTrol Interface electrical supply” on page 18).

4.5 DIP switch S1

DIP switch **S1** is used to select the program, and also to set the installed outdoor unit model in programs 8 and 9.

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

DIP switches **S1-1** to **S1-4** are used to set the desired program.

S1-1	S1-2	S1-3	S1-4	Program	Designation
OFF	OFF	OFF	OFF	0	Temperature setpoint definition via analog signal
OFF	ON	OFF	OFF	2	Temperature setpoint definition with window contact function
ON	ON	OFF	OFF	3	Temperature setpoint definition for equipment rooms with temperature limit alarm
OFF	OFF	ON	OFF	4	Temperature setpoint definition with hotel remote control function
ON	OFF	ON	OFF	5	Temperature setpoint definition with lockout function
OFF	ON	ON	OFF	6	Temperature setpoint definition for heat exchanger connection module

S1-1	S1-2	S1-3	S1-4	Program	Designation
ON	ON	ON	OFF	7	Temperature setpoint definition without signal boundary value monitoring
OFF	OFF	OFF	ON	8	Direct frequency request
ON	OFF	OFF	ON	9	Direct frequency request with cascading
OFF	ON	OFF	ON	10	Direct frequency request with the CompTrol Master

Table 7: Program selection via DIP switches

When starting up, the number of the selected program will appear on the 7-segment display for approximately 1 second, see “17.5 Starting up the CompTrol Interface expansion module” on page 100.

4.6 DIP switch S2

DIP switches **S2-1** to **S2-6** configure program-specific functions. DIP switches **S2-7** and **S2-8** configure the behavior of the 7-segment display. You can find the precise DIP switch configurations in the section dealing with each program.

4.7 7-segment display

The CompTrol Interface features a three-digit 7-segment display. DIP switches **S2-7** and **S2-8** determine which values are shown in the display:

S2-7	S2-8	In programs 0 and 2 to 7	In programs 8 to 10
OFF	OFF	Temperature setpoint (°C)	Frequency setpoint (Hz)
ON	OFF	Temperature actual value (°C)	Frequency actual value (Hz) (can only be displayed if the CompTrol Interface is set as the master via S2-1 . No other unit may be set as the master in the X/Y remote control bus!)
OFF	ON	Fan speed (F1 , F2 , F3)	
ON	ON	Displays error codes of air conditioning units or of the CompTrol Interface	

Table 8: 7-segment display

4.8 CompTrol Interface connection diagram

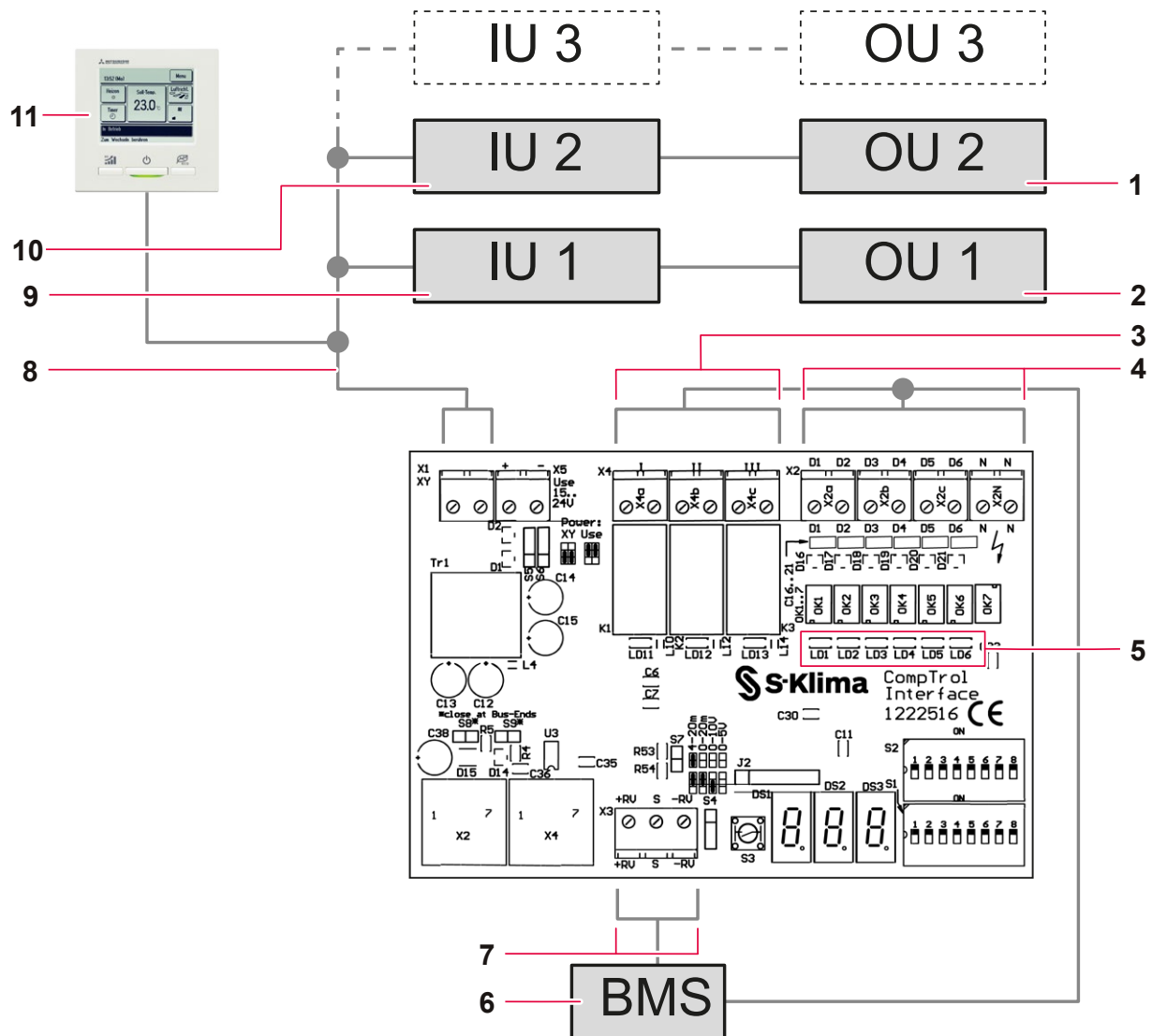


Figure 5: CompTrol Interface connection diagram

No.	Name	No.	Name
1	2nd outdoor unit	2	1st outdoor unit
3	Volt-free digital outputs	4	Digital inputs
5	LEDs for indicating the status of digital inputs	6	Control unit of building services management system (BMS)
7	Analog input	8	X/Y remote control bus
9	1st indoor unit	10	2nd indoor unit
11	Wired remote control RC-EX1 or RC-EX3	-	-

5 Functions of the CompTrol Interface expansion module

5.1 Functions of analog input X3

Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4**.

5.1.1 Temperature setpoint definition via analog signal

When an analog signal is applied to analog input **X3-S**, a temperature setpoint between 18 °C and 30 °C is specified for the indoor units. The table listing the correlations between analog signal type and temperature can be found in the relevant program description.

Temperature setpoint definition is possible in the following programs:

- Program 0 and programs 2 to 7.

5.1.2 Direct frequency request via an analog signal

When an analog signal (4 to 20 mA, 0 to 20 mA, 0 to 5 V DC, or 0 to 10 V DC) is applied to analog input **X3-S**, a frequency setpoint is specified for the compressor in the outdoor unit. The frequency setpoint for the outdoor unit in question is permanently stored in the CompTrol Interface. The CompTrol Interface is set to the correct outdoor unit model via DIP switches **S1-5** to **S1-8**. More information on setting the outdoor unit model via DIP switches **S1-5** to **S1-8** can be found in the description of programs 8, 9, and 10.

Direct frequency request is possible in the following programs:

- Programs 8, 9, and 10.

For a direct frequency request with cascading, the compressor frequencies of two outdoor units can be adjusted via an analog signal from an external controller. The options “Cascading without signal overlap” and “Cascading with signal overlap” can be selected via DIP switches.

Direct frequency request with cascading is possible in the following program:

- Program 9.

Direct frequency request with the CompTrol Master is possible in the following program:

- Program 10 (CompTrol Interface V4.0.3 and higher).

Direct frequency request is available with the following unit series from Mitsubishi Heavy Industries:

- FDS series,
- S series.

5.1.3 Resistive circuit

If a fixed temperature setpoint is to be transferred to the indoor units, two fixed resistors or two potentiometers can be connected to analog inputs **X3-S + X3-(+RV)** and **X3-S + X3-(-RV)** to act as voltage dividers. A temperature setpoint between 18 °C and 30 °C can be specified.

Resistive circuit operation for analog input is possible in the following programs:

- Program 0 and programs 2 to 7.

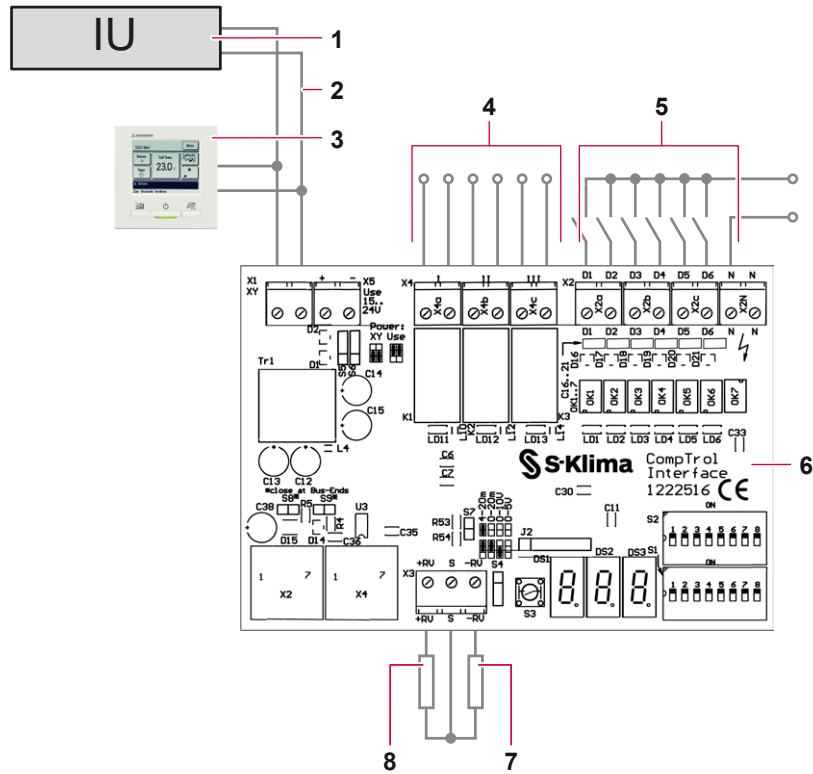


Figure 6: Resistive circuit at analog input X3-S

No.	Name	No.	Name
1	Indoor unit	2	X/Y remote control bus
3	Wired remote control RC-EX1 or RC-EX3	4	Volt-free digital outputs
5	Digital inputs	6	CompTrol Interface expansion module
7	Resistor R1	8	Resistor R2

The required resistance values from row E24 are listed in the table below:

R1 [Ω]	R2 [Ω]	Temperature setpoint [$^{\circ}\text{C}$]
5100	0	18
4700	200	18.5
4700	430	19
4300	620	19.5
4300	820	20
3900	1100	20.5
3600	1200	21
3600	1500	21.5
3300	1600	22
3000	1800	22.5
3000	2200	23
2700	2200	23.5
2400	2400	24
2200	2700	24.5
2200	3000	25
1800	3000	25.5
1600	3300	26
1500	3600	26.5
1200	3600	27
1100	3900	27.5
820	4300	28
620	4300	28.5
430	4700	29
200	4700	29.5
0	5100	30

Table 9: Resistance values for voltage dividers

5.2 Functions via the digital inputs

5.2.1 Evaluating the analog input

When a signal is applied to digital input **X2b-D4**, analog input **X3-S** is evaluated. Depending on the program, the analog signal is translated into a temperature or frequency setpoint. If no signal is applied to **X2b-D4**, the analog input is not evaluated. In this case, the corresponding setpoint can be specified via the wired remote control.

Analog input evaluation is possible in the following programs:

- Program 0 and programs 2 to 9.

5.2.2 Remote ON/OFF

When a signal is applied to digital input **X2a-D1**, the indoor unit is switched on. If no signal is applied to **X2a-D1**, the indoor unit is switched off.

Digital input **X2a-D1** can additionally be set to forced mode (see “5.3.2 Forced mode” on page 27).

5.2.3 Autoswing function

When a signal is applied to the digital input, the louvered flaps of the indoor units are switched to autoswing mode. The corresponding digital input is specified in the program description.

The autoswing function is available in the following program:

- Program 4.

5.2.4 Center/Center-Remote

When a signal is applied to digital input **X2b-D3**, Center mode is activated. When Center mode is active, the indoor unit can only be operated via the CompTrol Interface. It cannot be operated via the wired remote control.

When no signal is applied to digital input **X2b-D3**, Center-Remote mode is activated. When Center-Remote mode is active, the indoor unit can be operated by both the CompTrol Interface and the wired remote control.

Center mode and Center-Remote mode are available in the following programs:

- Programs 3, 5, 8, and 9.

5.2.5 Mode selection (Cooling/Heating/Fan)

If a signal is present at the corresponding digital input, the operating mode cannot be overridden by the wired remote control. This affects Cooling, Heating, or Fan modes, depending on the program.

Each program features mode selection. You can find further details on the correlation between operating modes and digital inputs in the relevant program description.

5.2.6 Preset fan speed

Activating digital inputs **X2c-D5** and **X2c-D6** enables three fixed fan speeds to be set. If the “Preset fan speed” function is active, the fan speed can no longer be adjusted using the wired remote control.

The “Preset fan speed” function is available in the following programs:

- Programs 0 and 2 to 9.

5.3 Special functions

5.3.1 Automatic fan speed control

DIP switch **S2-4** activates automatic fan speed control.

Automatic fan speed control changes the fan speed. It adjusts the fan speed depending on the temperature. The temperature setpoint and temperature actual value are compared and the fan speed adjusted accordingly if they differ. If automatic fan speed control is active, digital inputs **D5** and **D6** “Preset fan speed” are ignored.

The following differences in temperature cause the fan speed to change:

Temperature difference	Fan speed
< 2 K	F1
2 to 3 K	F2
> 3 K	F3

Table 10: Fan speeds dependent on temperature difference

Automatic fan speed control is available in programs 0, 2 and 4 to 7.

5.3.2 Forced mode

When forced mode is activated, the current status of digital input **D1** is constantly transferred to the indoor unit via the X/Y remote control bus. The indoor unit can then no longer be switched via the relevant wired remote control.

This function is activated/deactivated via DIP switch **S2-5**.

Forced mode can be enabled in the following programs:

- Programs 0 and 3 to 9.

5.3.3 Inversion of digital outputs

DIP switch **S2-6** determines the logic behavior of the relays. The switching function of the relays can be inverted with DIP switch **S2-6**. Options “NO” and “NC” are available. The position of DIP switch **S2-6** always affects all digital outputs simultaneously. It is not possible to invert a single digital output.

NO (normally open)

If no signal is present, the relay is de-energized and the contact is open. If a signal is present, the relay is energized and the contact is closed.

NC (normally closed)

If no signal is present, the relay is energized and the contact is closed. If a signal is present, the relay is de-energized and the contact is open.

Inversion of digital outputs is possible in all programs.

5.3.4 Signal boundary value monitoring

If a signal exceeds or falls below a boundary value at analog input **X3-S**, the temperature setpoint 23 °C is transferred to the indoor units. The temperature setpoint 23 °C is also transferred if analog input **X3-S** is open.

The relevant types of analog signal and the signal boundary values are set out in the table below:

Analog signal type	Signal boundary value	Specified temperature setpoint
4-20 mA	≤ 4.3 / > 19.7 mA	23 °C
0-20 mA	≤ 0.4 / > 19.6 mA	23 °C
0-10 V DC	≤ 0.2 / > 9.8 V DC	23 °C
0-5 V DC	≤ 0.1 / > 4.9 V DC	23 °C

Table 11: Signal boundary values for signal boundary value monitoring

Signal boundary value monitoring is possible in the following programs:

- Program 0 and programs 2 to 5.

5.3.5 Status of the CompTrol Interface (master/slave) in the X/Y remote control bus

DIP switch **S2-1** determines the status of the CompTrol Interface in the X/Y remote control bus. If the CompTrol Interface is to be used as a remote control, it must be configured as a slave.

Master

The CompTrol Interface is the master and controls the indoor unit in the X/Y remote control bus. The wired remote control has slave status. The operating parameters cannot be read out on the wired remote control.

Slave

The wired remote control is the master and controls the indoor unit in the X/Y remote control bus. The operating parameters can be read out on the wired remote control. The CompTrol Interface has slave status. Depending on the program, certain operating parameters can be displayed on the CompTrol Interface.

Note

There can only ever be one master in an X/Y remote control bus.

- If the CompTrol Interface is configured as master in the X/Y remote control bus, the wired remote control must be configured as slave, and vice versa.
- If the status of the CompTrol Interface changes, always check the status of the other users in the X/Y remote control bus.

If more than one user in the same X/Y remote control bus is configured as a master or slave, the users will not be able to communicate with one another. This permanently disrupts operation!

The master/slave function is available in all programs.

5.3.6 Alarm signal

All alarms registered by the indoor unit, plus internal expansion module alarms, are emitted via digital output **X4a-I**. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).

The alarm signal function is active in all programs.

5.3.7 Status signals

Different status signals are emitted via the digital outputs, depending on the program. They are emitted via digital outputs **X4b-II** and **X4c-III**. You can see which signals are emitted in the relevant program description. You can set which of the two signals is emitted via an output using DIP switches **S2-2**, **S2-3**, or **S2-4**.

The following status signals are available:

- Compressor signal
The compressor signal is emitted as long as the compressor in the outdoor unit is running.
- Defrost signal
The defrost signal is emitted as long as the outdoor unit is in defrosting mode.
- The operating signal is emitted as long as the indoor unit is switched on.
- Heating signal
The heating signal is emitted as long as the indoor unit is in Heating mode.
- Temperature limit alarm
The temperature limit alarm is displayed as long as the limit value is exceeded (program 3 only).
- Window contact signal
The window contact signal indicates whether connected windows are open.

6 Program overview

The CompTrol Interface offers nine different programs for adapting the expansion module to individual requirements. The programs are activated via DIP switches **S1-1** to **S1-4**. You can find the precise DIP switch configurations in the section dealing with each program or as a summary in “Table 7: Program selection via DIP switches” on page 21.

The following programs are available:

Program	Description
Program 0	Temperature setpoint definition via analog signal
Program 2	Temperature setpoint definition with window contact function
Program 3	Temperature setpoint definition for equipment rooms with temperature limit alarm
Program 4	Temperature setpoint definition with hotel remote control function
Program 5	Temperature setpoint definition with lockout function
Program 6	Temperature setpoint definition for heat exchanger connection module
Program 7	Temperature setpoint definition without signal boundary value monitoring
Program 8	Direct frequency request
Program 9	Direct frequency request with cascading
Program 10	Direct frequency request with the CompTrol Master

Table 12: Program overview

7 Program 0 – temperature setpoint definition via analog signal

7.1 Description

The temperature setpoint of the indoor unit can be adjusted via an analog signal from an external controller. The setpoint is adjusted in +/- 0.5°K increments (see “Table 15: Value table for program 0 temperature setpoint” on page 34).

The functions of automatic fan speed control, forced mode, and inversion of digital outputs can optionally be used.

In addition, the digital inputs can be used to switch on the Cooling, Heating, or Fan modes and to adjust the fan speed. The indoor unit can be switched on or off using remote ON/OFF.

The operating, heating, compressor, and defrost status signals are emitted via the digital outputs. In the event of a system error, an alarm signal is emitted via a digital output.

7.2 Configuring the CompTrol Interface for program 0

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

7.2.1 Connection diagram for program 0

Note

Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

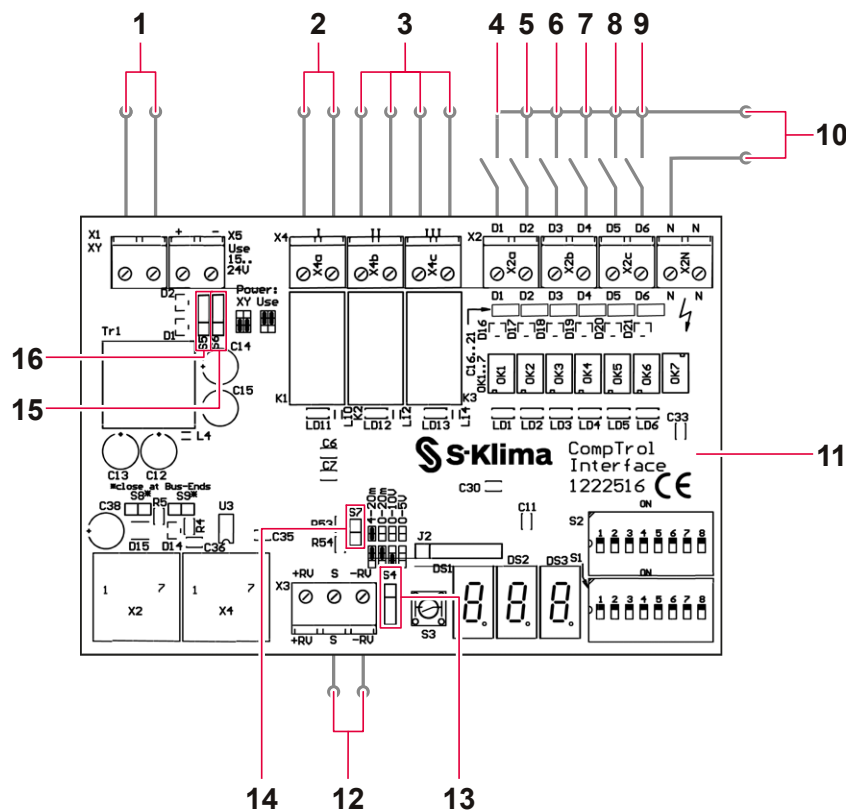


Figure 7: Connection diagram for program 0

No.	Name	No.	Name
1	X/Y remote control bus	2	Digital outputs X4a-I Alarm signal
3	Digital outputs X4b-II, X4c-III (see "Table 17: Digital outputs in program 0" on page 35)	4	Digital input X2a-D1 Remote ON/OFF
5	Digital input X2a-D2 Cooling mode; D2+D3 Fan mode	6	Digital input X2b-D3 Heating mode; D2+D3 Fan mode
7	Digital input X2b-D4 Evaluate analog input	8	Digital input X2c-D5 Fan speed F1 ; D5+D6 Fan speed F3
9	Digital input X2c-D6 Fan speed F2 ; D5+D6 Fan speed F3	10	Input voltage 24-230 V AC / 20-130 V DC
11	CompTrol Interface expansion module	12	Analog input X3-S, X3-(-RV)
13	Pin header S4 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)	14	Pin header S7 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
15	Pin header S6 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)	16	Pin header S5 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)

7.2.2 Setting program 0 on DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
OFF	OFF	OFF	OFF	Program 0: Temperature setpoint definition via analog signal

Table 13: DIP switch setting for program 0

7.2.3 Setting the functions for program 0 via DIP switch S2

The following table lists the functions for program 0 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON	CompTrol Interface is configured as master in the X/Y remote control bus
	OFF	CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON	X4b-II , operating signal; X4c-III , heating signal
	OFF	X4b-II , compressor signal; X4c-III , defrost signal
S2-3	OFF	Inoperative, switch setting is always OFF
S2-4	ON	Automatic fan speed control
	OFF	Inoperative
S2-5	ON	Forced mode
	OFF	Inoperative
S2-6	ON	All digital outputs are closed without a signal (NC).
	OFF	All digital outputs are open without a signal (NO).
S2-7	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	
S2-8	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	

Table 14: Functions in program 0

7.2.4 Setting the analog signal type on S4 and S7

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type (see “4.4.1 Analog input X3” on page 19).

7.3 Analog input

Note

- If a signal exceeds or falls below a boundary value at analog input **X3-S**, the temperature setpoint 23 °C is transferred. (see “5.3.4 Signal boundary value monitoring” on page 27)
- Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4** (see “5.1 Functions of analog input X3” on page 23).

The temperature setpoint is determined at analog input **X3-S** as shown in the following table:

Temperature setpoint [°C]	Analog signal type			
	0-10 V DC [V DC]	0-5 V DC [V DC]	0-20 mA [mA]	4-20 mA [mA]
23	≤ 0.2	≤ 0.1	≤ 0.4	≤ 4.3
18	> 0.2	> 0.1	> 0.4	> 4.3
18.5	0.6	0.3	1.2	5
19	1	0.5	2	5.6
19.5	1.4	0.7	2.8	6.2
20	1.8	0.9	3.6	6.9
20.5	2.2	1.1	4.4	7.5
21	2.6	1.3	5.2	8.2
21.5	3	1.5	6	8.8
22	3.4	1.7	6.8	9.4
22.5	3.8	1.9	7.6	10.1
23	4.2	2.1	8.4	10.7
23.5	4.6	2.3	9.2	11.4
24	5	2.5	10	12
24.5	5.4	2.7	10.8	12.6
25	5.8	2.9	11.6	13.3
25.5	6.2	3.1	12.4	13.9
26	6.6	3.3	13.2	14.6
26.5	7	3.5	14	15.2
27	7.4	3.7	14.8	15.8
27.5	7.8	3.9	15.6	16.5
28	8.2	4.1	16.4	17.1
28.5	8.6	4.3	17.2	17.8
29	9	4.5	18	18.4
29.5	9.4	4.7	18.8	19
30	9.8	4.9	19.6	19.7
23	> 9.8	> 4.9	> 19.6	> 19.7

Table 15: Value table for program 0 temperature setpoint

7.4 Digital input assignment in program 0

Input	Function	Description
X2a-D1	Remote ON/OFF	The indoor unit or group of indoor units can be switched on and off via the digital input. Forced mode can be activated with DIP switch S2-5 (see “5.2.2 Remote ON/OFF” on page 26).
X2a-D2	Cooling mode	The signal switches the indoor unit to Cooling mode. The mode can then no longer be changed using the wired remote control.
X2b-D3	Heating mode	The signal switches the indoor unit to Heating mode. The mode can then no longer be changed using the wired remote control.
X2a-D2 and X2b-D3	Fan mode	When both the heating and cooling signals are applied simultaneously, the indoor unit switches to Fan mode. The mode can then no longer be changed using the wired remote control.
X2b-D4	Analog input evaluation	Analog input X3-S is only evaluated if a signal is applied to X2b-D4 (see “5.2.1 Evaluating the analog input” on page 25). If no signal is applied, a setpoint can be specified via the wired remote control.
X2c-D5	Fan speed F1 (low)	The signal switches the indoor unit to fan speed F1 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D5 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D6	Fan speed F2 (medium)	The signal switches the indoor unit to fan speed F2 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D6 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D5 and X2c-D6	Fan speed F3 (high)	If fan speed F1 and fan speed F2 signals are both applied simultaneously, the indoor unit switches to fan speed F3 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital inputs D5 and D6 are no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).

Table 16: Digital inputs in program 0

7.5 Digital output assignment in program 0

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the indoor unit, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Defrost signal/heating signal	Either a defrost signal or heating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).

Table 17: Digital outputs in program 0

8 Program 2 – temperature setpoint definition with window contact function

8.1 Description

The temperature setpoint of the indoor unit can be adjusted via an analog signal from an external controller. The setpoint is adjusted in +/- 0.5°K increments (see “Table 20: Value table for program 2 temperature setpoint” on page 39).

When the window is opened, the window contact signal at digital input **X2a-D1** is interrupted and switches the running indoor unit off. What happens next depends on the **Auto ON** function (see “8.4 Window contact function Auto ON” on page 40).

The functions of automatic fan speed control and inversion of digital outputs can optionally be used.

In addition, the digital inputs can be used to switch on the Cooling, Heating, or Fan modes and to adjust the fan speed. The indoor unit can be switched on or off using remote ON/OFF.

The operating or compressor status signals and window contact signal are emitted via the digital outputs. In the event of a system error, an alarm signal is emitted via a digital output.

8.2 Configuring the CompTrol Interface for program 2

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

8.2.1 Connection diagram for program 2

Note

Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

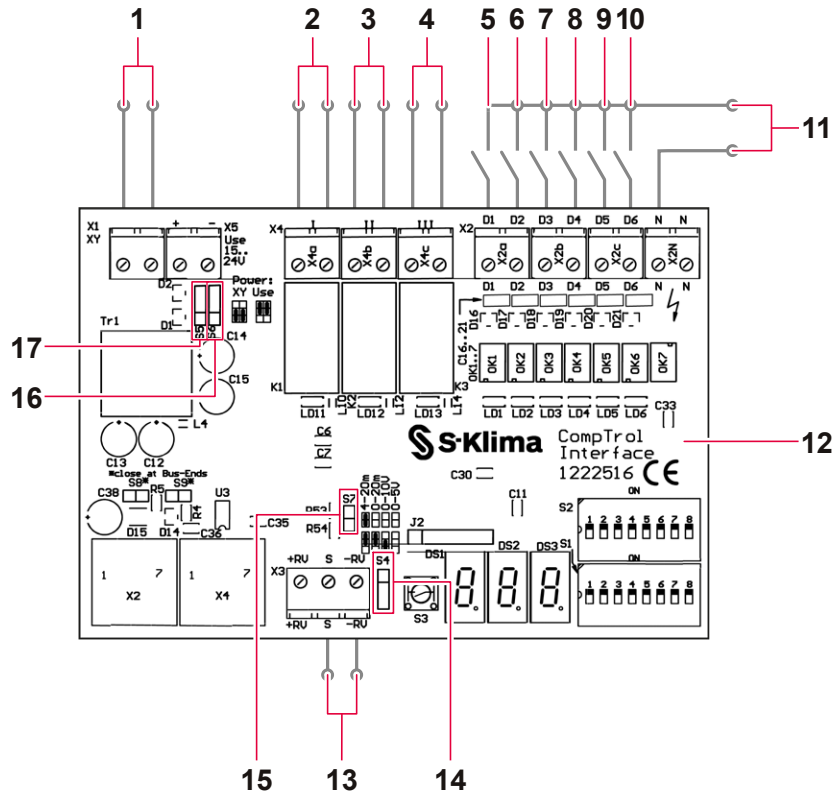


Figure 8: Connection diagram for program 2

No.	Name	No.	Name
1	X/Y remote control bus	2	Digital outputs X4a-I Alarm signal
3	Digital outputs X4b-II (see "Table 22: Digital outputs in program 2" on page 41)	4	Digital outputs X4c-III Window contact signal
5	Digital input X2a-D1 Window contact signal	6	Digital input X2a-D2 Cooling mode; D2+D3 Fan mode
7	Digital input X2b-D3 Heating mode; D2+D3 Fan mode	8	Digital input X2b-D4 Evaluate analog input
9	Digital input X2c-D5 Fan speed F1 ; D5+D6 Fan speed F3	10	Digital input X2c-D6 Fan speed F2 ; D5+D6 Fan speed F3
11	Input voltage 24-230 V AC / 20-130 V DC	12	CompTrol Interface expansion module
13	Analog input X3-S, X3-(-RV)	14	Pin header S4 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
15	Pin header S7 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)	16	Pin header S6 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)
17	Pin header S5 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)	-	-

8.2.2 Setting program 2 via DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
OFF	ON	OFF	OFF	Program 2: Temperature setpoint definition with window contact function

Table 18: DIP switch setting for program 2

8.2.3 Setting functions for program 2 via DIP switch S2

The following table lists the functions for program 2 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON OFF	CompTrol Interface is configured as master in the X/Y remote control bus CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON OFF	X4b-II, operating signal; X4c-III, window contact signal X4b-II, compressor signal; X4c-III, window contact signal
S2-3	ON OFF	Window contact: Auto ON switched on Window contact: Auto ON switched off
S2-4	ON OFF	Automatic fan speed control Inoperative
S2-5	OFF	Inoperative, switch setting is always OFF
S2-6	ON OFF	All digital outputs are closed without a signal (NC) All digital outputs are open without a signal (NO)
S2-7	ON OFF	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
S2-8	ON OFF	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).

Table 19: Functions in program 2

8.2.4 Setting the analog signal type on S4 and S7

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type (see “4.4.1 Analog input X3” on page 19).

8.3 Analog input

Note

- If a signal exceeds or falls below a boundary value at analog input **X3-S**, the temperature setpoint 23 °C is transferred. (see “5.3.4 Signal boundary value monitoring” on page 27)
- Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4** (see “5.1 Functions of analog input X3” on page 23).

The temperature setpoint is determined at analog input **X3-S** as shown in the following table:

Temperature setpoint [°C]	Analog signal type			
	0-10 V DC [V DC]	0-5 V DC [V DC]	0-20 mA [mA]	4-20 mA [mA]
23	≤ 0.2	≤ 0.1	≤ 0.4	≤ 4.3
18	> 0.2	> 0.1	> 0.4	> 4.3
18.5	0.6	0.3	1.2	5
19	1	0.5	2	5.6
19.5	1.4	0.7	2.8	6.2
20	1.8	0.9	3.6	6.9
20.5	2.2	1.1	4.4	7.5
21	2.6	1.3	5.2	8.2
21.5	3	1.5	6	8.8
22	3.4	1.7	6.8	9.4
22.5	3.8	1.9	7.6	10.1
23	4.2	2.1	8.4	10.7
23.5	4.6	2.3	9.2	11.4
24	5	2.5	10	12
24.5	5.4	2.7	10.8	12.6
25	5.8	2.9	11.6	13.3
25.5	6.2	3.1	12.4	13.9
26	6.6	3.3	13.2	14.6
26.5	7	3.5	14	15.2
27	7.4	3.7	14.8	15.8
27.5	7.8	3.9	15.6	16.5
28	8.2	4.1	16.4	17.1
28.5	8.6	4.3	17.2	17.8
29	9	4.5	18	18.4
29.5	9.4	4.7	18.8	19
30	9.8	4.9	19.6	19.7
23	> 9.8	> 4.9	> 19.6	> 19.7

Table 20: Value table for program 2 temperature setpoint

8.4 Window contact function Auto ON

If no signal is applied at digital input **X2a-D1**, the running indoor unit switches off as soon as a window with a connected window contact is opened. The air conditioning unit cannot be switched back on as long as the window remains open. What happens next depends on whether the **Auto ON** function is activated.

Auto ON function deactivated:

- Indoor unit is running.
- Window is opened.

Indoor unit switches off. As long as the window remains open, the indoor unit cannot be switched on again via the wired remote control.

- Window is closed.

Indoor unit remains off but can be switched on again via the wired remote control.

Auto ON function activated:

- Indoor unit is running.
- Window is opened.

Indoor unit switches off. As long as the window remains open, the indoor unit cannot be switched on again via the wired remote control.

- Window is closed.

Indoor unit switches on again if it was running before the window was opened.

If the indoor unit was off before the window was opened, it stays off.

8.5 Digital input assignment in program 2

Input	Function	Description
X2a-D1	Window contact signal	The interrupted signal switches off the running indoor unit. The unit cannot be switched on while the window contact signal is interrupted (see “8.4 Window contact function Auto ON” on page 40).
X2a-D2	Cooling mode	The signal switches the indoor unit to Cooling mode. The mode can then no longer be changed using the wired remote control.
X2b-D3	Heating mode	The signal switches the indoor unit to Heating mode. The mode can then no longer be changed using the wired remote control.
X2a-D2 and X2b-D3	Fan mode	When both the heating and cooling signals are applied simultaneously, the indoor unit switches to Fan mode. The mode can then no longer be changed using the wired remote control.
X2b-D4	Analog input evaluation	Analog input X3-S is only evaluated if a signal is applied to X2b-D4 (see “5.2.1 Evaluating the analog input” on page 25). If no signal is applied, a setpoint can be specified via the wired remote control.
X2c-D5	Fan speed F1 (low)	The signal switches the indoor unit to fan speed F1 . The fan speed can then no longer be changed using the wired remote control.
X2c-D6	Fan speed F2 (medium)	The signal switches the indoor unit to fan speed F2 . The fan speed can then no longer be changed using the wired remote control.
X2c-D5 and X2c-D6	Fan speed F3 (high)	If fan speed F1 and fan speed F2 signals are both applied simultaneously, the indoor unit switches to fan speed F3 . The fan speed can then no longer be changed using the wired remote control.

Table 21: Digital inputs in program 2

8.6 Digital output assignment in program 2

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the indoor unit, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/ operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Window contact signal	The window contact signal is emitted as long as the window remains open.

Table 22: Digital outputs in program 2

9 Program 3 – temperature setpoint definition for equipment rooms with temperature limit alarm

9.1 Description

The temperature setpoint of the indoor unit can be adjusted via an analog signal from an external controller. The setpoint is adjusted in +/- 0.5°K increments (see “Table 25: Value table for program 3 temperature setpoint” on page 45). If the temperature limit is exceeded, a status signal is output (see “5.3.7 Status signals” on page 29).

The functions of forced mode and inversion of digital outputs can optionally be used. In addition, the digital inputs can be used to switch on Cooling mode and adjust the fan speed. The indoor unit can be switched on or off using remote ON/OFF. Using the Center command, operation of the wired remote control can be disabled for the user.

The digital outputs emit status signals such as operating, compressor, and temperature limit alarms. In the event of a system error, an alarm signal is emitted via a digital output.

9.2 Configuring the CompTrol Interface for program 3

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

9.2.1 Connection diagram for program 3

Note

Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

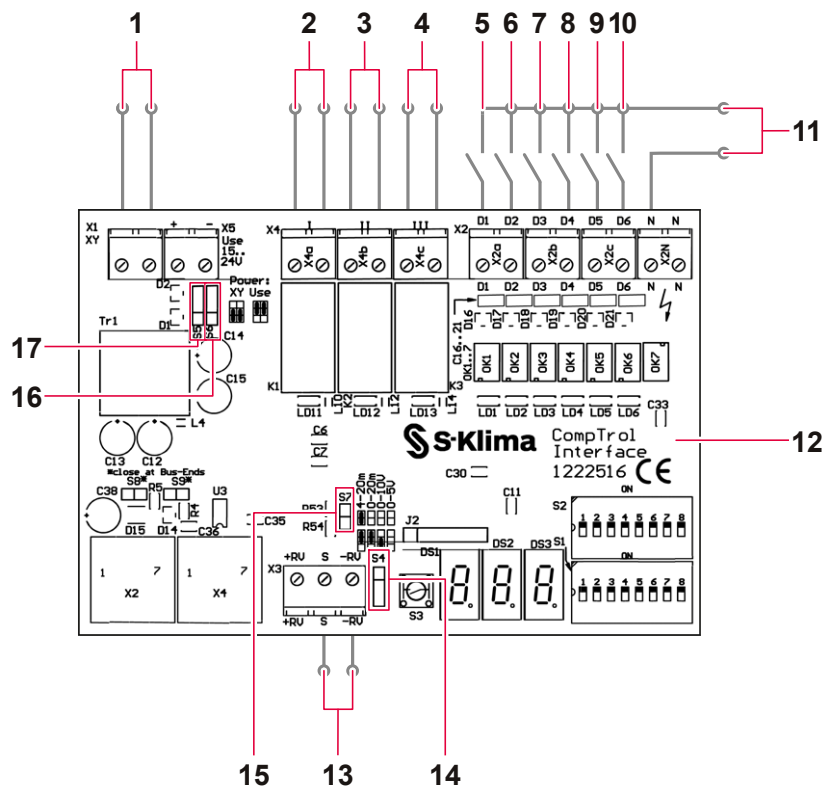


Figure 9: Connection diagram for program 3

No.	Name	No.	Name
1	X/Y remote control bus	2	Digital outputs X4a-I Alarm signal
3	Digital outputs X4b-II (see "Table 28: Digital outputs in program 3" on page 47)	4	Digital outputs X4c-III Temperature limit alarm
5	Digital input X2a-D1 Remote ON/OFF	6	Digital input X2a-D2 Cooling mode
7	Digital input X2b-D3 Center/Center-Remote	8	Digital input X2b-D4 Evaluate analog input
9	Digital input X2c-D5 Fan speed F1 ; D5+D6 Fan speed F3	10	Digital input X2c-D6 Fan speed F2 ; D5+D6 Fan speed F3
11	Input voltage 24-230 V AC / 20-130 V DC	12	CompTrol Interface expansion module
13	Analog input X3-S , X3-(-RV)	14	Pin header S4 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
15	Pin header S7 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)	16	Pin header S6 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)
17	Pin header S5 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)	-	-

9.2.2 Setting program 3 via DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
ON	ON	OFF	OFF	Program 3: Temperature setpoint definition for equipment rooms with temperature limit alarm

Table 23: DIP switch setting for program 3

9.2.3 Setting functions for program 3 via DIP switch S2

The following table lists the functions for program 3 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON OFF	CompTrol Interface is configured as master in the X/Y remote control bus CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON OFF	X4b-II, operating signal; X4c-III, temperature limit alarm X4b-II, compressor signal; X4c-III, temperature limit alarm
S2-3	ON OFF	For setting the temperature limit value (see “9.4 Setting the temperature limit value via DIP switch S2” on page 45).
S2-4	ON OFF	For setting the temperature limit value (see “9.4 Setting the temperature limit value via DIP switch S2” on page 45).
S2-5	ON OFF	Forced mode Inoperative
S2-6	ON OFF	All digital outputs are closed without a signal (NC) All digital outputs are open without a signal (NO)
S2-7	ON OFF	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
S2-8	ON OFF	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).

Table 24: Functions in program 3

9.2.4 Setting the analog signal type on S4 and S7

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type (see “4.4.1 Analog input X3” on page 19).

9.3 Analog input

Note

- If a signal exceeds or falls below a boundary value at analog input **X3-S**, the temperature setpoint 23 °C is transferred. (see “5.3.4 Signal boundary value monitoring” on page 27)
- Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4** (see “5.1 Functions of analog input X3” on page 23).

The temperature setpoint is determined at analog input **X3-S** as shown in the following table:

Temperature setpoint [°C]	Analog signal type			
	0-10 V DC [V DC]	0-5 V DC [V DC]	0-20 mA [mA]	4-20 mA [mA]
23	≤ 0.2	≤ 0.1	≤ 0.4	≤ 4.3
18	> 0.2	> 0.1	> 0.4	> 4.3
18.5	0.6	0.3	1.2	5
19	1	0.5	2	5.6
19.5	1.4	0.7	2.8	6.2
20	1.8	0.9	3.6	6.9
20.5	2.2	1.1	4.4	7.5
21	2.6	1.3	5.2	8.2
21.5	3	1.5	6	8.8
22	3.4	1.7	6.8	9.4
22.5	3.8	1.9	7.6	10.1
23	4.2	2.1	8.4	10.7
23.5	4.6	2.3	9.2	11.4
24	5	2.5	10	12
24.5	5.4	2.7	10.8	12.6
25	5.8	2.9	11.6	13.3
25.5	6.2	3.1	12.4	13.9
26	6.6	3.3	13.2	14.6
26.5	7	3.5	14	15.2
27	7.4	3.7	14.8	15.8
27.5	7.8	3.9	15.6	16.5
28	8.2	4.1	16.4	17.1
28.5	8.6	4.3	17.2	17.8
29	9	4.5	18	18.4
29.5	9.4	4.7	18.8	19
30	9.8	4.9	19.6	19.7
23	> 9.8	> 4.9	> 19.6	> 19.7

Table 25: Value table for program 3 temperature setpoint

9.4 Setting the temperature limit value via DIP switch S2

If the temperature limit value is exceeded, a temperature limit alarm is emitted at digital output **X4c-III**. The 7-segment display shows **OH**.

The temperature limit value can be adjusted in increments of 2 K in the range from 24 °C to 30 °C using DIP switches **S2-3** and **S2-4**.

Temperature limit value [°C]	S2-3	S2-4
24	OFF	OFF
26	ON	OFF
28	OFF	ON
30	ON	ON

Table 26: Setting the temperature limit value

9.5 Digital input assignment in program 3

Input	Function	Description
X2a-D1	Remote ON/OFF	The indoor unit or group of indoor units can be switched on and off via the digital input. Forced mode can be activated with DIP switch S2-5 (see “5.2.2 Remote ON/OFF” on page 26).
X2a-D2	Cooling mode	The signal switches the indoor unit to Cooling mode. The mode can then no longer be changed using the wired remote control.
X2b-D3	Center/ Center-Remote	When voltage is applied, the CompTrol Interface operates in Center mode and the wired remote control is disabled. Without voltage, the CompTrol Interface and the wired remote control operate in Center-Remote mode (see “5.2.4 Center/Center-Remote” on page 26).
X2b-D4	Analog input evaluation	Analog input X3-S is only evaluated if a signal is applied to X2b-D4 (see “5.2.1 Evaluating the analog input” on page 25). If no signal is applied, a setpoint can be specified via the wired remote control.
X2c-D5	Fan speed F1 (low)	The signal switches the indoor unit to fan speed F1 . The fan speed can then no longer be changed using the wired remote control.
X2c-D6	Fan speed F2 (medium)	The signal switches the indoor unit to fan speed F2 . The fan speed can then no longer be changed using the wired remote control.
X2c-D5 and X2c-D6	Fan speed F3 (high)	If fan speed F1 and fan speed F2 signals are both applied simultaneously, the indoor unit switches to fan speed F3 . The fan speed can then no longer be changed using the wired remote control.

Table 27: Digital inputs in program 3

9.6 Digital output assignment in program 3

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the indoor unit, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/ operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Temperature limit alarm	The temperature limit alarm is displayed for as long as the limit value is exceeded (see “5.3.7 Status signals” on page 29).

Table 28: Digital outputs in program 3

10 Program 4 – temperature setpoint definition with hotel remote control function

10.1 Description

The temperature setpoint of the indoor unit can be adjusted via an analog signal from an external controller. The setpoint is adjusted in +/- 0.5°K increments (see “Table 31: Value table for program 4 temperature setpoint” on page 51).

In addition, the digital inputs can be used to switch on Cooling or Heating modes and to adjust the fan speed.

The forced Heating and forced Cooling mode functions cannot be adjusted via the wired remote control.

The functions of automatic fan speed control, forced mode, inversion of digital outputs, and the louvered flap autoswing function can optionally be used.

The indoor unit can be switched on or off using remote ON/OFF.

The operating, compressor, heating, or defrost signals are emitted via the digital outputs. In the event of a system error, an alarm signal is emitted via a digital output.

10.2 Configuring the CompTrol Interface for program 4

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

10.2.1 Connection diagram for program 4

Note

Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

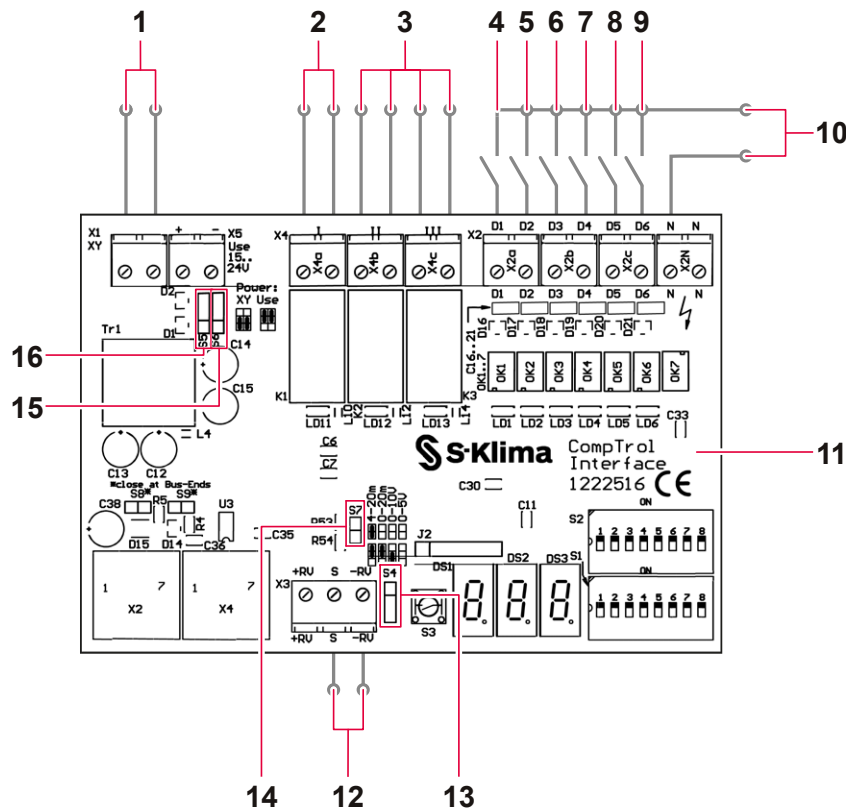


Figure 10: Connection diagram for program 4

No.	Name	No.	Name
1	X/Y remote control bus	2	Digital outputs X4a-I Alarm signal
3	Digital outputs X4b-II, X4c-III (see "Table 33: Digital outputs in program 4" on page 52)	4	Digital input X2a-D1 Remote ON/OFF
5	Digital input X2a-D2 Cooling/Heating mode	6	Digital input X2b-D3 Autoswing mode
7	Digital input X2b-D4 Evaluate analog input	8	Digital input X2c-D5 Fan speed F1 ; D5+D6 Fan speed F3
9	Digital input X2c-D6 Fan speed F2 ; D5+D6 Fan speed F3	10	Input voltage 24-230 V AC / 20-130 V DC
11	CompTrol Interface expansion module	12	Analog input X3-S, X3-(-RV)
13	Pin header S4 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)	14	Pin header S7 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
15	Pin header S6 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)	16	Pin header S5 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)

10.2.2 Setting program 4 via DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
OFF	OFF	ON	OFF	Program 4: Temperature setpoint definition with hotel remote control function

Table 29: DIP switch setting for program 4

10.2.3 Setting functions for program 4 via DIP switch S2

The following table lists the functions for program 4 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON	CompTrol Interface is configured as master in the X/Y remote control bus
	OFF	CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON	X4b-II, operating signal; X4c-III, heating signal
	OFF	X4b-II, compressor signal; X4c-III, defrost signal
S2-3	OFF	Inoperative, switch setting is always OFF
S2-4	ON	Automatic fan speed control
	OFF	Inoperative
S2-5	ON	Forced mode
	OFF	Inoperative
S2-6	ON	All digital outputs are closed without a signal (NC)
	OFF	All digital outputs are open without a signal (NO)
S2-7	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	
S2-8	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	

Table 30: Functions in program 4

10.2.4 Setting the analog signal type on S4 and S7

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type (see “4.4.1 Analog input X3” on page 19).

10.3 Analog input

Note

- If a signal exceeds or falls below a boundary value at analog input **X3-S**, the temperature setpoint 23 °C is transferred. (see “5.3.4 Signal boundary value monitoring” on page 27)
- Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4** (see “5.1 Functions of analog input X3” on page 23).

The temperature setpoint is determined at analog input **X3-S** as shown in the following table:

Temperature setpoint [°C]	Analog signal type			
	0-10 V DC [V DC]	0-5 V DC [V DC]	0-20 mA [mA]	4-20 mA [mA]
23	≤ 0.2	≤ 0.1	≤ 0.4	≤ 4.3
18	> 0.2	> 0.1	> 0.4	> 4.3
18.5	0.6	0.3	1.2	5
19	1	0.5	2	5.6
19.5	1.4	0.7	2.8	6.2
20	1.8	0.9	3.6	6.9
20.5	2.2	1.1	4.4	7.5
21	2.6	1.3	5.2	8.2
21.5	3	1.5	6	8.8
22	3.4	1.7	6.8	9.4
22.5	3.8	1.9	7.6	10.1
23	4.2	2.1	8.4	10.7
23.5	4.6	2.3	9.2	11.4
24	5	2.5	10	12
24.5	5.4	2.7	10.8	12.6
25	5.8	2.9	11.6	13.3
25.5	6.2	3.1	12.4	13.9
26	6.6	3.3	13.2	14.6
26.5	7	3.5	14	15.2
27	7.4	3.7	14.8	15.8
27.5	7.8	3.9	15.6	16.5
28	8.2	4.1	16.4	17.1
28.5	8.6	4.3	17.2	17.8
29	9	4.5	18	18.4
29.5	9.4	4.7	18.8	19
30	9.8	4.9	19.6	19.7
23	> 9.8	> 4.9	> 19.6	> 19.7

Table 31: Value table for program 4 temperature setpoint

10.4 Digital input assignment in program 4

Input	Function	Description
X2a-D1	Remote ON/OFF	The indoor unit or group of indoor units can be switched on and off via the digital input. Forced mode can be activated with DIP switch S2-5 (see “5.2.2 Remote ON/OFF” on page 26).
X2a-D2	Cooling/Heating mode	When voltage is applied, the air conditioning unit operates in forced Cooling mode. When no voltage is applied, it operates in forced Heating mode. The mode cannot be changed using the wired remote control.
X2b-D3	Autoswing function	The signal switches the louvered flap of the indoor unit to autoswing mode (see “5.2.3 Autoswing function” on page 26).
X2b-D4	Analog input evaluation	Analog input X3-S is only evaluated if a signal is applied to X2b-D4 (see “5.2.1 Evaluating the analog input” on page 25). If no signal is applied, a setpoint can be specified via the wired remote control.
X2c-D5	Fan speed F1 (low)	The signal switches the indoor unit to fan speed F1 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D5 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D6	Fan speed F2 (medium)	The signal switches the indoor unit to fan speed F2 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D6 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D5 and X2c-D6	Fan speed F3 (high)	If fan speed F1 and fan speed F2 signals are both applied simultaneously, the indoor unit switches to fan speed F3 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital inputs D5 and D6 are no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).

Table 32: Digital inputs in program 4

10.5 Digital output assignment in program 4

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the indoor unit, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Defrost signal/heating signal	Either a defrost signal or heating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).

Table 33: Digital outputs in program 4

11 Program 5 – temperature setpoint definition with lockout function

11.1 Description

The temperature setpoint of the indoor unit can be adjusted via an analog signal from an external controller. The setpoint is adjusted in +/- 0.5°K increments (see “Table 36: Value table for program 5 temperature setpoint” on page 56).

In addition, the digital inputs can be used to switch on Cooling or Heating modes and to adjust the fan speed.

The functions of automatic fan speed control, forced mode, and inversion of digital outputs can optionally be used.

The indoor unit can be switched on or off using remote ON/OFF. The CompTrol Interface can be switched to Center mode via a digital input.

The operating, compressor, heating, or defrost signals are emitted via the digital outputs. In the event of a system error, an alarm signal is emitted via a digital output.

11.2 Configuring the CompTrol Interface for program 5

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

11.2.1 Connection diagram for program 5

Note

Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

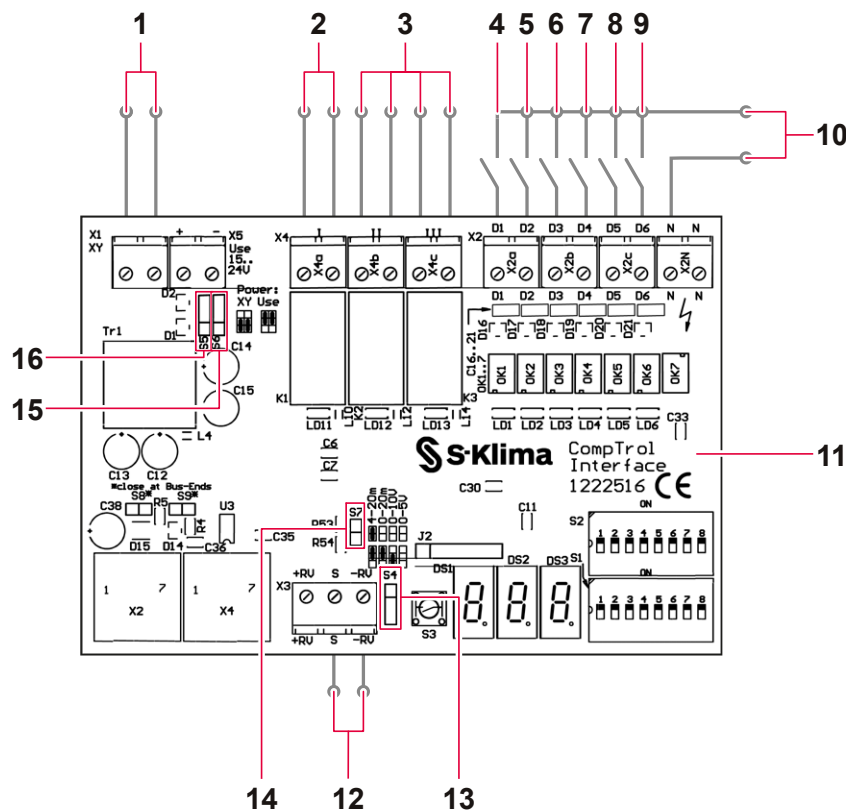


Figure 11: Connection diagram for program 5

No.	Name	No.	Name
1	X/Y remote control bus	2	Digital outputs X4a-I Alarm signal
3	Digital outputs X4b-II, X4c-III (see "Table 38: Digital outputs in program 5" on page 57)	4	Digital input X2a-D1 Remote ON/OFF
5	Digital input X2a-D2 Cooling/Heating mode	6	Digital input X2b-D3 Center/Center-Remote
7	Digital input X2b-D4 Evaluate analog input	8	Digital input X2c-D5 Fan speed F1 ; D5+D6 Fan speed F3
9	Digital input X2c-D6 Fan speed F2 ; D5+D6 Fan speed F3	10	Input voltage 24-230 V AC / 20-130 V DC
11	CompTrol Interface expansion module	12	Analog input X3-S, X3-(-RV)
13	Pin header S4 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)	14	Pin header S7 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
15	Pin header S6 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)	16	Pin header S5 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)

11.2.2 Setting program 5 via DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
ON	OFF	ON	OFF	Program 5: Temperature setpoint definition with lockout function

Table 34: DIP switch setting for program 5

11.2.3 Setting functions for program 5 via DIP switch S2

The following table lists the functions for program 5 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON	CompTrol Interface is configured as master in the X/Y remote control bus
	OFF	CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON	X4b-II , operating signal; X4c-III , heating signal
	OFF	X4b-II , compressor signal; X4c-III , defrost signal
S2-3	OFF	Inoperative, switch setting is always OFF
S2-4	ON	Automatic fan speed control
	OFF	Inoperative
S2-5	ON	Forced mode
	OFF	Inoperative
S2-6	ON	All digital outputs are closed without a signal (NC)
	OFF	All digital outputs are open without a signal (NO)
S2-7	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	
S2-8	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	

Table 35: Functions in program 5

11.2.4 Setting the analog signal type on S4 and S7

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type (see “4.4.1 Analog input X3” on page 19).

11.3 Analog input

Note

- If a signal exceeds or falls below a boundary value at analog input **X3-S**, the temperature setpoint 23 °C is transferred. (see “5.3.4 Signal boundary value monitoring” on page 27)
- Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4** (see “5.1 Functions of analog input X3” on page 23).

The temperature setpoint is determined at analog input **X3-S** as shown in the following table:

Temperature setpoint [°C]	Analog signal type			
	0-10 V DC [V DC]	0-5 V DC [V DC]	0-20 mA [mA]	4-20 mA [mA]
23	≤ 0.2	≤ 0.1	≤ 0.4	≤ 4.3
18	> 0.2	> 0.1	> 0.4	> 4.3
18.5	0.6	0.3	1.2	5
19	1	0.5	2	5.6
19.5	1.4	0.7	2.8	6.2
20	1.8	0.9	3.6	6.9
20.5	2.2	1.1	4.4	7.5
21	2.6	1.3	5.2	8.2
21.5	3	1.5	6	8.8
22	3.4	1.7	6.8	9.4
22.5	3.8	1.9	7.6	10.1
23	4.2	2.1	8.4	10.7
23.5	4.6	2.3	9.2	11.4
24	5	2.5	10	12
24.5	5.4	2.7	10.8	12.6
25	5.8	2.9	11.6	13.3
25.5	6.2	3.1	12.4	13.9
26	6.6	3.3	13.2	14.6
26.5	7	3.5	14	15.2
27	7.4	3.7	14.8	15.8
27.5	7.8	3.9	15.6	16.5
28	8.2	4.1	16.4	17.1
28.5	8.6	4.3	17.2	17.8
29	9	4.5	18	18.4
29.5	9.4	4.7	18.8	19
30	9.8	4.9	19.6	19.7
23	> 9.8	> 4.9	> 19.6	> 19.7

Table 36: Value table for program 5 temperature setpoint

11.4 Digital input assignment in program 5

Input	Function	Description
X2a-D1	Remote ON/OFF	The indoor unit or group of indoor units can be switched on and off via the digital input. Forced mode can be activated with DIP switch S2-5 (see “5.2.2 Remote ON/OFF” on page 26).
X2a-D2	Cooling/Heating mode	When voltage is applied, the air conditioning unit operates in forced Cooling mode. When no voltage is applied, it operates in forced Heating mode. The mode cannot be changed using the wired remote control.
X2b-D3	Center/Center-Remote	When voltage is applied, the CompTrol Interface operates in Center mode and the wired remote control is disabled. Without voltage, the CompTrol Interface and the wired remote control operate in Center-Remote mode (see “5.2.4 Center/Center-Remote” on page 26).
X2b-D4	Analog input evaluation	Analog input X3-S is only evaluated if a signal is applied to X2b-D4 (see “5.2.1 Evaluating the analog input” on page 25). If no signal is applied, a setpoint can be specified via the wired remote control.
X2c-D5	Fan speed F1 (low)	The signal switches the indoor unit to fan speed F1 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D5 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D6	Fan speed F2 (medium)	The signal switches the indoor unit to fan speed F2 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D6 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D5 and X2c-D6	Fan speed F3 (high)	If fan speed F1 and fan speed F2 signals are both applied simultaneously, the indoor unit switches to fan speed F3 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital inputs D5 and D6 are no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).

Table 37: Digital inputs in program 5

11.5 Digital output assignment in program 5

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the indoor unit, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Defrost signal/heating signal	Either a defrost signal or heating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).

Table 38: Digital outputs in program 5

12 Program 6 – temperature setpoint definition for heat exchanger connection module

12.1 Description

The temperature setpoint of the heat exchanger connection module can be adjusted via an analog signal from an external controller. The setpoint is adjusted in accordance with “Table 41: Value table for program 6 temperature setpoint” on page 61. This program does not feature signal boundary value monitoring.

In addition, the digital inputs can be used to switch on the Cooling, Heating, or Fan modes and to adjust the fan speed.

The functions of automatic fan speed control, forced mode, and inversion of digital outputs can optionally be used.

The heat exchanger connection module can be switched on or off using remote ON/OFF.

The operating, compressor, heating, or defrost signals are emitted via the digital outputs. In the event of a system error, an alarm signal is emitted via a digital output.

12.2 Configuring the CompTrol Interface for program 6

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

12.2.1 Connection diagram for program 6

Note

Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

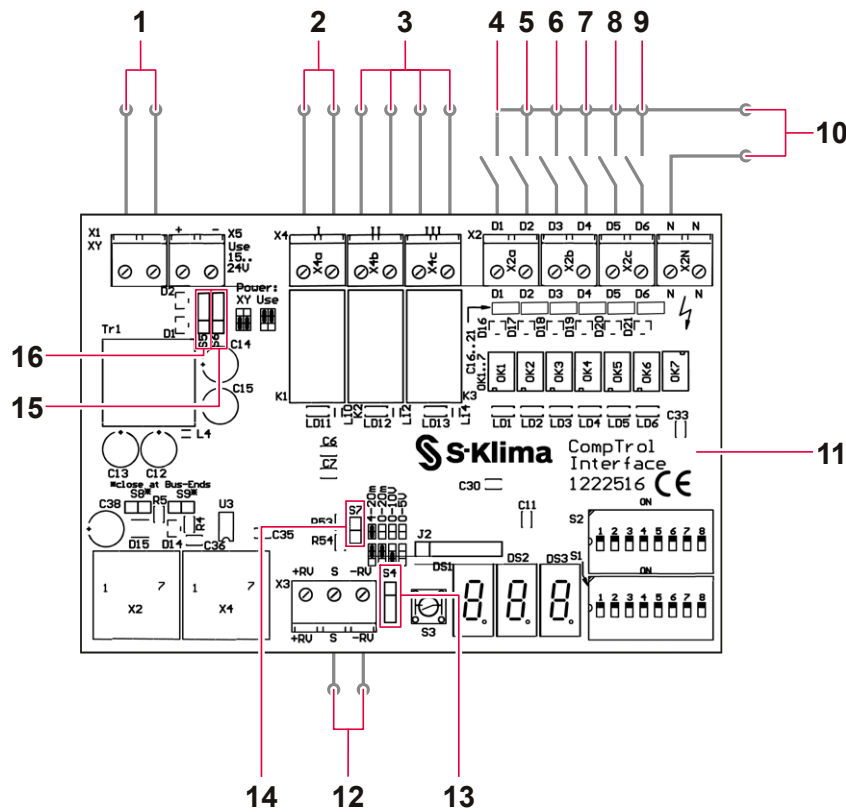


Figure 12: Connection diagram for program 6

No.	Name	No.	Name
1	X/Y remote control bus	2	Digital outputs X4a-I Alarm signal
3	Digital outputs X4b-II, X4c-III (see "Table 43: Digital outputs in program 6" on page 62)	4	Digital input X2a-D1 Remote ON/OFF
5	Digital input X2a-D2 Cooling mode; D2+D3 Fan mode	6	Digital input X2b-D3 Heating mode; D2+D3 Fan mode
7	Digital input X2b-D4 Evaluate analog input	8	Digital input X2c-D5 Fan speed F1 ; D5+D6 Fan speed F3
9	Digital input X2c-D6 Fan speed F2 ; D5+D6 Fan speed F3	10	Input voltage 24-230 V AC / 20-130 V DC
11	CompTrol Interface expansion module	12	Analog input X3-S, X3-(-RV)
13	Pin header S4 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)	14	Pin header S7 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
15	Pin header S6 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)	16	Pin header S5 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)

12.2.2 Setting program 6 via DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
OFF	ON	ON	OFF	Program 6: Temperature setpoint definition for heat exchanger connection module

Table 39: DIP switch setting for program 6

12.2.3 Setting functions for program 6 via DIP switch S2

The following table lists the functions for program 6 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON	CompTrol Interface is configured as master in the X/Y remote control bus
	OFF	CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON	X4b-II, operating signal; X4c-III, heating signal
	OFF	X4b-II, compressor signal; X4c-III, defrost signal
S2-3	OFF	Inoperative, switch setting is always OFF
S2-4	ON	Automatic fan speed control
	OFF	Inoperative
S2-5	ON	Forced mode
	OFF	Inoperative
S2-6	ON	All digital outputs are closed without a signal (NC)
	OFF	All digital outputs are open without a signal (NO)
S2-7	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	
S2-8	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	

Table 40: Functions in program 6

12.2.4 Setting the analog signal type on S4 and S7

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type (see “4.4.1 Analog input X3” on page 19).

12.3 Analog input

Note

- Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4** (see “5.1 Functions of analog input X3” on page 23).
- The “Thi-A” return air sensor on the heat exchanger connection module must be replaced with a 5.0 kΩ fixed resistor (see other applicable documents: Technical Manuals for heat exchanger connection module).

The temperature setpoint is determined at analog input **X3-S** as shown in the following table:

Analog signal type				Temperature setpoint [°C]	
0-10 V DC [V DC]	0-5 V DC [V DC]	0-20 mA [mA]	4-20 mA [mA]	Cooling mode	Heating mode
0	0	0	4	27.0	23.0
1	0.5	2	5.6	25.0	25.0
2	1	4	7.5	24.5	25.5
3	1.5	6	8.8	24.0	26.0
4	2	8	10.4	23.5	26.5
5	2.5	10	12	23.0	27.0
6	3	12	13.6	22.5	27.5
7	3.5	14	15.2	22.0	28.0
8	4	16	16.8	21.0	28.5
9	4.5	18	18.4	20.0	29.0
10	5	20	20	18.0	30.0

Table 41: Value table for program 6 temperature setpoint

12.4 Digital input assignment in program 6

Input	Function	Description
X2a-D1	Remote ON/OFF	The heat exchanger connection module or group of modules can be switched on/off via the digital input. Forced mode can be activated with DIP switch S2-5 (see “5.2.2 Remote ON/OFF” on page 26).
X2a-D2	Cooling mode	The signal switches the heat exchanger connection module to Cooling mode. The mode can then no longer be changed using the wired remote control.
X2b-D3	Heating mode	The signal switches the heat exchanger connection module to Heating mode. The mode can then no longer be changed using the wired remote control.
X2a-D2 and X2b-D3	Fan mode	When both the heating and cooling signal are applied simultaneously, the heat exchanger connection module switches to Fan mode. The mode can then no longer be changed using the wired remote control.
X2b-D4	Analog input evaluation	Analog input X3-S is only evaluated if a signal is applied to X2b-D4 (see “5.2.1 Evaluating the analog input” on page 25). If no signal is applied, a setpoint can be specified via the wired remote control.
X2c-D5	Fan speed F1 (low)	The signal switches the heat exchanger connection module to fan speed F1 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D5 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D6	Fan speed F2 (medium)	The signal switches the heat exchanger connection module to fan speed F2 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D6 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).

Input	Function	Description
X2c-D5 and X2c-D6	Fan speed F3 (high)	When both fan speed F1 and fan speed F2 signals are applied simultaneously, the heat exchanger connection module switches to fan speed F3 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital inputs D5 and D6 are no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).

Table 42: Digital inputs in program 6

12.5 Digital output assignment in program 6

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the heat exchanger connection module, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/ operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Defrost signal/heat- ing signal	Either a defrost signal or heating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).

Table 43: Digital outputs in program 6

13 Program 7 – temperature setpoint definition without signal boundary value monitoring

13.1 Description

The temperature setpoint of the indoor unit can be adjusted via an analog signal from an external controller. The setpoint is adjusted in +/- 0.5°K increments (see “Table 46: Value table for program 7 temperature setpoint” on page 66). This program does not feature signal boundary value monitoring.

In addition, the digital inputs can be used to switch on the Cooling, Heating, or Fan modes and to adjust the fan speed.

The functions of automatic fan speed control, forced mode, and inversion of digital outputs can optionally be used.

The indoor unit can be switched on or off using remote ON/OFF.

The operating, compressor, heating, or defrost signals are emitted via the digital outputs. In the event of a system error, an alarm signal is emitted via a digital output.

13.2 Configuring the CompTrol Interface for program 7

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

13.2.1 Connection diagram for program 7

Note

Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

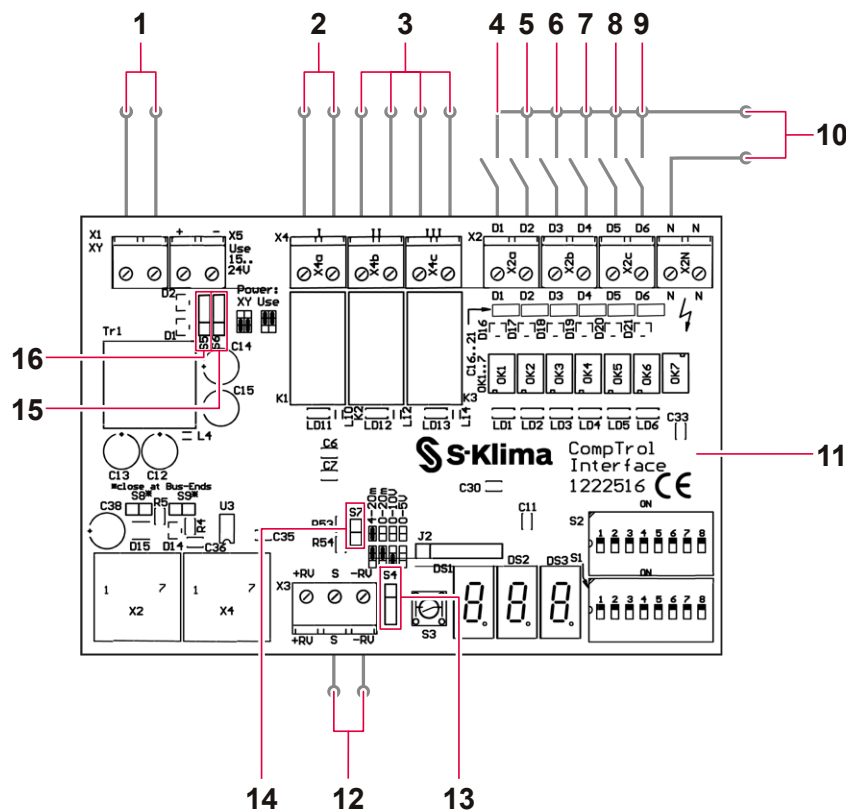


Figure 13: Connection diagram for program 7

No.	Name	No.	Name
1	X/Y remote control bus	2	Digital outputs X4a-I Alarm signal
3	Digital outputs X4b-II, X4c-III (see "Table 48: Digital outputs in program 7" on page 67)	4	Digital input X2a-D1 Remote ON/OFF
5	Digital input X2a-D2 Cooling mode; D2+D3 Fan mode	6	Digital input X2b-D3 Heating mode; D2+D3 Fan mode
7	Digital input X2b-D4 Evaluate analog input	8	Digital input X2c-D5 Fan speed F1 ; D5+D6 Fan speed F3
9	Digital input X2c-D6 Fan speed F2 ; D5+D6 Fan speed F3	10	Input voltage 24-230 V AC / 20-130 V DC
11	CompTrol Interface expansion module	12	Analog input X3-S, X3-(-RV)
13	Pin header S4 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)	14	Pin header S7 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
15	Pin header S6 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)	16	Pin header S5 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)

13.2.2 Setting program 7 via DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
ON	ON	ON	OFF	Program 7: Temperature setpoint definition without signal boundary value monitoring

Table 44: DIP switch setting for program 7

13.2.3 Setting functions for program 7 via DIP switch S2

The following table lists the functions for program 7 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON	CompTrol Interface is configured as master in the X/Y remote control bus
	OFF	CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON	X4b-II, operating signal; X4c-III, heating signal
	OFF	X4b-II, compressor signal; X4c-III, defrost signal
S2-3	OFF	Inoperative, switch setting is always OFF
S2-4	ON	Automatic fan speed control
	OFF	Inoperative
S2-5	ON	Forced mode
	OFF	Inoperative
S2-6	ON	All digital outputs are closed without a signal (NC)
	OFF	All digital outputs are open without a signal (NO)
S2-7	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	
S2-8	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	

Table 45: Functions in program 7

13.2.4 Setting the analog signal type on S4 and S7

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type (see “4.4.1 Analog input X3” on page 19).

13.3 Analog input

Note

- This program does not feature signal boundary value monitoring. The analog signal at analog input **X3-S** is evaluated across the entire range. An open input is interpreted as a broken wire and a temperature setpoint of 23 °C is transferred.
- Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4** (see “5.1 Functions of analog input X3” on page 23).

Temperature setpoint [°C]	Analog signal type			
	0-10 V DC [V DC]	0-5 V DC [V DC]	0-20 mA [mA]	4-20 mA [mA]
18	0	0	0	4
18.5	0.6	0.3	1.2	5
19	1	0.5	2	5.6
19.5	1.4	0.7	2.8	6.2
20	1.8	0.9	3.6	6.9
20.5	2.2	1.1	4.4	7.5
21	2.6	1.3	5.2	8.2
21.5	3	1.5	6	8.8
22	3.4	1.7	6.8	9.4
22.5	3.8	1.9	7.6	10.1
23	4.2	2.1	8.4	10.7
23.5	4.6	2.3	9.2	11.4
24	5	2.5	10	12
24.5	5.4	2.7	10.8	12.6
25	5.8	2.9	11.6	13.3
25.5	6.2	3.1	12.4	13.9
26	6.6	3.3	13.2	14.6
26.5	7	3.5	14	15.2
27	7.4	3.7	14.8	15.8
27.5	7.8	3.9	15.6	16.5
28	8.2	4.1	16.4	17.1
28.5	8.6	4.3	17.2	17.8
29	9	4.5	18	18.4
29.5	9.4	4.7	18.8	19
30	10	5	20	20

Table 46: Value table for program 7 temperature setpoint

13.4 Digital input assignment in program 7

Input	Function	Description
X2a-D1	Remote ON/OFF	The indoor unit or group of indoor units can be switched on and off via the digital input. Forced mode can be activated with DIP switch S2-5 (see “5.2.2 Remote ON/OFF” on page 26).
X2a-D2	Cooling mode	The signal switches the indoor unit to Cooling mode. The mode can then no longer be changed using the wired remote control.

Input	Function	Description
X2b-D3	Heating mode	The signal switches the indoor unit to Heating mode. The mode can then no longer be changed using the wired remote control.
X2a-D2 and X2b-D3	Fan mode	When both the heating and cooling signals are applied simultaneously, the indoor unit switches to Fan mode. The mode can then no longer be changed using the wired remote control.
X2b-D4	Analog input evaluation	Analog input X3-S is only evaluated if a signal is applied to X2b-D4 (see “5.2.1 Evaluating the analog input” on page 25). If no signal is applied, a setpoint can be specified via the wired remote control.
X2c-D5	Fan speed F1 (low)	The signal switches the indoor unit to fan speed F1 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D5 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D6	Fan speed F2 (medium)	The signal switches the indoor unit to fan speed F2 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D6 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D5 and X2c-D6	Fan speed F3 (high)	If fan speed F1 and fan speed F2 signals are both applied simultaneously, the indoor unit switches to fan speed F3 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital inputs D5 and D6 are no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).

Table 47: Digital inputs in program 7

13.5 Digital output assignment in program 7

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the indoor unit, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/ operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Defrost signal/heat- ing signal	Either a defrost signal or heating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).

Table 48: Digital outputs in program 7

14 Program 8 – direct frequency request

14.1 Description

The compressor frequency of the outdoor unit can be adjusted via an analog signal from an external controller.

In addition, the digital inputs can be used to switch on Cooling or Heating modes and to adjust the fan speed.

The functions of forced mode and inversion of digital outputs can optionally be used.

The indoor unit can be switched on or off using remote ON/OFF.

The operating, compressor, heating, or defrost signals are emitted via the digital outputs. In the event of a system error, an alarm signal is emitted via a digital output.

Direct frequency request is available with the following unit series from Mitsubishi Heavy Industries:

- FDS series
- S series

Direct frequency request cannot be used with KX and SX series air conditioning units.

14.2 Configuring the CompTrol Interface for program 8

IMPORTANT

- If you switch from program 8, 9, or 10 to programs 0 and 2 to 7 without cutting the power first, the control behavior of the air conditioning system will be adversely affected.
- Disconnect all components of the air conditioning system from the electrical supply before switching from program 8, 9, or 10 to programs 0 and 2 to 7. Then restart all the components of the air conditioning system (indoor units, outdoor units, CompTrol Interface, wired remote control, heat exchanger connection module, etc.).

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

14.2.1 Connection diagram for program 8

Note

Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

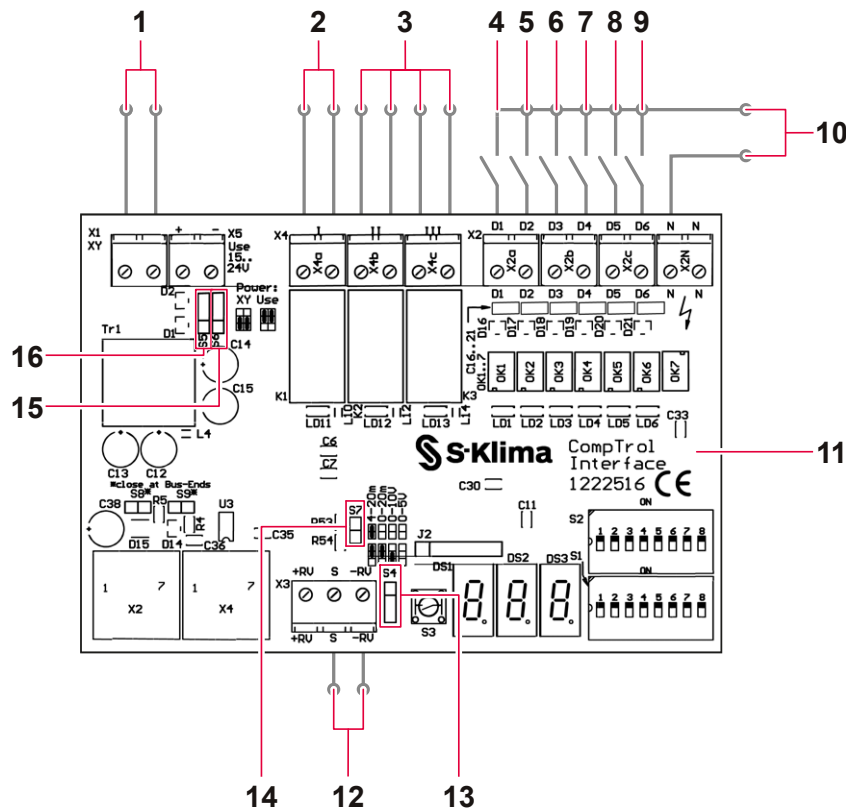


Figure 14: Connection diagram for program 8

No.	Name	No.	Name
1	X/Y remote control bus	2	Digital outputs X4a-I Alarm signal
3	Digital outputs X4b-II, X4c-III (see "Table 53: Digital outputs in program 8" on page 73)	4	Digital input X2a-D1 Remote ON/OFF
5	Digital input X2a-D2 Cooling/Heating mode	6	Digital input X2b-D3 Center/Center-Remote
7	Digital input X2b-D4 Evaluate analog input	8	Digital input X2c-D5 Fan speed F1 ; D5+D6 Fan speed F3
9	Digital input X2c-D6 Fan speed F2 ; D5+D6 Fan speed F3	10	Input voltage 24-230 V AC / 20-130 V DC
11	CompTrol Interface expansion module	12	Analog input X3-S, X3(-RV)
13	Pin header S4 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)	14	Pin header S7 for setting the analog signal type (analog input X3) (see "Table 6: Analog signal type" on page 19)
15	Pin header S6 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)	16	Pin header S5 for setting the electrical supply (see "Table 5: Type of electrical supply" on page 18)

14.2.2 Setting program 8 via DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
OFF	OFF	OFF	ON	Program 8: Direct frequency request

Table 49: DIP switch setting for program 8

14.2.3 Setting functions for program 8 via DIP switch S2

The following table lists the functions for program 8 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON	CompTrol Interface is configured as master in the X/Y remote control bus
	OFF	CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON	X4b-II, operating signal; X4c-III, heating signal
	OFF	X4b-II, compressor signal; X4c-III, defrost signal
S2-3 S2-4	Inoperative, switch setting is always OFF	
S2-5	ON	Forced mode
	OFF	Inoperative
S2-6	ON	All digital outputs are closed without a signal (NC)
	OFF	All digital outputs are open without a signal (NO)
S2-7	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	
S2-8	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	

Table 50: Functions in program 8

14.2.4 Setting the analog signal type on S4 and S7

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type (see “4.4.1 Analog input X3” on page 19).

14.3 Setting the outdoor unit model via DIP switch S1

14.3.1 For FDC outdoor units: Set DIP switch S1 on the CompTrol Interface

Procedure for FDC outdoor units

1. Set the DIP switch **SW4-3** to **ON** on the outdoor unit PCB of the FDC outdoor unit (see other applicable documents: FDC series Technical Manual).
2. Identify which FDC outdoor unit is installed on site (see “Table 51: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 71).
3. Set DIP switches **S1-5** to **S1-8** in line with the FDC outdoor unit installed on site (see “Table 51: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 71).

14.3.2 For SRC outdoor units: Set DIP switch S1 on the CompTrol Interface

Note

- Make sure there is always a request during a setpoint/actual value comparison.

Procedure for SRC outdoor units

1. Replace the Thi-A sensor with a 5 kΩ fixed resistor (see other applicable documents: Technical Manual for heat exchanger connection module).
2. Set the temperature setpoint on the wired remote control:
 - When using to cool: Set temperature setpoint to **18 °C**.
 - When using to heat: Set temperature setpoint to **30 °C**.
3. Disable the wired remote control to prevent the temperature setpoint from being changed.
 - Alternatively: Disable the wired remote control via a signal to digital input **X2b-D3**. The CompTrol Interface is set to **Center**.
4. Identify which SRC outdoor unit is installed on site (see “Table 51: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 71).
5. Set DIP switches **S1-5** to **S1-8** in line with the SRC outdoor unit installed on site (see “Table 51: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 71).

The table below shows the settings for the outdoor unit model using DIP switches **S1-5** to **S1-8**:

DIP switch				Outdoor unit model	
S1-5	S1-6	S1-7	S1-8	FDC outdoor unit	SRC outdoor unit
OFF	OFF	OFF	OFF	–	–
ON	OFF	OFF	OFF	–	–
OFF	ON	OFF	OFF	–	–
ON	ON	OFF	OFF	FDC100VNX/VNX-W/VSX/VSX-W	–
OFF	OFF	ON	OFF	–	SRC40ZSX-S/ZSX-W SRC50ZSX-S/ZSX-W
ON	OFF	ON	OFF	FDC71VNX	–
OFF	ON	ON	OFF	FDC100VN/VNA/VNA-W/VS/VSA/VSA-W	–
ON	ON	ON	OFF	FDC125VNX/VNX-W/VS/VSX/VSX-W FDC140VNX/VNX-W/VS/VSX/VSX-W	–
OFF	OFF	OFF	ON	–	–
ON	OFF	OFF	ON	–	–
OFF	ON	OFF	ON	–	–
ON	ON	OFF	ON	FDC125VN/VNA/VNA-W/VSA/VSA-W	–
OFF	OFF	ON	ON	FDC140VN/VNA/VNA-W/VSA/VSA-W	–
ON	OFF	ON	ON	FDC71VNX-W	–
OFF	ON	ON	ON	–	SRC60ZSX-S/ZSX-W
ON	ON	ON	ON	FDC200/250VSA	–

Table 51: Setting the outdoor unit model with DIP switches S1-5 to S1-8

14.4 Analog input

Note

- When running program 8, also set DIP switch **SW4-3** on the outdoor unit PCB of the FDC outdoor unit to **ON** (see FDC series Technical Manual).
- If there is no input voltage, e.g. due to a broken wire or open input, a frequency of 0 Hz is transferred. The input must remain permanently active.
- Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4** (see “5.1 Functions of analog input X3” on page 23).
- Analog signal configuration must always begin at 0 V DC or 0 mA, to prevent signal distortion due to electrical induction.

Schematic diagram: Compressor frequency control via an analog signal

The diagram below charts the control behavior of one CompTrol Interface expansion module for actuating an outdoor unit with a maximum frequency $f_{\max \text{ Heating}}$ of 75 Hz. The compressor frequency is controlled by the analog signal and depends on the outdoor unit model set via DIP switches **S1-5** and **S1-8**. The compressor frequencies $f_{\min}$, $f_{\max \text{ Heating}}$, and $f_{\max \text{ Cooling}}$ are permanently set for the outdoor unit in question.

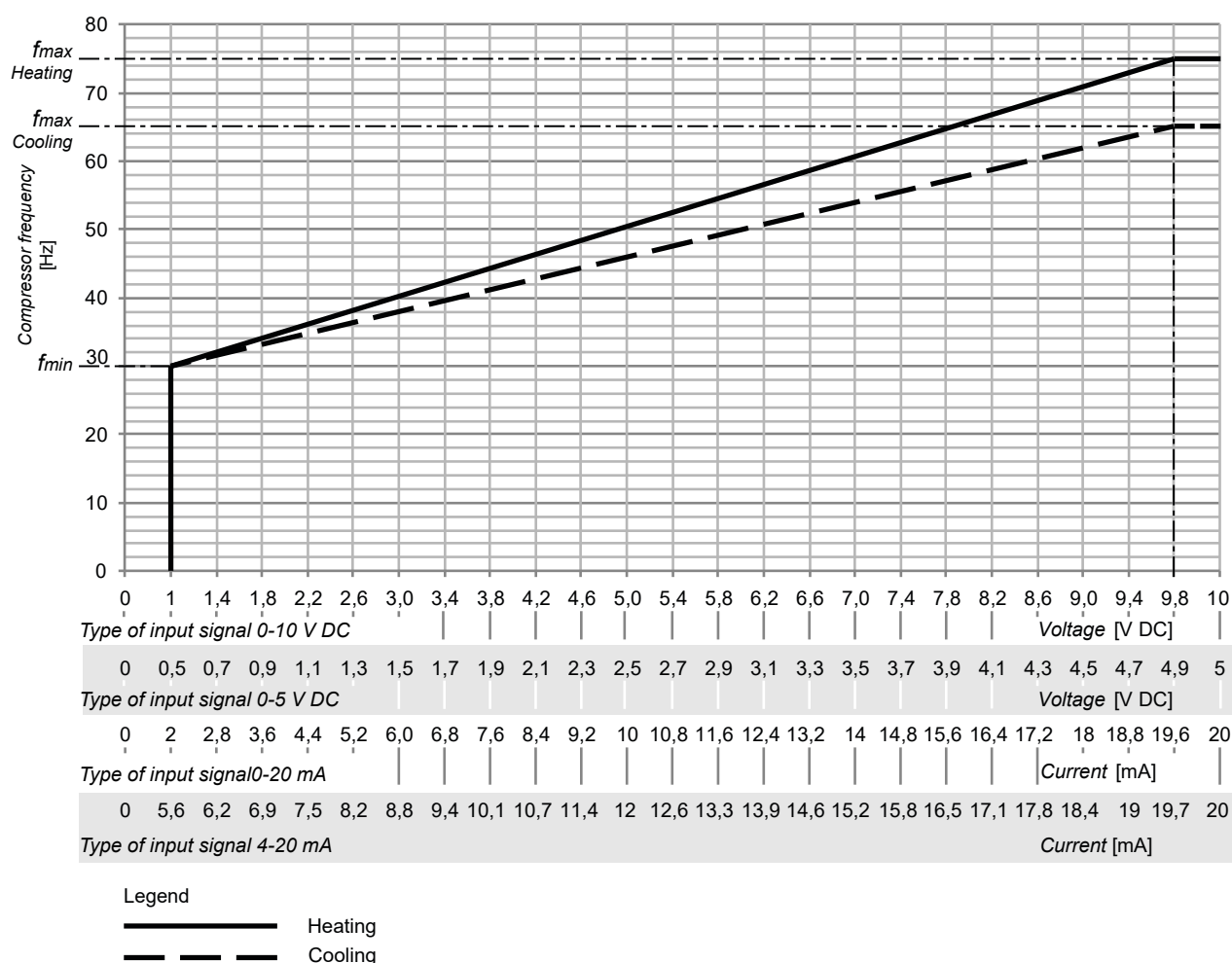


Figure 15: Analog signal and compressor frequency on a direct frequency request

14.5 Digital input assignment in program 8

Input	Function	Description
X2a-D1	Remote ON/OFF	The indoor unit or group of indoor units can be switched on and off via the digital input. Forced mode can be activated with DIP switch S2-5 (see “5.2.2 Remote ON/OFF” on page 26).
X2a-D2	Cooling/Heating mode	If a signal is applied, the air conditioning unit runs in Cooling mode. If no signal is applied, the air conditioning unit runs in Heating mode.
X2b-D3	Center/ Center-Remote	When voltage is applied, the CompTrol Interface operates in Center mode and the wired remote control is disabled. Without voltage, the CompTrol Interface and the wired remote control operate in Center-Remote mode (see “5.2.4 Center/Center-Remote” on page 26).
X2b-D4	Analog input evaluation	Analog input X3-S is only evaluated if a signal is applied to X2b-D4 (see “5.2.1 Evaluating the analog input” on page 25). If no signal is applied, a setpoint can be specified via the wired remote control.
X2c-D5	Fan speed F1 (low)	The signal switches the indoor unit to fan speed F1 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D5 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D6	Fan speed F2 (medium)	The signal switches the indoor unit to fan speed F2 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D6 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D5 and X2c-D6	Fan speed F3 (high)	If fan speed F1 and fan speed F2 signals are both applied simultaneously, the indoor unit switches to fan speed F3 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital inputs D5 and D6 are no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).

Table 52: Digital inputs in program 8

14.6 Digital output assignment in program 8

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the indoor unit, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/ operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Defrost signal/heat- ing signal	Either a defrost signal or heating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).

Table 53: Digital outputs in program 8

15 Program 9 – direct frequency request with cascading

15.1 Description

The compressor frequencies of two outdoor units can be adjusted via an analog signal from an external controller. Direct frequency request is available with the following unit series from Mitsubishi Heavy Industries:

- FDS series
- S series

Direct frequency request with cascading is not available with KX and SX series air conditioning units.

There are two options for using cascading:

- Cascading without signal overlap
- Cascading with signal overlap

For program 9, two CompTrol Interface expansion modules are required. The analog input **X3-S** on each of the CompTrol Interfaces requires an isolation amplifier. The isolation amplifiers are not included and must be provided by the customer.

In addition, the digital inputs can be used to switch on Cooling or Heating modes and to adjust the fan speed.

The functions of forced mode and inversion of digital outputs can optionally be used.

The indoor unit can be switched on or off using remote ON/OFF.

The operating, compressor, heating, or defrost signals are emitted via the digital outputs. In the event of a system error, an alarm signal is emitted via a digital output.

15.2 Configuring the CompTrol Interface for program 9

IMPORTANT

- If you switch from program 8, 9, or 10 to programs 0 and 2 to 7 without cutting the power first, the control behavior of the air conditioning system will be adversely affected.
- Disconnect all components of the air conditioning system from the electrical supply before switching from program 8, 9, or 10 to programs 0 and 2 to 7. Then restart all the components of the air conditioning system (indoor units, outdoor units, CompTrol Interface, wired remote control, heat exchanger connection module, etc.).

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S2-7** and **S2-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

15.2.1 Connection diagrams for program 9

Note

- Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

15.2.2 CompTrol Interface connection diagram in program 9

Procedure

- Connect the CompTrol Interface as shown in the connection diagram below.

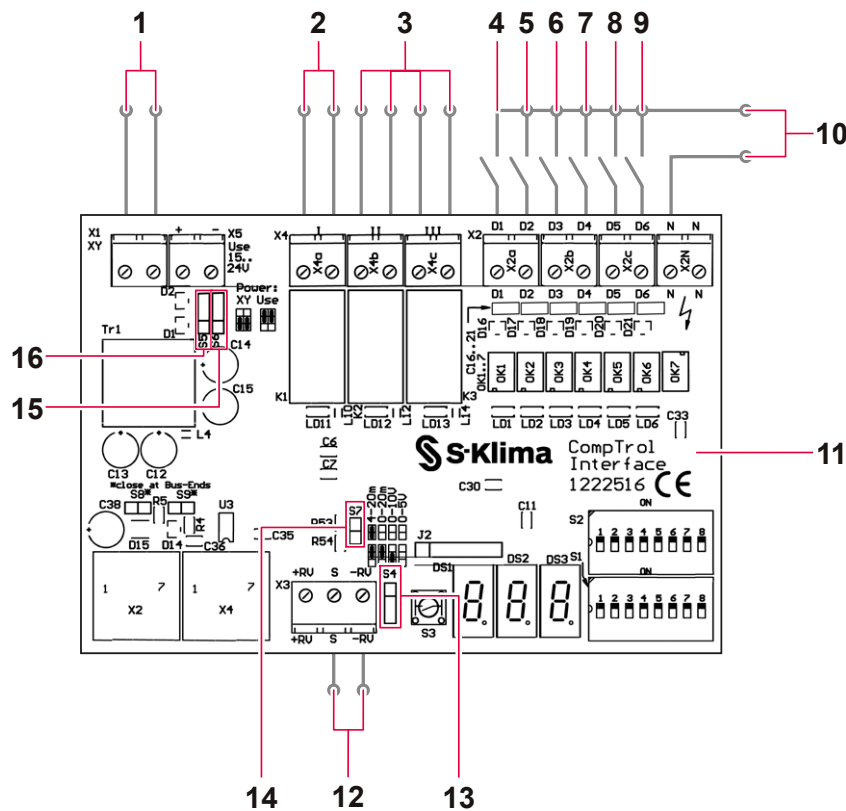


Figure 16: Connection diagram for program 9

No.	Name	No.	Name
1	X/Y remote control bus	2	Digital outputs X4a-I Alarm signal
3	Digital outputs X4b-II, X4c-III (see “Table 67: Digital outputs in program 9” on page 86)	4	Digital input X2a-D1 Remote ON/OFF
5	Digital input X2a-D2 Cooling/Heating mode	6	Digital input X2b-D3 Center/Center-Remote
7	Digital input X2b-D4 Evaluate analog input	8	Digital input X2c-D5 Fan speed F1 ; D5+D6 Fan speed F3
9	Digital input X2c-D6 Fan speed F2 ; D5+D6 Fan speed F3	10	Input voltage 24-230 V AC / 20-130 V DC

No.	Name	No.	Name
11	CompTrol Interface expansion module	12	Analog input X3-S, X3-(-RV)
13	Pin header S4 for setting the analog signal type (analog input X3) (see “Table 6: Analog signal type” on page 19)	14	Pin header S7 for setting the analog signal type (analog input X3) (see “Table 6: Analog signal type” on page 19)
15	Pin header S6 for setting the electrical supply (see “Table 5: Type of electrical supply” on page 18)	16	Pin header S5 for setting the electrical supply (see “Table 5: Type of electrical supply” on page 18)

15.2.3 CompTrol Interface connection diagram

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

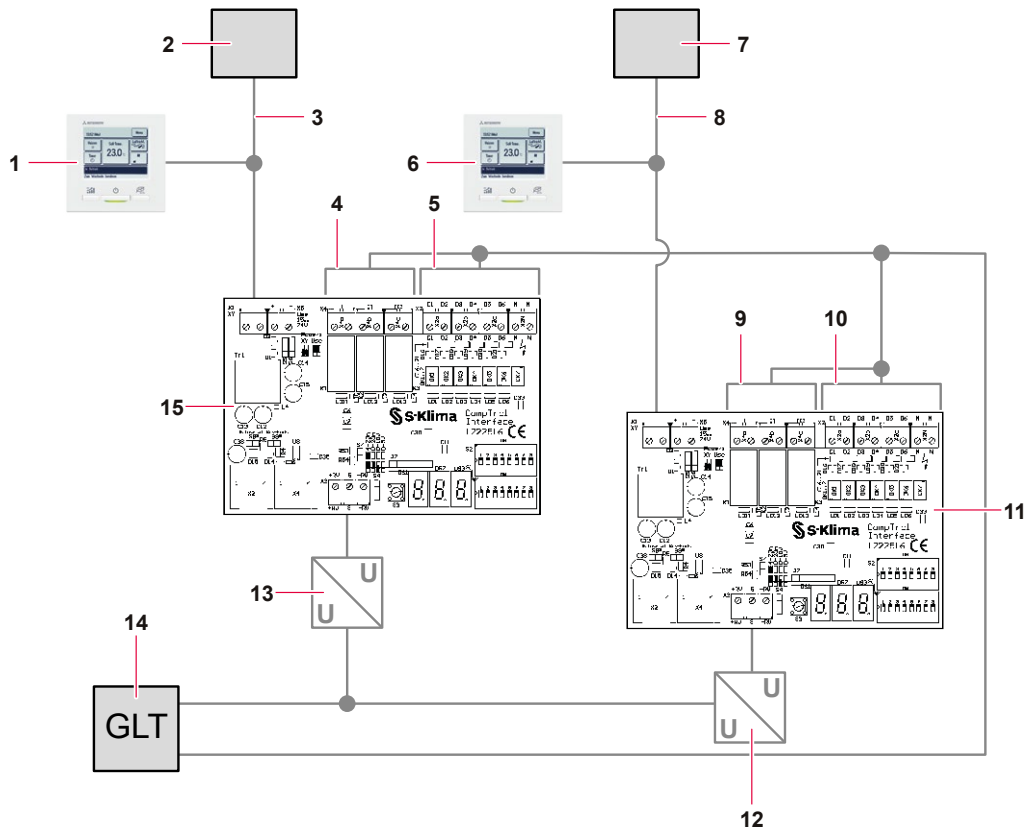


Figure 17: Connection diagram for program 9 (cascading)

No.	Name	No.	Name
1	Wired remote control RC-EX1 or RC-EX3	2	Switch gear cabinet for heat exchanger connection module
3	X/Y remote control bus	4	Volt-free digital outputs
5	Digital inputs	6	Wired remote control RC-EX1 or RC-EX3
7	Switch gear cabinet for heat exchanger connection module	8	X/Y remote control bus

No.	Name	No.	Name
9	Volt-free digital outputs	10	Digital inputs
11	CompTrol Interface expansion module	12	Isolation amplifier IN: 0-10 V DC, OUT: 0-10 V DC
13	Isolation amplifier IN: 0-10 V DC, OUT: 0-10 V DC	14	Control unit of building services management system (BMS)
15	CompTrol Interface expansion module	-	-

15.2.4 Setting program 9 via DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
ON	OFF	OFF	ON	Program 9: Direct frequency request with cascading

Table 54: DIP switch setting for program 9

15.2.5 Setting functions for program 9 via DIP switch S2

The following table lists the functions for program 9 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON OFF	CompTrol Interface is configured as master in the X/Y remote control bus CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON OFF	X4b-II, operating signal; X4c-III, heating signal X4b-II, compressor signal; X4c-III, defrost signal
S2-3 S2-4		See “15.4.1 Setting the signal ranges via DIP switch S2” on page 82 for setting the DIP switches for the analog signal ranges.
S2-5	ON OFF	Forced mode Inoperative
S2-6	ON OFF	All digital outputs are closed without a signal (NC). All digital outputs are open without a signal (NO).
S2-7	ON OFF	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
S2-8	ON OFF	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).

Table 55: Functions in program 9

15.2.6 Setting the analog signal type on S4 and S7

The position of the jumpers on pin headers **S4** and **S7** determines the current analog signal type (see “4.4.1 Analog input X3” on page 19).

15.3 Setting the outdoor unit model via DIP switch S1

15.3.1 For FDC outdoor units: Set DIP switch S1 on the CompTrol Interface

Procedure for FDC outdoor units

1. Set DIP switch **SW4-3** on the outdoor unit PCBs of the FDC outdoor units to **ON** (see other applicable documents: FDC series Technical Manual).
2. Identify which FDC outdoor units are installed on site (see “Table 56: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 79).
3. Set DIP switches **S1-5** to **S1-8** in line with the FDC outdoor units installed on site (see “Table 56: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 79).
4. On both CompTrol Interface expansion modules, use DIP switches **S2-3** and **S2-4** to set the signal ranges with or without signal overlap (see “15.4.1 Setting the signal ranges via DIP switch S2” on page 82).

15.3.2 For SRC outdoor units: Set DIP switch S1 on the CompTrol Interface

Note

- Make sure there is always a request during a setpoint/actual value comparison.

Procedure for SRC outdoor units

1. Replace the Thi-A sensor with a 5 kΩ fixed resistor (see other applicable documents: Technical Manual for heat exchanger connection module).
2. Set the temperature setpoint on the wired remote control:
 - When using to cool: Set temperature setpoint to **18 °C**.
 - When using to heat: Set temperature setpoint to **30 °C**.
3. Disable the wired remote control to prevent the temperature setpoint from being changed.
 - Alternatively: Disable the wired remote control via a signal to digital input **X2b-D3**. The CompTrol Interface is set to **Center**.
4. Identify which SRC outdoor units are installed on site (see “Table 56: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 79).
5. Set DIP switches **S1-5** to **S1-8** in line with the SRC outdoor units installed on site (see “Table 56: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 79).
6. On both CompTrol Interface expansion modules, use DIP switches **S2-3** and **S2-4** to set the signal ranges with or without signal overlap (see “15.4.1 Setting the signal ranges via DIP switch S2” on page 82).

The table below shows the settings for the outdoor unit model using DIP switches **S1-5** to **S1-8**:

DIP switch				Outdoor unit model	
S1-5	S1-6	S1-7	S1-8	FDC outdoor unit	SRC outdoor unit
OFF	OFF	OFF	OFF	–	–
ON	OFF	OFF	OFF	–	–
OFF	ON	OFF	OFF	–	–
ON	ON	OFF	OFF	FDC100VNX/VNX-W/VSX/VSX-W	–

DIP switch				Outdoor unit model	
S1-5	S1-6	S1-7	S1-8	FDC outdoor unit	SRC outdoor unit
OFF	OFF	ON	OFF	–	SRC40ZSX-S/ZSX-W SRC50ZSX-S/ZSX-W
ON	OFF	ON	OFF	FDC71VNX	–
OFF	ON	ON	OFF	FDC100VN/VNA/VNA-W/VS/VSA/ VSA-W	–
ON	ON	ON	OFF	FDC125VNX/VNX-W/VS/VSX/VSX-W FDC140VNX/VNX-W/VS/VSX/VSX-W	–
OFF	OFF	OFF	ON	–	–
ON	OFF	OFF	ON	–	–
OFF	ON	OFF	ON	–	–
ON	ON	OFF	ON	FDC125VN/VNA/VNA-W/VSA/VSA-W	–
OFF	OFF	ON	ON	FDC140VN/VNA/VNA-W/VSA/VSA-W	–
ON	OFF	ON	ON	FDC71VNX-W	–
OFF	ON	ON	ON	–	SRC60ZSX-S/ZSX-W
ON	ON	ON	ON	FDC200/250VSA	–

Table 56: Setting the outdoor unit model with DIP switches S1-5 to S1-8

15.4 Analog input

Note

- When running program 9, also set DIP switch **SW4-3** on the outdoor unit PCB of the FDC outdoor unit to **ON** (see FDC series Technical Manual).
- If there is no input voltage, e.g. due to a broken wire or open input, a frequency of 0 Hz is transferred.
- Analog input **X3-S** is only evaluated if a signal is applied to digital input **X2b-D4** (see “5.1 Functions of analog input X3” on page 23).
- Analog signal configuration must always begin at 0 V DC or 0 mA, to prevent signal distortion due to electrical induction.

Cascading without signal overlap

The diagram below shows the control behavior of two CompTrol Interface expansion modules for actuating two outdoor units each with a maximum frequency **f_{max} Heating** of 75 Hz without signal overlap. The compressor frequencies are controlled by the analog signals and depend on the outdoor unit models set via DIP switches **S1-5** and **S1-8**. The compressor frequencies **f_{min}**, **f_{max} Heating**, and **f_{max} Cooling** are permanently set for the outdoor unit in question.

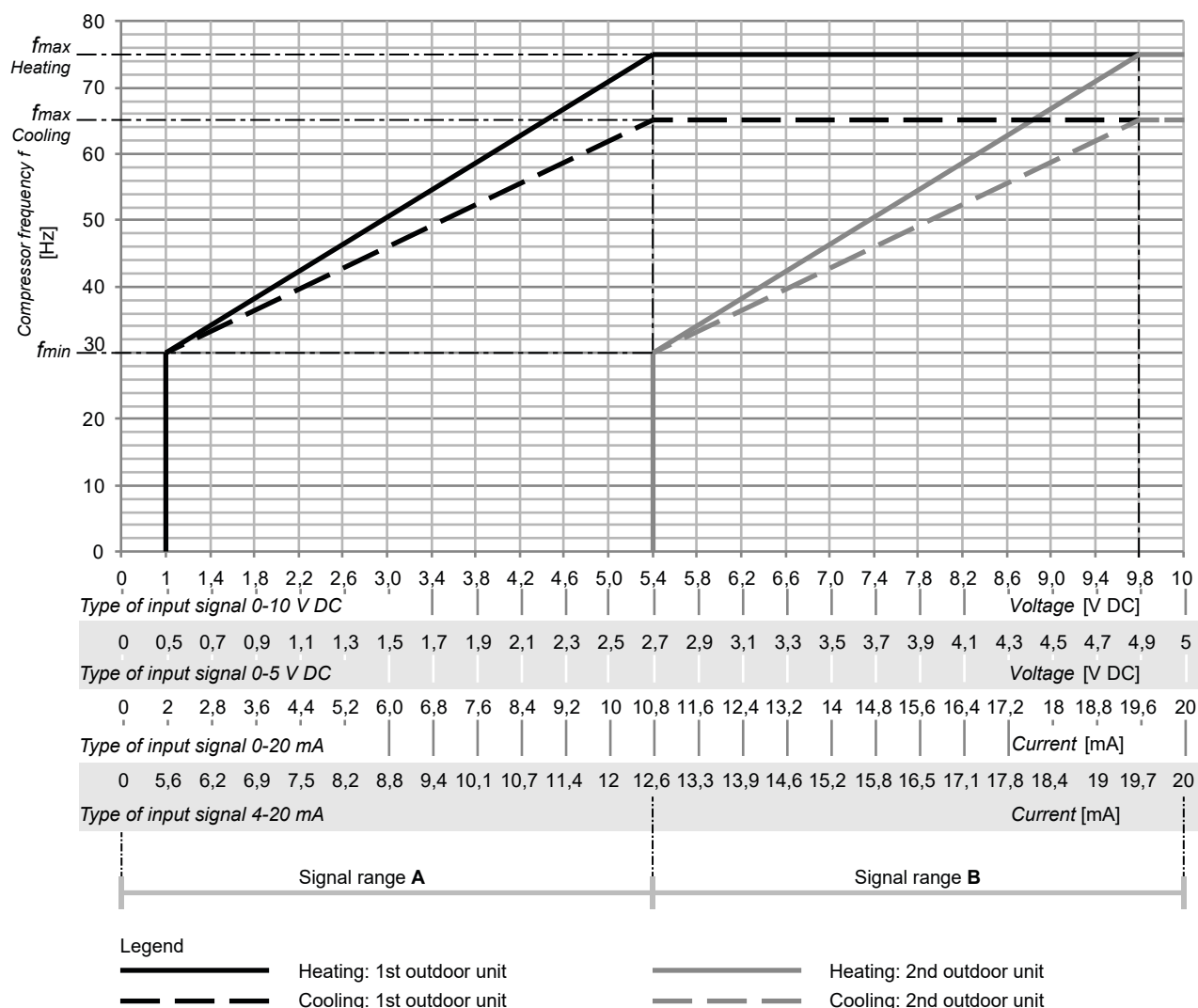


Figure 18: Direct frequency request with cascading without signal overlap

For cascading without signal overlap, only the 1st outdoor unit is controlled by an external analog signal between the following signal ranges:

Analog signal type	Signal range of 1st outdoor unit
0-10 V DC	1 to 5.4 V DC
0-5 V DC	0.5 to 2.7 V DC
0-20 mA	2 to 10.8 mA
4-20 mA	5.6 to 12.6 mA

Table 57: Direct frequency request with cascading without signal overlap – signal range of 1st outdoor unit

At and above the following analog signals, the 2nd outdoor unit also starts up, until the maximum compressor frequency is reached:

Analog signal type	Signal of 2nd outdoor unit
0-10 V DC	5.4 V DC
0-5 V DC	2.7 V DC

Analog signal type	Signal of 2nd outdoor unit
0-20 mA	10.8 mA
4-20 mA	12.6 mA

Table 58: Direct frequency request with cascading with signal overlap – signal of 2nd outdoor unit

For a description of setting signal ranges **A** and **B** for cascading without signal overlap, see section “15.4.1 Setting the signal ranges via DIP switch S2” on page 82.

Cascading with signal overlap

The diagram below shows the control behavior of two CompTrol Interface expansion modules for actuating two outdoor units each with a maximum frequency $f_{\max}$ Heating of 75 Hz with signal overlap.

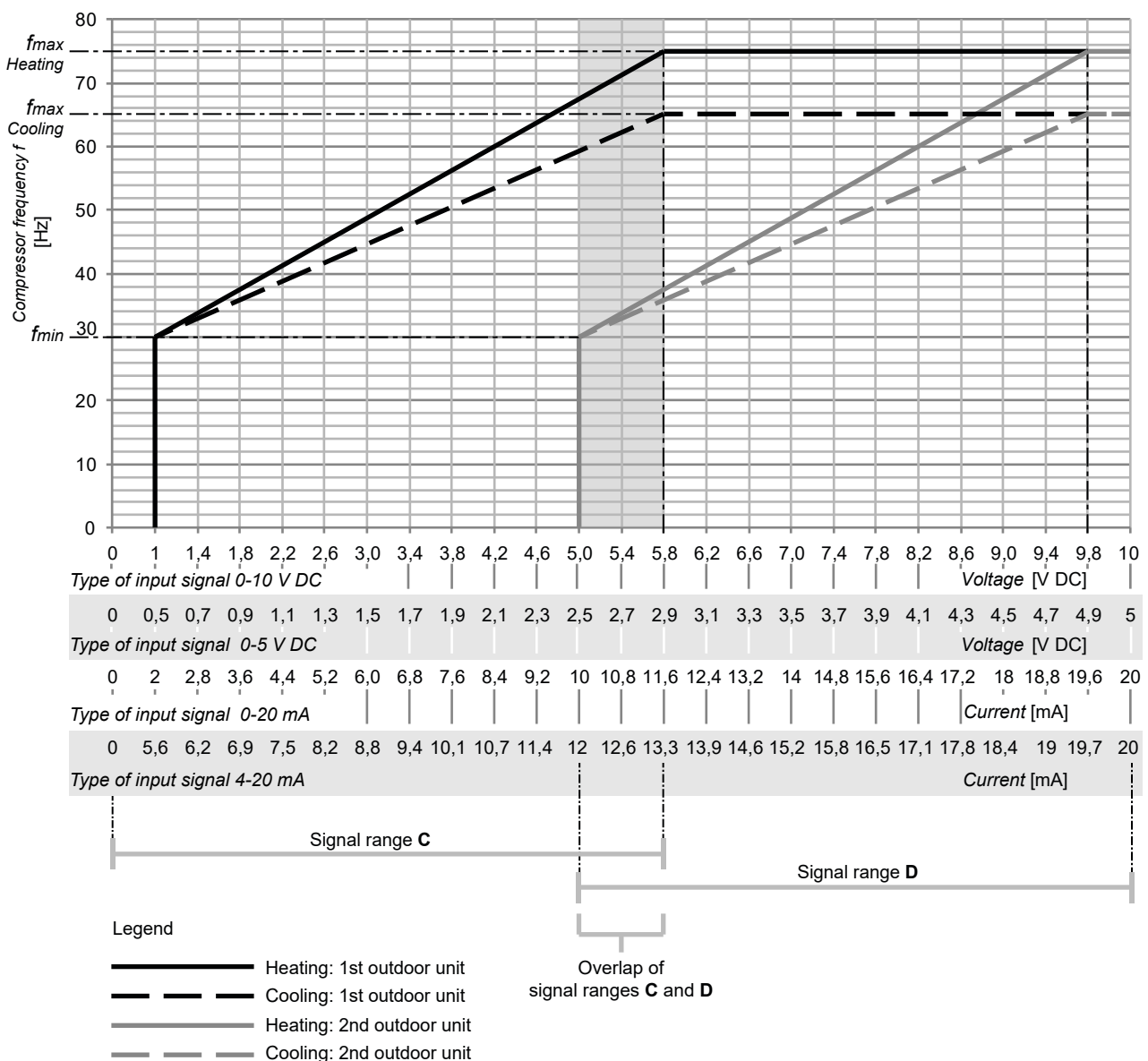


Figure 19: Direct frequency request with cascading with signal overlap

For cascading with signal overlap, the 1st outdoor unit is controlled by an external analog signal between the following signal ranges:

Analog signal type	Signal range of 1st outdoor unit
0-10 V DC	1 to 5.8 V DC
0-5 V DC	0.5 to 2.9 V DC
0-20 mA	2 to 11.6 mA
4-20 mA	5.6 to 13.3 mA

Table 59: Direct frequency request with cascading with signal overlap – signal range of 1st air conditioning unit

At and above the following analog signals, the 2nd outdoor unit also already starts up, until the maximum compressor frequency is reached:

Analog signal type	Signal of 2nd outdoor unit
0-10 V DC	5 V DC
0-5 V DC	2.5 V DC
0-20 mA	10 mA
4-20 mA	12 mA

Table 60: Direct frequency request with cascading with signal overlap – signal of 2nd air conditioning unit

The analog signals of the 1st and 2nd outdoor unit overlap between the following signal ranges:

Analog signal type	Signal overlap of 1st and 2nd outdoor units
0-10 V DC	5 to 5.8 V DC
0-5 V DC	2.5 to 2.9 V DC
0-20 mA	10 to 11.6 mA
4-20 mA	12 to 13.3 mA

Table 61: Signal overlap of 1st and 2nd air conditioning units

For a description of setting signal ranges **C** and **D** for cascading with signal overlap, see section “15.4.1 Setting the signal ranges via DIP switch S2” on page 82.

15.4.1 Setting the signal ranges via DIP switch S2

16 signal ranges are stored in the CompTrol Interface. On both CompTrol Interface expansion modules, set signal ranges **A** and **B** or **C** and **D** via DIP switches **S2-3** and **S2-4**.

Note

- Make sure that the same analog signal type is set on each CompTrol Interface (see “Table 6: Analog signal type” on page 19).

The table below shows the DIP switch setting and the position of jumpers S4 and S7 on two CompTrol Interfaces, for cascading with and without signal overlap:

Analog signal type 0-10 V DC

S2-3	S2-4	Signal range	S4	S7	Description
1st CompTrol Interface					
OFF	OFF	A			0 to 5.4 V, without signal overlap
ON	OFF	B			5.4 to 10 V, without signal overlap
OFF	ON	C			0 to 5.8 V, with signal overlap
ON	ON	D			5.0 to 10 V, with signal overlap
2nd CompTrol Interface					
OFF	OFF	A			0 to 5.4 V, without signal overlap
ON	OFF	B			5.4 to 10 V, without signal overlap
OFF	ON	C			0 to 5.8 V, with signal overlap
ON	ON	D			5.0 to 10 V, with signal overlap

Key:

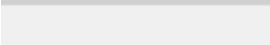
	Signal range to be set when there is no signal overlap
	Signal range to be set when there is signal overlap

Table 62: Setting the signal ranges on both CompTrol Interfaces – analog signal type 0-10 V DC

Analog signal type 0-5 V DC

S2-3	S2-4	Signal range	S4	S7	Description
1st CompTrol Interface					
OFF	OFF	A			0 to 2.7 V, without signal overlap
ON	OFF	B			2.7 to 5 V, without signal overlap
OFF	ON	C			0 to 2.9 V, with signal overlap
ON	ON	D			2.5 to 5 V, with signal overlap
2nd CompTrol Interface					
OFF	OFF	A			0 to 2.7 V, without signal overlap
ON	OFF	B			2.7 to 5 V, without signal overlap
OFF	ON	C			0 to 2.9 V, with signal overlap
ON	ON	D			2.5 to 5 V, with signal overlap

Key:

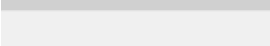
	Signal range to be set when there is no signal overlap
	Signal range to be set when there is signal overlap

Table 63: Setting the signal ranges on both CompTrol Interfaces – analog signal type 0-5 V DC

Analog signal type 0-20 mA

S2-3	S2-4	Signal range	S4	S7	Description
1st CompTrol Interface					
OFF	OFF	A			0 to 10.8 mA, without signal overlap
ON	OFF	B			10.8 to 20 mA, without signal overlap
OFF	ON	C			0 to 11.6 mA, with signal overlap
ON	ON	D			10 to 20 mA, with signal overlap
1st CompTrol Interface					
OFF	OFF	A			0 to 10.8 mA, without signal overlap
ON	OFF	B			10.8 to 20 mA, without signal overlap
OFF	ON	C			0 to 11.6 mA, with signal overlap
ON	ON	D			10 to 20 mA, with signal overlap

Key:

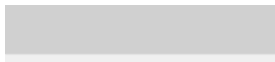
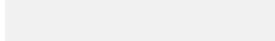
	Signal range to be set when there is no signal overlap
	Signal range to be set when there is signal overlap

Table 64: Setting the signal ranges on both CompTrol Interfaces – analog signal type 0-20 mA

Analog signal type 4-20 mA

S2-3	S2-4	Signal range	S4	S7	Description
1st CompTrol Interface					
OFF	OFF	A			0 to 12.6 mA, without signal overlap
ON	OFF	B			12.6 to 20 mA, without signal overlap
OFF	ON	C			0 to 13.3 mA, with signal overlap
ON	ON	D			10 to 20 mA, with signal overlap
2nd CompTrol Interface					
OFF	OFF	A			0 to 10.8 mA, without signal overlap
ON	OFF	B			10.8 to 20 mA, without signal overlap
OFF	ON	C			0 to 11.6 mA, with signal overlap
ON	ON	D			12 to 20 mA, with signal overlap

Key:

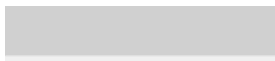
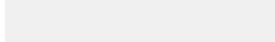
	Signal range to be set when there is no signal overlap
	Signal range to be set when there is signal overlap

Table 65: Setting the signal ranges on both CompTrol Interfaces – analog signal type 4-20 mA

15.4.2 Example of set signal ranges without signal overlap

Analog signal type 0-10 V DC

Procedure

1. On the 1st CompTrol Interface, set the correct analog signal type on pin headers **S4** and **S7**.
2. On the 1st CompTrol Interface, set DIP switch **S2-3** to **OFF** and DIP switch **S2-4** to **OFF**.
 - Signal range **A** (0 to 5.4 V, without signal overlap) is activated on the 1st CompTrol Interface.
3. On the 2nd CompTrol Interface, set the identical analog signal type (as on the 1st CompTrol Interface) on pin headers **S4** and **S7**.
4. On the 2nd CompTrol Interface, set DIP switch **S2-3** to **ON** and DIP switch **S2-4** to **OFF**.
 - Signal range **B** (5.4 to 10 V, without signal overlap) is activated on the 2nd CompTrol Interface.

Analog signal type 0-20 mA

Procedure

1. On the 1st CompTrol Interface, set the correct analog signal type on pin headers **S4** and **S7**.
2. On the 1st CompTrol Interface, set DIP switch **S2-3** to **OFF** and DIP switch **S2-4** to **OFF**.
 - Signal range **A** (0 to 10.8 mA, without signal overlap) is activated on the 1st CompTrol Interface.
3. On the 2nd CompTrol Interface, set the identical analog signal type (as on the 1st CompTrol Interface) on pin headers **S4** and **S7**.
4. On the 2nd CompTrol Interface, set DIP switch **S2-3** to **ON** and DIP switch **S2-4** to **OFF**.
 - Signal range **B** (10.8 mA to 20 mA, without signal overlap) is activated on the 2nd CompTrol Interface.

15.5 Digital input assignment in program 9

Input	Function	Description
X2a-D1	Remote ON/OFF	The indoor unit or group of indoor units can be switched on and off via the digital input. Forced mode can be activated with DIP switch S2-5 (see “5.2.2 Remote ON/OFF” on page 26).
X2a-D2	Cooling/Heating mode	If a signal is applied, the air conditioning unit runs in Cooling mode. If no signal is applied, the air conditioning unit runs in Heating mode.
X2b-D3	Center/Center-Remote	When voltage is applied, the CompTrol Interface operates in Center mode and the wired remote control is disabled. Without voltage, the CompTrol Interface and the wired remote control operate in Center-Remote mode (see “5.2.4 Center/Center-Remote” on page 26).
X2b-D4	Analog input evaluation	Analog input X3-S is only evaluated if a signal is applied to X2b-D4 (see “5.2.1 Evaluating the analog input” on page 25). If no signal is applied, a setpoint can be specified via the wired remote control.

Input	Function	Description
X2c-D5	Fan speed F1 (low)	The signal switches the indoor unit to fan speed F1 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D5 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D6	Fan speed F2 (medium)	The signal switches the indoor unit to fan speed F2 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital input D6 is no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).
X2c-D5 and X2c-D6	Fan speed F3 (high)	If fan speed F1 and fan speed F2 signals are both applied simultaneously, the indoor unit switches to fan speed F3 . The fan speed can then no longer be changed using the wired remote control. If automatic fan speed control is activated, digital inputs D5 and D6 are no longer evaluated (see “5.3.1 Automatic fan speed control” on page 26).

Table 66: Digital inputs in program 9

15.6 Digital output assignment in program 9

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the indoor unit, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/ operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Defrost signal/heat- ing signal	Either a defrost signal or heating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).

Table 67: Digital outputs in program 9

16 Program 10 – direct frequency request with the CompTrol Master

16.1 Description

The compressor frequency of the outdoor unit can be controlled via a bus signal from the CompTrol Master expansion module.

Direct frequency request is available with the following unit series from Mitsubishi Heavy Industries:

- FDS series
- S series

Direct frequency request is not available with KX and SX series air conditioning units.

For program 10, two to five CompTrol Interface expansion modules and one CompTrol Master expansion module are required. Program 10 is available with CompTrol Interface V4.0.3 or higher.

Functions such as remote ON/OFF, mode (Heating, Fan, Cooling, Dehumidification), Center, and fan speeds are switched via the digital inputs of the CompTrol Master and transferred to the CompTrol Interface.

The inversion of digital outputs is an optional function.

The indoor unit can be switched on or off using remote ON/OFF.

The common alarm, compressor signal and defrost signal are emitted via the digital outputs. In the event of a system error, an alarm signal is emitted via a digital output.

16.2 Configuring the CompTrol Interface for program 10

IMPORTANT

- If you switch from program 8, 9, or 10 to programs 0 and 2 to 7 without cutting the power first, the control behavior of the air conditioning system will be adversely affected.
- Disconnect all components of the air conditioning system from the electrical supply before switching from program 8, 9, or 10 to programs 0 and 2 to 7. Then restart all the components of the air conditioning system (indoor units, outdoor units, CompTrol Interface, wired remote control, heat exchanger connection module, etc.).

Note

- Only set DIP switches when they are disconnected from the electrical supply. Changed settings only reliably become effective after a system restart. An exception here are DIP switches **S1-7** and **S1-8**, which govern the behavior of the 7-segment display. These DIP switches for display behavior can also be set during ongoing operation.
- When reading the current DIP switch positions, bear in mind the horizontal installation position of the CompTrol Interface! The **ON** switch setting is the one closest to the center of the expansion module.
- Set inoperative DIP switches to **OFF**.

16.2.1 Connection diagram for program 10

Note

- Program 10 is available with CompTrol Interface V4.0.3 or higher.

Note

- Pay attention to the information on installation and start-up (see “17 Installing the CompTrol Interface expansion module” on page 95).

Note

Possible damage to the CompTrol Interface from compensating currents.

- Make sure that the CompTrol Master is connected to an external electrical supply (24 V DC, see “Figure 20: Connection diagram for program 10” on page 88).

Procedure

1. Connect the CompTrol Interface as shown in the connection diagram below.

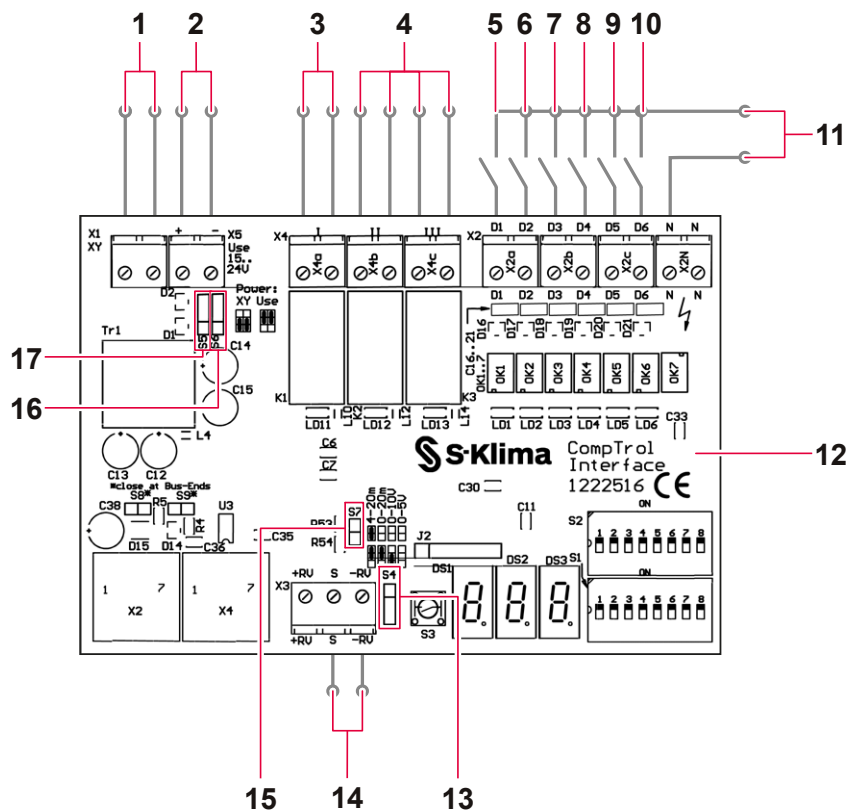


Figure 20: Connection diagram for program 10

No.	Name	No.	Name
1	X/Y remote control bus	2	External electrical supply (see “Table 5: Type of electrical supply” on page 17)
3	Digital outputs X4a-I Alarm signal	4	Digital outputs X4b-II, X4c-III (see “Table 71: Digital outputs in program 10” on page 94)
5	Digital input X2a-D1 remote ON/OFF (terminal is inactive in program 10)	6	Digital input X2a-D2 Cooling/Heating mode (terminal is inactive in program 10)
7	Digital input X2b-D3 Center/ Center-Remote (terminal is inactive in program 10)	8	Digital input X2b-D4 evaluate analog input (terminal is inactive in program 10)
9	Digital input X2c-D5 fan speed F1 ; D5+D6 fan speed F3 (terminal is inactive in program 10)	10	Digital input X2c-D6 fan speed F2 ; D5+D6 fan speed F3 (terminal is inactive in program 10)
11	Input voltage 24-230 V AC / 20-130 V DC (terminal is inactive in program 10)	12	CompTrol Interface expansion module
13	Pin header S4 for setting the analog signal type (analog input X3) (terminal is inactive in program 10)	14	Analog input X3-S, X3-(-RV) (terminal is inactive in program 10)
15	Pin header S7 for setting the analog signal type (analog input X3) (terminal is inactive in program 10)	16	Pin header S6 for setting the electrical supply (see “Table 5: Type of electrical supply” on page 18)
17	Pin header S5 for setting the electrical supply (see “Table 5: Type of electrical supply” on page 18)	-	-

16.2.2 Connection diagram: Connecting CompTrol Interfaces to the CompTrol Master

Procedure

1. Connect two to five CompTrol Interfaces to the CompTrol Master as shown in the following connection diagram.

Note

- For installing, connecting, and wiring CompTrol Interfaces in combination with a CompTrol Master for program 10, see the CompTrol Master Technical Manual. Program 10 is available with CompTrol Interface V4.0.3 or higher.

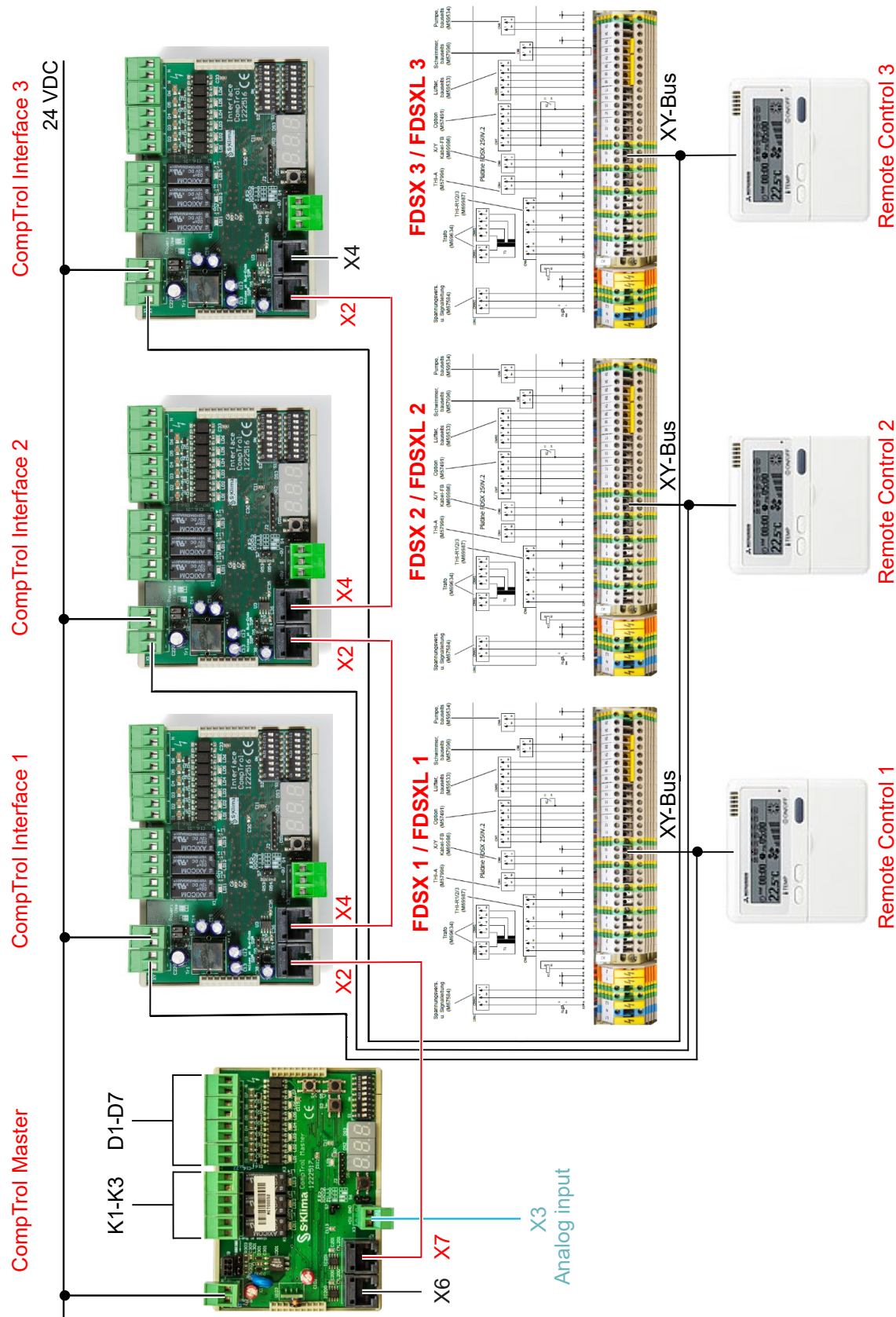


Figure 21: Connection diagram for program 10 (direct frequency request with the CompTrol Master)

16.2.3 Setting program 10 on DIP switch S1

S1-1	S1-2	S1-3	S1-4	Designation
OFF	ON	OFF	ON	Program 10: Direct frequency request with the CompTrol Master

Table 68: DIP switch setting for program 10

16.2.4 Setting functions for program 10 on DIP switch S2

The following table lists the functions for program 10 in brief. See “5 Functions of the CompTrol Interface expansion module” on page 23 for a detailed description of the functions.

DIP switch	Status	Function
S2-1	ON	CompTrol Interface is configured as master in the X/Y remote control bus
	OFF	CompTrol Interface is configured as slave in the X/Y remote control bus
S2-2	ON	X4b-II, operating signal; X4c-III, heating signal
	OFF	X4b-II, compressor signal; X4c-III, defrost signal
S2-3 S2-4	Inoperative, switch setting is always OFF	
S2-5	Inoperative, switch setting is always OFF	
S2-6	ON	All digital outputs are closed without a signal (NC).
	OFF	All digital outputs are open without a signal (NO).
S2-7	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	
S2-8	ON	Setting determines the value shown on the 7-segment display (see “4.7 7-segment display” on page 21).
	OFF	

Table 69: Functions in program 10

16.3 Configuring the CompTrol Master for program 10

Configuration of the CompTrol Master for program 10 is described in the CompTrol Master Technical Manual. Program 10 is available with CompTrol Interface V4.0.3 or higher.

16.4 Setting the outdoor unit model via DIP switch S1

16.4.1 For FDC outdoor units: Set DIP switch S1 on the CompTrol Interface

Procedure for FDC outdoor units

The following steps must be performed for all connected CompTrol Interfaces.

1. Set DIP switches **S1-1** to **S1-4** on the CompTrol Interface (see “Table 68: DIP switch setting for program 10” on page 91).
2. Set DIP switch **SW4-3** on the outdoor unit PCBs of the FDC outdoor units to **ON** (see other applicable documents: FDC series Technical Manual).
3. Identify which FDC outdoor units are installed on site (see “Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 92).
4. Set the outdoor unit model via DIP switches **S1-5** to **S1-8** on the CompTrol Interface (see “Table 70: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 92).

16.4.2 For SRC outdoor units: Set DIP switch S1 on the CompTrol Interface

Note

- Make sure there is always a request during a setpoint/actual value comparison.

Procedure for SRC outdoor units

- Set DIP switches **S1-1** to **S1-4** on the CompTrol Interface (see “Table 68: DIP switch setting for program 10” on page 91).
- Replace the Thi-A sensor with a 5 kΩ fixed resistor (see other applicable documents: Technical Manual for heat exchanger connection module).
- Set the temperature setpoint on the wired remote control:
 - When using to cool: Set temperature setpoint to **18 °C**.
 - When using to heat: Set temperature setpoint to **30 °C**.
- Disable the wired remote control to prevent the temperature setpoint from being changed.
 - Alternatively: Disable the wired remote control via a signal to digital input **X2-D5** of the CompTrol Master. The CompTrol Interface is set to Center.
- Identify which SRC outdoor units are installed on site (see “Table 70: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 92).
- Set the outdoor unit model via DIP switches S1-5 to S1-8 (see “Table 70: Setting the outdoor unit model with DIP switches S1-5 to S1-8” on page 92).

The table below shows the settings for the outdoor unit model using DIP switches **S1-5** to **S1-8**:

DIP switch				Outdoor unit model	
S1-5	S1-6	S1-7	S1-8	FDC outdoor unit	SRC outdoor unit
OFF	OFF	OFF	OFF	–	–
ON	OFF	OFF	OFF	–	–
OFF	ON	OFF	OFF	–	–
ON	ON	OFF	OFF	FDC100VNX/VNX-W/VSX/VSX-W	–
OFF	OFF	ON	OFF	–	SRC40ZSX-S/ZSX-W SRC50ZSX-S/ZSX-W
ON	OFF	ON	OFF	FDC71VNX	–
OFF	ON	ON	OFF	FDC100VN/VNA/VNA-W/VS/VSA/VSA-W	–
ON	ON	ON	OFF	FDC125VNX/VNX-W/VS/VSX/VSX-W FDC140VNX/VNX-W/VS/VSX/VSX-W	–
OFF	OFF	OFF	ON	–	–
ON	OFF	OFF	ON	–	–
OFF	ON	OFF	ON	–	–
ON	ON	OFF	ON	FDC125VN/VNA/VNA-W/VSA/VSA-W	–
OFF	OFF	ON	ON	FDC140VN/VNA/VNA-W/VSA/VSA-W	–
ON	OFF	ON	ON	FDC71VNX-W	–
OFF	ON	ON	ON	–	SRC60ZSX-S/ZSX-W
ON	ON	ON	ON	FDC200/250VSA	–

Table 70: Setting the outdoor unit model with DIP switches S1-5 to S1-8

16.5 Analog input

Note

- When running program 10, also set DIP switch **SW4-3** on the outdoor unit PCB of the FDC outdoor unit to **ON** (see FDC series Technical Manual).
- If there is no input voltage, e.g. due to a broken wire or open input, a frequency of 0 Hz is transferred.
- Analog input **X3-S** is inactive in program 10.

Schematic diagram: Compressor frequency control via a bus signal

The diagram below charts the control behavior of one CompTrol Interface expansion module for actuating an outdoor unit with a maximum frequency **f_{max} Heating** of 75 Hz. The compressor frequency is controlled by the analog signal and depends on the outdoor unit model set via DIP switches **S1-5** and **S1-8**. The compressor frequencies **f_{min}**, **f_{max} Heating**, and **f_{max} Cooling** are permanently set for the outdoor unit in question.

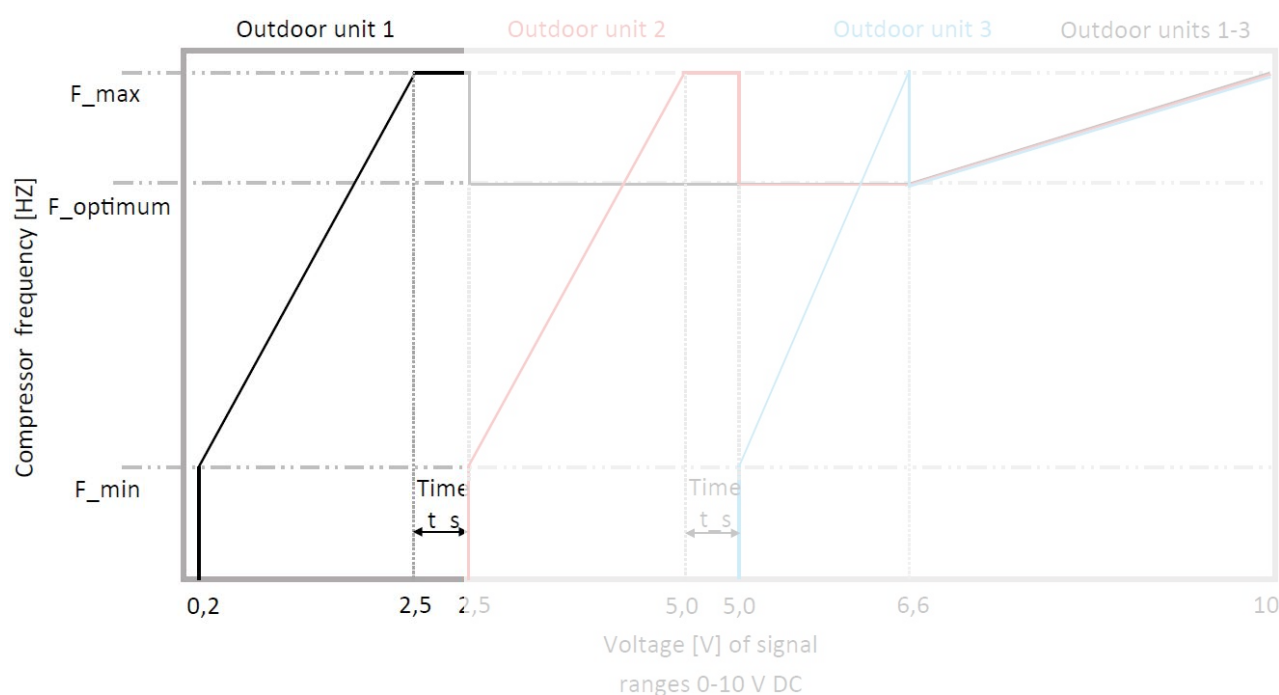


Figure 22: Compressor frequency control via a bus signal

16.6 Digital input assignment in program 10

Digital inputs **X2a-D1**, **X2a-D2**, **X2b-D3**, **X2b-D4**, **X2c-D5**, and **X2c-D6** are inactive in program 10.

16.7 Digital output assignment in program 10

Output	Function	Description
X4a-I	Alarm signal	All alarms registered by the indoor unit, plus internal expansion module alarms, are indicated via the output. In addition, the error code can be displayed on the 7-segment display (see “4.7 7-segment display” on page 21).
X4b-II	Compressor signal/ operating signal	Either a compressor signal or operating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).
X4c-III	Defrost signal/heat- ing signal	Either a defrost signal or heating signal is displayed, depending on DIP switch S2-2 (see “5.3.7 Status signals” on page 29).

Table 71: Digital outputs in program 10

17 Installing the CompTrol Interface expansion module

⚠ DANGER

Danger of death from electric shock.

There is an immediate danger of death from electric shock if live parts are touched.

The CompTrol Interface is not splashproof. Exposure to water may therefore lead to a risk of electric shock and malfunction.

- Install the CompTrol Interface only in a switch gear cabinet with DIN rail indoors and in accordance with the technical data.
-

17.1 General installation conditions

- Do not install the unit in areas in which flammable gas may escape.
- Do not install the unit in areas in which corrosive gas (e.g. sulfuric acid vapor) may escape.
- Do not install the unit in areas in which volatile flammable substances are handled.
- Install the unit only in dry, frost-proof indoor areas.
- Do not install or use the unit in the vicinity of devices that produce electromagnetic fields or high-frequency harmonics.

Devices such as inverters, emergency generators, transformers, switching power supply units, modems, medical radio-frequency devices, and telecommunications equipment may adversely affect the unit and cause malfunctions or failure. Furthermore, the unit may itself impair medical equipment and telecommunications equipment and cause it to malfunction or fail.

- Do not install the unit in areas in which heat radiated by other heat sources could affect the unit.
- Do not install the unit in areas without sufficient air circulation.
- Do not install the unit in areas exposed to direct sunlight.
- Do not install the unit in areas in which it may be exposed to water spray, e.g. laundry facilities.
- Adequately secure the cables connected to the unit against tensile loads.
- Install the unit on a DIN rail in a switch gear cabinet or distribution cabinet.
- Leave sufficient clearance for service work and installation when mounting on a DIN rail (see “17.2 Service and installation clearance” on page 96).

17.2 Service and installation clearance

The diagrams below show the minimum distances to be kept between the CompTrol Interface and walls or other objects when mounting on a DIN rail in a switch gear cabinet.

All dimensions in mm.

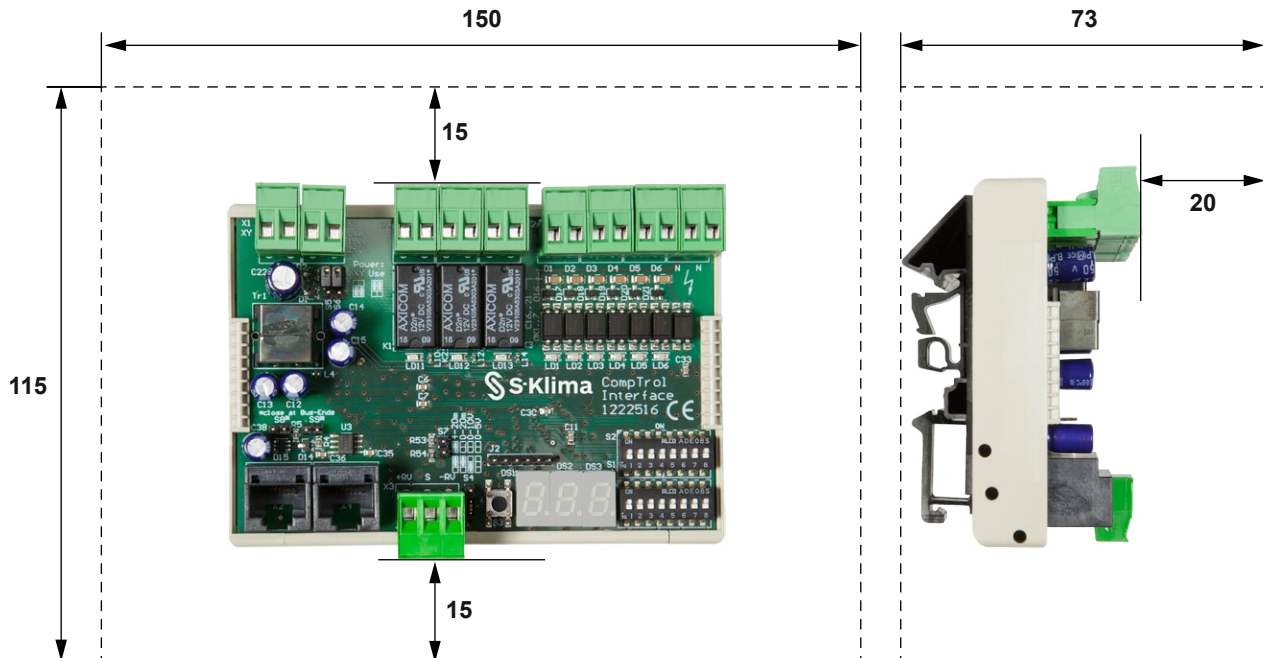


Figure 23: Plan view and side view of the CompTrol Interface with depiction of installation clearances

17.3 Cable requirements

Connection	Designation	Cable requirements	Notes
X/Y remote control bus	X1-X X1-Y	Min. LiYCY data cable (CAT 5); recommended: LiYCY (TP) data cable (CAT 5) - Core number: 2 - Conductor size: see Mitsubishi Heavy Industries: Quick construction site guide - Max. line length: see section "21 Technical data" on page 107	Electrical supply (when not combined with a CompTrol Master) and communication are achieved via the cable of the X/Y remote control bus.
Bus connections (CompTrol Master)	X2 X4	Min. patch cable (CAT 5); not a crossover cable - Connector: RJ45 - Assignment: 1:1 - Max. line length: unshielded 1 m; shielded 25 m	Bus connection for connecting to a CompTrol Master.

Connection	Designation	Cable requirements	Notes
Digital inputs	X2a-D1 X2a-D2 X2b-D3 X2b-D4 X2c-D5 X2c-D6 X2N-N	Core number: min. 2, max. 7 + number of neutral wires: 1 Conductor size: min. 0.5 mm ² , max. 2.5 mm ² Max. line length: to DIN VDE 0100-520	Determine line length to DIN VDE 0100-520. Make sure the admissible voltage drop along the line section is max. 3 % of the applied voltage.
Analog input	X3-(+RV) X3-S X3-(-RV)	Core number: 2 Shielded: yes Conductor size: min. 0.5 mm ² , max. 2.5 mm ² Max. line length: to DIN VDE 0100-520	Determine line length to DIN VDE 0100-520. Make sure the admissible voltage drop along the line section is max. 3 % of the applied voltage.
Digital outputs	X4a-I X4b-II X4c-III	Core number: min. 2, max. 6 Conductor size: min. 0.5 mm ² , max. 2.5 mm ² Max. line length: to DIN VDE 0100-520	Determine line length to DIN VDE 0100-520. Make sure the admissible voltage drop along the line section is max. 3 % of the applied voltage.
External electrical supply	X5- X5+	Core number: 2 Conductor size: min. 0.5 mm ² , max. 2.5 mm ² Max. line length: to DIN VDE 0100-520	In combination with a CompTrol Master, the electrical supply is external via terminals X5(-) and X5(+) . Electrical supply via the X/Y remote control bus is not possible in this case.

Table 72: Cable requirements

17.4 Installing and connecting the CompTrol Interface expansion module

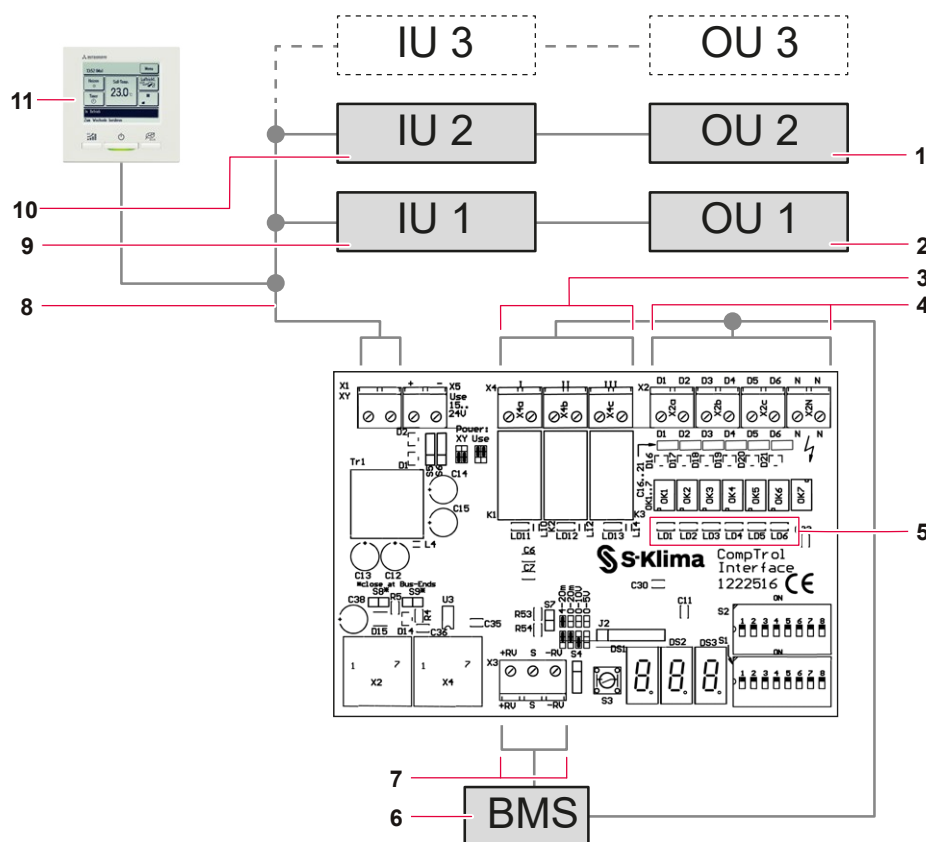


Figure 24: CompTrol Interface connection diagram

No.	Name	No.	Name
1	2nd outdoor unit	2	1st outdoor unit
3	Volt-free digital outputs	4	Digital inputs
5	LEDs for indicating the status of digital inputs	6	Control unit of building services management system (BMS)
7	Analog input	8	X/Y remote control bus
9	1st indoor unit	10	2nd indoor unit
11	Wired remote control RC-EX1 or RC-EX3	-	-

Note

- A wired remote control must be installed in the X/Y remote control bus in which a CompTrol Interface is to be used.
- The cable for the X/Y remote control bus must be looped through and the shield applied to both sides.
Do not set any neutral points or install any junction boxes!
- Analog input **X3-S** is not electrically isolated.
When using several CompTrol Interfaces, make sure that each one receives its own analog signal. If necessary, use an isolation amplifier on site.
- The maximum length of the cable for the X/Y remote control bus to the indoor unit is 120 m.

IMPORTANT

Damage to the CompTrol Interface by reversing the polarity of terminals X5-(+) and X5-(-).

- Ensure the correct polarity for terminals **X5-(+)** and **X5-(-)**.

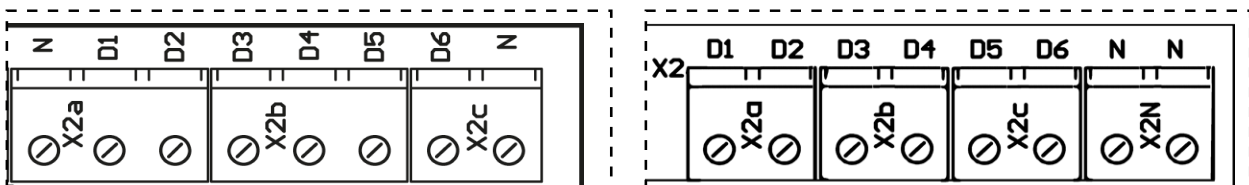
Notes on replacing an older CompTrol Interface III k with a version V4.0.x CompTrol Interface

IMPORTANT

The CompTrol Interface can be damaged by incorrect terminal assignment when replacing an older CompTrol Interface III k with a version V4.0.x CompTrol Interface.

- Make sure that the terminals of digital inputs **X2a-D1**, **X2a-D2**, **X2b-D3**, **X2b-D4**, **X2c-D5**, **X2c-D6** and neutral wire **X2N-N** are correctly assigned on the CompTrol Interface V4.0.x (see diagrams below).
- Make sure that the terminals on **X3-S** and **X3-(-RV)** at analog input **X3** of the CompTrol Interface V4.0.x are correctly assigned. The **LED+** and **LED-** terminals are not required.

Terminal assignment of CompTrol Interface III k Terminal assignment of CompTrol Interface V4.0.x

**Requirements**

- Switch off the electrical supply to the affected system and signal lines.

Procedure

1. Hook the CompTrol Interface onto the DIN rail with the upper hook of the DIN rail holder at a suitable location in the switch gear cabinet.
2. Push the CompTrol Interface down onto the DIN rail until the spring-mounted DIN rail catch clicks audibly into place on the DIN rail.

IMPORTANT

The CompTrol Interface will malfunction if pin headers **S5** and **S6** are connected to a jumper.

- Never connect pin headers **S5** and **S6** to a jumper.

3. Set jumpers on pin headers **S5** and **S6** (see “4.2 CompTrol Interface electrical supply” on page 18).
4. Set jumpers on pin headers **S4** and **S7** (see “4.4.1 Analog input X3” on page 19).
5. Set DIP switches **S1-1** to **S1-4** according to “Table 7: Program selection via DIP switches” on page 21.
6. Set the desired functions for your selected program using DIP switches **S2-1** to **S2-6**.
7. Connect the CompTrol Interface as shown in the connection diagram (see “Figure 5: CompTrol Interface connection diagram” on page 22).

8. Check the DIP switch settings and connection assignment.
9. Fill out the start-up report (see “Table 76: Spare parts” on page 109).
The start-up report is available to download from the S-Klima website:
www.s-klima.de/downloads

Result

- The CompTrol Interface has been installed and can be put into operation.

Note

- For installing, connecting, and wiring CompTrol Interfaces in combination with a CompTrol Master for program 10, see the CompTrol Master Technical Manual. Program 10 is available with CompTrol Interface V4.0.3 or higher.

IMPORTANT

Damage to the CompTrol Interface by reversing the polarity of terminals X5-(+) and X5-(-).

- Ensure the correct polarity for terminals **X5-(+)** and **X5-(-)**.

17.5 Starting up the CompTrol Interface expansion module

17.5.1 Initialization

The initialization phase commences when the CompTrol Interface is connected to the X/Y remote control bus. During this initialization phase, only the 7-segment display is active. None of the digital outputs or inputs are active. The CompTrol Interface ignores changes to analog signals during the initialization phase.

17.5.2 Initialization sequence

1. Both dots on the 7-segment display light up for 3 seconds.
2. The individual segments of the 7-segment display flash in a synchronous cycle as a display self-test.
3. The software version number, e.g. 4.0, is shown for approximately 1 second.
4. A countdown ticks down.
 - If the CompTrol Interface is configured as a slave, the countdown runs from 3 to 0: duration approx. 1 second.
 - If the CompTrol Interface is configured as a master, the countdown runs from 15 to 0: duration up to 3 minutes.
5. After the countdown, the number of the selected program is shown for approx. 1 second, e.g. “08” for program 8.
6. Next, the parameters set via DIP switches **S2-7** and **S2-8** are shown.

Note

- For starting up CompTrol Interfaces in combination with a CompTrol Master for program 10, see the CompTrol Master Technical Manual.

18 Troubleshooting

The table below describes possible problems with the CompTrol Interface. If the problem cannot be rectified, please contact Technical Support.

Note

- For troubleshooting CompTrol Interfaces in program 10, see the CompTrol Master Technical Manual. Program 10 is available with CompTrol Interface V4.0.3 or higher.

Problem	Possible cause and remedy
Changes to DIP switch settings are not applied	The CompTrol Interface was still connected to the electrical supply when the DIP switches were changed. Remedy: - Cut off the electrical supply to the CompTrol Interface by removing connector X1 from the CompTrol Interface before changing DIP switch settings. - Then change the DIP switch settings. - Plug the X1 connector back in again.
The CompTrol Interface does not initialize on the remote control bus or The indoor unit does not respond to commands from the CompTrol Interface	The CompTrol Interface and wired remote control are both configured as master. Remedy: - Check the roles assigned in the X/Y remote control bus, see “5.3.5 Status of the CompTrol Interface (master/slave) in the X/Y remote control bus” on page 28. - Configure the wired remote control as master and the CompTrol Interface as slave. - Check the setting of DIP switch S2-1 on the CompTrol Interface and correct if necessary.
The CompTrol Interface is not active even though the electrical supply is connected.	The jumpers on pin headers S5 and S6 are incorrectly positioned. Remedy: - Check the type of electrical supply, see “4.2 CompTrol Interface electrical supply” on page 18. - Correct the position of the jumpers on pin headers S5 and S6, see “4.2.1 Pin headers S5 and S6” on page 18.
Set temperature and/or frequency setpoints are not reached or fluctuate	- The analog signal set at jumpers S4 and S7 does not match the analog signal present at analog input X3. Remedy: - Check the analog signal type at analog input X3, see “4.4.1 Analog input X3” on page 19. - Correct the position of the jumpers on pin headers S4 and S7, see “Table 6: Analog signal type” on page 19.

Problem	Possible cause and remedy
Error message E1 (communication error) on the CompTrol Interface	The CompTrol Interface and wired remote control are both configured as slave.
or	Remedy:
Error message E1 (communication error) on the wired remote control	– Check the roles assigned in the X/Y remote control bus, see “5.3.5 Status of the CompTrol Interface (master/slave) in the X/Y remote control bus” on page 28. – Configure the wired remote control as master and the CompTrol Interface as slave. – Check DIP switch S2-1 on the CompTrol Interface and correct the setting if necessary.
Error message E1 (communication error) on the wired remote control	The CompTrol Interface is faulty.
	Remedy:
	– Switch off the entire system and secure so it cannot be switched back on. – Unplug all connectors of the CompTrol Interface, replace the CompTrol Interface, and re-insert all connectors. – Check the configuration of the CompTrol Interface. – Switch the system back on; reset errors on the wired remote control if necessary.
Heat exchanger temperatures Thi-R1, Thi-R2, Thi-R3 do not change	Fixed resistors have been used instead of contacting sensors.
	Remedy:
	This is normal. If required, the fixed resistors can be replaced with contacting sensors.
Air conditioning unit is cooling although Heating mode has been selected	The outdoor unit is in Defrosting mode.
	Remedy:
	– Wait until the outdoor unit has ended Defrosting mode (3 to 10 minutes).
Programs 8 and 9 have recurrent problems with high or low pressure	Incorrect DIP switch setting on outdoor unit.
	Remedy:
	– On outdoor unit series FDC71 to FDC250, set DIP switch SW4-3 on the outdoor units to ON.
In programs 8 and 9, the analog input receives an input signal of	Broken wire at analog input X3-S .
– > 1 V DC (0-10 V DC); – > 0.5 V DC (0-5 V DC); – > 2 mA (0-20 mA); – > 5.6 mA (4-20mA); while 0 Hz continues to be transmitted as a frequency request	Remedy:
	– Check cable and terminal on analog input X3-S for open circuits. – Replace cable if necessary.

Problem	Possible cause and remedy
In programs 8 and 9, air conditioning unit switches off or In programs 8 and 9, wired remote control displays error E8	The indoor unit is in – anti-frost mode at heat exchanger temperatures < 2 °C. The requested output does not match the airflow or heat exchanger (Cooling mode). – overheating protection mode at heat exchanger temperatures > 63 °C. The requested output does not match the airflow or heat exchanger (Heating mode). Remedy: – Check requested output. – Increase the flowrate. – Use a larger heat exchanger. – Check position of temperature sensors Thi-R1, Thi-R2, Thi-R3.
In programs 8 and 9, the air conditioning unit starts up even though the analog input is receiving 0 V DC or 0 mA	Analog signal X3-S is not being evaluated correctly. Remedy: – Check signal at digital input X2b-D4. The analog input is only evaluated correctly if a signal is applied (see “5.2.1 Evaluating the analog input” on page 25).
Programs 0 to 7: Air conditioning unit does not react to temperature setpoint definition	The program was changed from program 8 or 9 to program 0 to 7 via DIP switches S1-1 to S1-4 without cutting the power first. Remedy: – Before switching from program 8 or 9 to programs 0 to 7, disconnect all components of the air conditioning system (indoor units, outdoor units, CompTrol Interface, wired remote control, heat exchanger connection module, etc.) from the electrical supply.
Program 9 (cascading): Irregular switch-on/switch-off behavior of air conditioning units 1 and 2	The wrong signal ranges were activated via DIP switches S2-3 and S2-4 of the two CompTrol Interface expansion modules. Remedy: – Activate the correct signal ranges via DIP switches S2-3 and S2-4 of the two CompTrol Interface expansion modules (see “15.4.1 Setting the signal ranges via DIP switch S2” on page 82).
Program 9: Air conditioning unit 2 only starts at: – 5.4 instead of 5 V DC (0-10 V DC); – 2.7 instead of 2.5 V DC (0-5 V DC); – 10.8 instead of 10 mA (0-20 mA); – 12.6 instead of 12 mA (4-20mA).	Cascading without signal overlap has been set on both CompTrol Interface expansion modules. Remedy: – Set cascading with signal overlap on both CompTrol Interface expansion modules (see “15.4.1 Setting the signal ranges via DIP switch S2” on page 82).

Table 73: Troubleshooting table

19 Error codes

The 7-segment display displays two different types of error code.

CompTrol Interface

The 7-segment display of the CompTrol Interface shows the error codes with an **E**.

Display examples:

E1, E8

See “Table 74: CompTrol Interface error codes” on page 105 for a description of CompTrol Interface error codes.

Air conditioning unit

The error codes of the air conditioning units are shown without “E” on the 7-segment display.

Display example:

09 (corresponds to error code **E09**).

The error codes of the air conditioning units are listed

- in the Technical Manual of the relevant air conditioning unit series (see “2.5 Other applicable documents” on page 13),
- on the S-Klima website at www.s-klima.de/unterstuetzung/fehlercode-analyse/,
- in the support app from S-Klima.



Figure 25: QR code of S-Klima support app

Note

- CompTrol Interface error codes in program 10 are also described in the CompTrol Master Technical Manual. Program 10 is available with CompTrol Interface V4.0.3 or higher.

Error code	Error	Description and remedy
E0	Program selection error	The set DIP switch combination selects a program number outside the permitted range. Remedy: – Check DIP switches S1-1 to S1-4. – Reboot the system, see “Rebooting the system” on page 106.
E1	Communication interrupted	Breakdown in communication between an indoor unit and the CompTrol Interface. Remedy: – Reboot the system, see “Rebooting the system” on page 106.

Error code	Error	Description and remedy
E2	Incorrect message length	Breakdown in communication between an indoor unit and the CompTrol Interface. There may be bus users that are not communicating via the MHI protocol (X/Y). Remedy: – Reboot the system, see “Rebooting the system” on page 106.
E3	Checksum error	Breakdown in communication between an indoor unit and the CompTrol Interface. There may be bus users that are not communicating via the MHI protocol (X/Y). Remedy: – Reboot the system, see “Rebooting the system” on page 106.
E4	Parity error	Breakdown in communication between an indoor unit and the CompTrol Interface. There may be bus users that are not communicating via the MHI protocol (X/Y). Remedy: – Reboot the system, see “Rebooting the system” on page 106.
E5	SIO offline	No data received or sent. Remedy: – Reboot the system, see “Rebooting the system” on page 106.
E6	Buffer overflow	Breakdown in communication between an indoor unit and the CompTrol Interface. There may be bus users that are not communicating via the MHI protocol (X/Y). Remedy: – Reboot the system, see “Rebooting the system” on page 106.
E8	Transmitter voltage error	Error can only occur in conjunction with the resistive circuit, see “5.1.3 Resistive circuit” on page 24. Remedy: – Check resistance values at the analog input. $R1+R2 = 5.1 \text{ k}\Omega$. – Reboot the system, see “Rebooting the system” on page 106.
OH	Overheat/temperature limit alarm	Error can only occur in program 3. This error is displayed continuously while the set temperature limit value is exceeded. Temperature limit monitoring is also active if the indoor unit is switched off. Remedy: – Check the efficacy of the air conditioning system.

Table 74: CompTrol Interface error codes

19.1 Rebooting the system

Procedure

1. Switch off power to the CompTrol Interface by removing the connector from terminal **X1** or **X5** (see “4.2 CompTrol Interface electrical supply” on page 18) of the CompTrol Interface.
2. Re-insert the connector into the terminal.
3. Connect the CompTrol Interface to the electrical supply and wait for it to initialize.

If the error recurs frequently, check the bus cable to the indoor unit.

20 Disposal



Do not dispose of the CompTrol Interface expansion module with household garbage. Always dispose of electronic equipment at local collection points for waste electronic equipment, in accordance with the Waste Electrical and Electronic Equipment Directive!

21 Technical data

Supply voltage	- Via external electrical supply 24 V DC - Via X/Y remote control bus 18 V DC
Nominal current	- Max. 60 mA, for external electrical supply 24 V DC - Max. 80 mA, for electrical supply via X/Y remote control bus 18 V DC
Power consumption	1.44 W
Protection class	III, if $U_{in} < 50$ V
Protective ground	Not permitted
Length of connecting cable to indoor unit	Max. 120 m
Digital inputs:	
- Quantity	6
- Input voltage U_{in}	20 to 130 V DC or 24 to 230 V AC, shared neutral wire
Analog input:	
- Quantity	1
- Input range	0 to 5 V DC, 0 to 10 V DC, 0 to 20 mA, 4 to 20 mA
- Max. input voltage	+/-50 V DC
- Impedance	75 k Ω
Digital outputs:	
- Quantity	3
- Volt-free contacts	130 V DC, 0.5 A; 230 V AC, 0.5 A, ohmic load only
- Isolation voltage	1.5 kV against all other inputs/outputs
Bus connections:	
- Quantity	2
- Design	RJ45
Displays:	
- Status display of digital inputs	6 yellow LEDs
- Status display of digital outputs	3 yellow LEDs
- Operating signals	Three 7-segment displays, see "4.7 7-segment display" on page 21
Cable requirements	See "17.3 Cable requirements" on page 96
Max. number of indoor units	16
Operation	Configuration via DIP switches
Mounting	On TS DIN rail 35 mm x 7.5 mm (to DIN EN 60715), horizontal installation
Installation location	Indoor switch gear cabinet, distribution cabinet
Ambient conditions	
- Temperature	-20 °C to +80 °C
- Air humidity	Max. 85 %, non-condensing
Dimensions (H x W x D)	80 mm x 116 mm x 36 mm (without holder)
Weight, net	190 g

Table 75: Technical data

22 Declaration of Conformity

Konformitätserklärung Declaration of Conformity



Der Unterzeichnete
The undersigned

**STULZ GmbH
Klimatechnik
Holsteiner Chaussee 283
D - 22457 Hamburg
GERMANY**

bestätigt hiermit, dass das nachfolgend bezeichnete Gerät in der von uns in Verkehr gebrachten Ausführung die Anforderungen der EG-Richtlinien und der harmonisierten Normen bzw. der nationalen Normen und der technischen Spezifikationen erfüllt.

hereby confirms that the units listed below, in the version marketed by us, fulfil the requirements of the EC Directives and harmonized EC Standards, national Standards and technical specifications listed below.

Bei einer nicht mit uns abgestimmten Änderung des Gerätes verliert diese Erklärung ihre Gültigkeit.
In the case of a modification of the equipment not co-ordinated with us this declaration loses its validity.

**Erweiterungsmodul
extension module**

CompTrol Interface V4.x.x

EU-Richtlinien

EC-Directives

2014/30/EU (EMV-Richtlinie / *EMC Directive*)
2014/35/EU (Niederspannungsrichtlinie / *Low Voltage Directive*)
2011/65/EU (RoHS-Richtlinie / *RoHS Directive*)

Normen

Standards

DIN EN 61000-4-2; VDE 0847-4-2:2009-12
DIN EN 61000-4-3; VDE 0847-4-3:2011-04
DIN EN 61000-4-4; VDE 0847-4-4:2013-04
DIN EN 61000-4-6; VDE 0847-4-6:2014-08
DIN EN 55011:2017-03
DIN EN 55022:2011-12
DIN EN 50581:2013-02

Die CE-Kennzeichnung wurde angebracht: 2015, geändert 2021.
The CE marking was applied in the year 2015, amended in 2021.

Die technischen Unterlagen sind hinterlegt bei:
The technical documents are available at:

**STULZ GmbH
Abt. S-Klima
Holsteiner Chaussee 283
D - 22457 Hamburg
GERMANY**

Hamburg, 10.02.2021

Ort Datum
Place Date


Eric Krone
Leitung Produktmanagement
Head of Product Management

a) b)

- a) Bevollmächtigter zur Ausstellung dieser Erklärung im Namen des Herstellers
Authorized representative for issuing this declaration on behalf of the manufacturer
b) Bevollmächtigter zur Zusammenstellung der technischen Unterlagen
Authorized representative for compiling the technical documents

23 Spare parts

The following table lists the spare parts available for the product. Please order spare parts from your specialist partner when required.

Name	Description	Stulz order number	Figure
CompTrol Interface expansion module	Expansion module	CTINT-D	

Table 76: Spare parts

24 Accessories

The following table lists the accessories available for the product. Please order accessories from your specialist partner when required.

Name	Description	Stulz order number	Figure
CompTrol Master expansion module	Expansion module	CTMAS-A	
DIN rail power supply unit	Electrical supply for CompTrol Interface and CompTrol Master (see “4.2 CompTrol Interface electrical supply” on page 18). The CompTrol Interface and CompTrol Master each require a DIN rail power supply unit.	EZNT-24-063DC	

Table 77: Accessories

25 Contact

25.1 Manufacturer's address

Stulz GmbH
S-Klima Division
Holsteiner Chaussee 283
D-22457 Hamburg
Germany

26 Appendix I: List of tables

List of tables

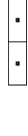
Table 78: List of tables

Table 1: Conventions regarding the presentation of safety and warning notes.....	9
Table 2: Abbreviations	10
Table 3: Formatting.....	10
Table 4: Nomenclature.....	10
Table 5: Type of electrical supply.....	18
Table 6: Analog signal type.....	19
Table 7: Program selection via DIP switches.....	21
Table 8: 7-segment display.....	21
Table 9: Resistance values for voltage dividers.....	25
Table 10: Fan speeds dependent on temperature difference	27
Table 11: Signal boundary values for signal boundary value monitoring.....	27
Table 12: Program overview.....	30
Table 13: DIP switch setting for program 0.....	33
Table 14: Functions in program 0.....	33
Table 15: Value table for program 0 temperature setpoint	34
Table 16: Digital inputs in program 0	35
Table 17: Digital outputs in program 0.....	35
Table 18: DIP switch setting for program 2.....	38
Table 19: Functions in program 2.....	38
Table 20: Value table for program 2 temperature setpoint	39
Table 21: Digital inputs in program 2	40
Table 22: Digital outputs in program 2.....	41
Table 23: DIP switch setting for program 3.....	44
Table 24: Functions in program 3.....	44
Table 25: Value table for program 3 temperature setpoint	45
Table 26: Setting the temperature limit value	46
Table 27: Digital inputs in program 3.....	46
Table 28: Digital outputs in program 3.....	47
Table 29: DIP switch setting for program 4.....	50
Table 30: Functions in program 4.....	50
Table 31: Value table for program 4 temperature setpoint	51
Table 32: Digital inputs in program 4	52
Table 33: Digital outputs in program 4.....	52
Table 34: DIP switch setting for program 5.....	55

Table 35: Functions in program 5	55
Table 36: Value table for program 5 temperature setpoint	56
Table 37: Digital inputs in program 5	57
Table 38: Digital outputs in program 5	57
Table 39: DIP switch setting for program 6	60
Table 40: Functions in program 6	60
Table 41: Value table for program 6 temperature setpoint	61
Table 42: Digital inputs in program 6	62
Table 43: Digital outputs in program 6	62
Table 44: DIP switch setting for program 7	65
Table 45: Functions in program 7	65
Table 46: Value table for program 7 temperature setpoint	66
Table 47: Digital inputs in program 7	67
Table 48: Digital outputs in program 7	67
Table 49: DIP switch setting for program 8	70
Table 50: Functions in program 8	70
Table 51: Setting the outdoor unit model with DIP switches S1-5 to S1-8	71
Table 52: Digital inputs in program 8	73
Table 53: Digital outputs in program 8	73
Table 54: DIP switch setting for program 9	77
Table 55: Functions in program 9	77
Table 56: Setting the outdoor unit model with DIP switches S1-5 to S1-8	79
Table 57: Direct frequency request with cascading without signal overlap – signal range of 1st outdoor unit	80
Table 58: Direct frequency request with cascading with signal overlap – signal of 2nd outdoor unit	81
Table 59: Direct frequency request with cascading with signal overlap – signal range of 1st air conditioning unit	82
Table 60: Direct frequency request with cascading with signal overlap – signal of 2nd air conditioning unit	82
Table 61: Signal overlap of 1st and 2nd air conditioning units	82
Table 62: Setting the signal ranges on both CompTrol Interfaces – analog signal type 0-10 V DC	83
Table 63: Setting the signal ranges on both CompTrol Interfaces – analog signal type 0-5 V DC	83
Table 64: Setting the signal ranges on both CompTrol Interfaces – analog signal type 0-20 mA	84
Table 65: Setting the signal ranges on both CompTrol Interfaces – analog signal type 4-20 mA	84
Table 66: Digital inputs in program 9	86

<i>Table 67: Digital outputs in program 9</i>	<i>86</i>
<i>Table 68: DIP switch setting for program 10</i>	<i>91</i>
<i>Table 69: Functions in program 10</i>	<i>92</i>
<i>Table 70: Setting the outdoor unit model with DIP switches S1-5 to S1-8</i>	<i>93</i>
<i>Table 71: Digital outputs in program 10</i>	<i>94</i>
<i>Table 72: Cable requirements</i>	<i>97</i>
<i>Table 73: Troubleshooting table</i>	<i>103</i>
<i>Table 74: CompTrol Interface error codes</i>	<i>105</i>
<i>Table 75: Technical data</i>	<i>107</i>
<i>Table 76: Spare parts</i>	<i>109</i>
<i>Table 77: Accessories</i>	<i>109</i>

27 Appendix II: Start-up Report

CompTrol Interface V4.0.x Start-up Report		
KTR number: _____ Order: _____ Model/type: _____ _____	Specialist operator/fitter 	
NOTES - Comply with the safety instructions and technical data in the CompTrol Interface V4.0.x Technical Manual. - All work must be performed exclusively by authorized and trained specialist personnel.		
Check installation (check box as applicable) Checked		
Interface mounted on DIN rail in switch gear cabinet and checked for secure mounting	Yes ☐	No ☐
Secure fastening of cables in screw terminals checked	Yes ☐	No ☐
Check electrical supply (check box as applicable) Checked		
External electrical supply at input X5 connected and checked *	Yes ☐	No ☐
Jumpers at pin headers S5 and S6 inserted and checked	Yes ☐	No ☐
* Necessary in combination with CompTrol Interface Master.		
Check connections (check box as applicable) Checked		
Remote control bus (X/Y bus) at input X1 connected and checked	Yes ☐	No ☐
Total length of remote control bus checked _____ m (max. 120 m)	Yes ☐	No ☐
Analog signal at analog inputs X3-S and X3-(-RV) connected	Yes ☐	No ☐
Polarity at analog inputs X3-S and X3-(-RV) checked	Yes ☐	No ☐
Digital output X4a-I for status signal connected and checked *	Yes ☐	No ☐
Digital output X4b-II for status signal connected and checked *	Yes ☐	No ☐
Digital output X4c-III for status signal connected and checked *	Yes ☐	No ☐
Digital inputs X2a-D1 and -D2 , X2b-D3 to X2b-D5 , X2c-D6 , X2N-N connected and checked	Yes ☐	No ☐
Correct wiring checked	Yes ☐	No ☐
* Status signal is dependent on the set program. For a description of programs, see the CompTrol Interface V4.0.x Technical Manual.		
Set analog signal at analog input X3		
	S4	S7
0-10 V DC set at pin headers S4 and S7		
0-5 V DC set at pin headers S4 and S7		
0-20 mA set at pin headers S4 and S7		
4-20 mA set at pin headers S4 and S7		

7-segment display: Set DIP switches to display temp. setpoint definition (check box as applicable)							
Note: The settings of DIP switches S2-7 and S2-8 apply to programs 0 and 2 to 7!		DIP	S2-7	S2-8	Shown on 7-segment display	Activated	
Description of 7-segment display: Displays status signals and error codes.			OFF	OFF	Temperature setpoint	☐	
			ON	OFF	Temperature actual value	☐	
			OFF	ON	Fan speed (F1 , F2 , F3)	☐	
			ON	ON	Error code	☐	
7-segment display: Set DIP switches to display frequency request (check box as applicable)							
Note: The settings of DIP switches S2-7 and S2-8 apply to programs 8 to 9! To display the frequency actual value on the 7-segment display, set S2-1 to ON (master).		DIP	S2-7	S2-8	Shown on 7-segment display	Activated	
Description of 7-segment display: Displays status signals and error codes.			OFF	OFF	Frequency setpoint	☐	
			ON	OFF	Frequency actual value	☐	
			OFF	ON	Fan speed (F1 , F2 , F3)	☐	
			ON	ON	Error code	☐	
Set program 0 on DIP switches (check box as applicable)							
Safety instruction: Before setting the DIP switches, disconnect the switch gear cabinet and Interface from the electrical supply.							
Description of program 0: Temperature setpoint definition via analog signal		DIP	S1-1	S1-2	S1-3	S1-4 Program 0 activated	
		Pos.	OFF	OFF	OFF	OFF ☐	
DIP	Pos.		Function	DIP	Pos.		Function
S2-1	OFF	☐	Slave	S2-5	OFF	☐	Inoperative
	ON	☐	Master		ON	☐	Forced mode
S2-2	OFF	☐	X4b : Compressor signal; X4c : Defrost signal	S2-6	OFF	☐	All digital outputs (NO)
	ON	☐	X4b : Operating signal; X4c : Heating signal		ON	☐	All digital outputs (NC)
S2-3	OFF	☐	Inoperative, DIP switch setting is always OFF	S2-7	OFF	☐	To set the 7-segment display, see table: 7-segment display: Set DIP switches to display temp. setpoint definition.
	ON	☐					
S2-4	OFF	☐	Inoperative	S2-8	OFF	☐	
	ON	☐	Automatic fan speed control		ON	☐	
Analog signal						Activated	
0-10 V		For setting the analog signal, see Set analog signal at analog input X3 .				☐	
0-5 V						☐	
0-20 mA						☐	
4-20 mA						☐	

Set program 2 via DIP switches (check box as applicable)									
Safety instruction: Before setting the DIP switches, disconnect the switch gear cabinet and Interface from the electrical supply.									
Description of program 2: Temperature setpoint definition with window contact function				DIP	S1-1	S1-2	S1-3	S1-4	Program 2 activated
				Pos.	OFF	ON	OFF	OFF	☐
DIP	Pos.		Function	DIP	Pos.		Function		
S2-1	OFF	☐	Slave	S2-5	OFF	☐	Inoperative, DIP switch setting is always OFF		
	ON	☐	Master		ON	☐			
S2-2	OFF	☐	X4b: Compressor signal; X4c: Window cont. signal	S2-6	OFF	☐	All digital outputs (NO)		
	ON	☐	X4b: Operating signal; X4c: Window contact signal		ON	☐	All digital outputs (NC)		
S2-3	OFF	☐	AUTO ON: Window contact OFF	S2-7	OFF	☐	To set the 7-segment display, see table: 7-segment display: Set DIP switches to display temp. setpoint definition.		
	ON	☐	AUTO ON: Window contact ON		ON	☐			
S2-4	OFF	☐	Inoperative	S2-8	OFF	☐			
	ON	☐	Automatic fan speed control		ON	☐			
Analog signal									
0-10 V			For setting the analog signal, see Set analog signal at analog input X3 .				Activated		
0-5 V							☐		
0-20 mA							☐		
4-20 mA							☐		
Set program 3 via DIP switches (check box as applicable)									
Safety instruction: Before setting the DIP switches, disconnect the switch gear cabinet and Interface from the electrical supply.									
Description of program 3: Temperature setpoint definition for equipment rooms with limit alarm				DIP	S1-1	S1-2	S1-3	S1-4	Program 3 activated
				Pos.	ON	ON	OFF	OFF	☐
DIP	Pos.		Function	DIP	Pos.		Function		
S2-1	OFF	☐	Slave	S2-5	OFF	☐	Inoperative		
	ON	☐	Master		ON	☐	Forced mode		
S2-2	OFF	☐	X4b: Compressor signal; X4c: Temp. signal	S2-6	OFF	☐	All digital outputs (NO)		
	ON	☐	X4b: Operating signal; X4c: Temp. signal		ON	☐	All digital outputs (NC)		
S2-3	OFF	☐	To set the DIP switches for the temperature limit alarm, see the following table: Program 3: Set DIP switches for temperature limit alarm.	S2-7	OFF	☐	To set the 7-segment display, see table: 7-segment display: Set DIP switches to display temp. setpoint definition.		
	ON	☐			ON	☐			
S2-4	OFF	☐		S2-8	OFF	☐			
	ON	☐			ON	☐			
Program 3: Set DIP switches for temperature limit alarm (check box as applicable)									
Note: The temperature limit alarm can only be set in program 3.				DIP	S2-3	S2-4	Temperature limit value [°C]		Activated
Description of temperature limit alarm: If the temperature limit value is exceeded, a status signal is emitted at digital output X4c-K3.					OFF	OFF	24		☐
					ON	OFF	26		☐
					OFF	ON	28		☐
					ON	ON	30		☐
Analog signal									
0-10 V			For setting the analog signal, see Set analog signal at analog input X3 .				Activated		
0-5 V							☐		
0-20 mA							☐		
4-20 mA							☐		

Set program 4 on DIP switches (check box as applicable)									
Safety instruction: Before setting the DIP switches, disconnect the switch gear cabinet and Interface from the electrical supply.									
Description of program 4: Temperature setpoint definition with hotel remote control function				DIP	S1-1	S1-2	S1-3	S1-4	Program 4 activated
				Pos.	OFF	OFF	ON	OFF	☐
DIP	Pos.		Function	DIP	Pos.		Function		
S2-1	OFF	☐	Slave	S2-5	OFF	☐	Inoperative		
	ON	☐	Master		ON	☐	Forced mode		
S2-2	OFF	☐	X4b: Compressor signal; X4c: Defrost signal	S2-6	OFF	☐	All digital outputs (NO)		
	ON	☐	X4b: Operating signal; X4c: Heating signal		ON	☐	All digital outputs (NC)		
S2-3	OFF	☐	Inoperative, DIP switch setting is always OFF	S2-7	OFF	☐	To set the 7-segment display, see table: 7-segment display: Set DIP switches to display temp. setpoint definition.		
	ON	☐			ON	☐			
S2-4	OFF	☐	Inoperative	S2-8	OFF	☐			
	ON	☐	Automatic fan speed control		ON	☐			
Analog signal								Activated	
0-10 V				For setting the analog signal, see Set analog signal at analog input X3.				☐	
0-5 V								☐	
0-20 mA								☐	
4-20 mA								☐	
Set program 5 via DIP switches (check box as applicable)									
Safety instruction: Before setting the DIP switches, disconnect the switch gear cabinet and Interface from the electrical supply.									
Description of program 5: Temperature setpoint definition with lockout function				DIP	S1-1	S1-2	S1-3	S1-4	Program 5 activated
				Pos.	ON	OFF	ON	OFF	☐
DIP	Pos.		Function	DIP	Pos.		Function		
S2-1	OFF	☐	Slave	S2-5	OFF	☐	Inoperative		
	ON	☐	Master		ON	☐	Forced mode		
S2-2	OFF	☐	X4b: Compressor signal; X4c: Defrost signal	S2-6	OFF	☐	All digital outputs (NO)		
	ON	☐	X4b: Operating signal; X4c: Heating signal		ON	☐	All digital outputs (NC)		
S2-3	OFF	☐	Inoperative, DIP switch setting is always OFF	S2-7	OFF	☐	To set the 7-segment display, see table: 7-segment display: Set DIP switches to display temp. setpoint definition.		
	ON	☐			ON	☐			
S2-4	OFF	☐	Inoperative	S2-8	OFF	☐			
	ON	☐	Automatic fan speed control		ON	☐			
Analog signal								Activated	
0-10 V				For setting the analog signal, see Set analog signal at analog input X3.				☐	
0-5 V								☐	
0-20 mA								☐	
4-20 mA								☐	

Set program 6 via DIP switches (check box as applicable)									
Safety instruction: Before setting the DIP switches, disconnect the switch gear cabinet and Interface from the electrical supply.									
Description of program 6: Temperature setpoint definition for heat exchanger connection module				DIP	S1-1	S1-2	S1-3	S1-4	Program 6 activated
				Pos.	OFF	ON	ON	OFF	☐
DIP	Pos.		Function	DIP	Pos.		Function		
S2-1	OFF	☐	Slave	S2-5	OFF	☐	Inoperative		
	ON	☐	Master		ON	☐	Forced mode		
S2-2	OFF	☐	X4b: Compressor signal; X4c: Defrost signal	S2-6	OFF	☐	All digital outputs (NO)		
	ON	☐	X4b: Operating signal; X4c: Heating signal		ON	☐	All digital outputs (NC)		
S2-3	OFF	☐	Inoperative, DIP switch setting is always OFF	S2-7	OFF	☐	To set the 7-segment display, see table: 7-segment display: Set DIP switches to display temp. setpoint definition.		
	ON	☐			ON	☐			
S2-4	OFF	☐	Inoperative	S2-8	OFF	☐			
	ON	☐	Automatic fan speed control		ON	☐			
Analog signal									
0-10 V			For setting the analog signal, see Set analog signal at analog input X3.				Activated		
0-5 V							☐		
0-20 mA							☐		
4-20 mA							☐		
Set program 7 on DIP switches (check box as applicable)									
Safety instruction: Before setting the DIP switches, disconnect the switch gear cabinet and Interface from the electrical supply.									
Description of program 7: Temperature setpoint definition without signal boundary value monitoring				DIP	S1-1	S1-2	S1-3	S1-4	Program 7 activated
				Pos.	ON	ON	ON	OFF	☐
DIP	Pos.		Function	DIP	Pos.		Function		
S2-1	OFF	☐	Slave	S2-5	OFF	☐	Inoperative		
	ON	☐	Master		ON	☐	Forced mode		
S2-2	OFF	☐	X4b: Compressor signal; X4c: Defrost signal	S2-6	OFF	☐	All digital outputs (NO)		
	ON	☐	X4b: Operating signal; X4c: Heating signal		ON	☐	All digital outputs (NC)		
S2-3	OFF	☐	Inoperative, DIP switch setting is always OFF	S2-7	OFF	☐	To set the 7-segment display, see table: 7-segment display: Set DIP switches to display temp. setpoint definition.		
	ON	☐			ON	☐			
S2-4	OFF	☐	Inoperative	S2-8	OFF	☐			
	ON	☐	Automatic fan speed control		ON	☐			
Analog signal									
0-10 V			For setting the analog signal, see Set analog signal at analog input X3.				Activated		
0-5 V							☐		
0-20 mA							☐		
4-20 mA							☐		

Set program 8 via DIP switches (check box as applicable)						
Safety instruction: Before setting the DIP switches, disconnect the switch gear cabinet and Interface from the electrical supply.						
Description of program 8: Direct frequency request				DIP Pos.	S1-1 OFF	S1-2 OFF
				S1-3 OFF	S1-4 ON	Program 8 activated ☐
DIP	Pos.		Function	DIP	Pos.	Function
S2-1	OFF	☐	Slave	S2-5	OFF	☐ Inoperative
	ON	☐	Master		ON	☐ Forced mode
S2-2	OFF	☐	X4b: Compressor signal; X4c: Defrost signal	S2-6	OFF	☐ All digital outputs (NO)
	ON	☐	X4b: Operating signal; X4c: Heating signal		ON	☐ All digital outputs (NC)
S2-3	OFF	☐	Inoperative, DIP switch setting is always OFF	S2-7	OFF	To set the 7-segment display, see table: 7-segment display: Set DIP switches to display frequency request.
	ON	☐			ON	
S2-4	OFF	☐	Inoperative, DIP switch setting is always OFF	S2-8	OFF	
	ON	☐			ON	
Program 8: Set DIP switches for direct frequency request (check box as applicable)						
Description of the direct frequency request: Adapts the Interface to the compressor frequency of the outdoor unit installed on site, as per Table 2.						
For FDC outdoor units: Set DIP switch S1 on Interface						
1. Set DIP switch SW4-3 on the outdoor unit PCB of the FDC outdoor unit to ON (see Technical Manual of FDC series).						
2. Identify which FDC outdoor unit is installed on site (see Table 2).						
3. Set DIP switches S1-5 to S1-8 in line with the FDC outdoor unit installed on site (see Table 2).						
SW4-3 on outdoor unit set to ON Yes ☐ No ☐						
For SRC outdoor units: Set DIP switch S1 on Interface						
Make sure there is always a request during a setpoint/actual value comparison.						
1. Replace the Thi-A sensor with a 5 kΩ fixed resistor (see Technical Manual for heat exchanger connection module).						
2. Set the temperature setpoint on the wired remote control:						
– When using to cool: Set temperature setpoint to 18 °C.						
– When using to heat: Set temperature setpoint to 30 °C.						
3. Disable the wired remote control so temperature setpoint cannot be changed.						
– Alternatively: Disable the wired remote control by means of a signal to digital input X2b-D3 (Interface = Center).						
4. Identify which SRC outdoor unit is installed on site (see Table 2).						
5. Set DIP switches S1-5 to S1-8 in line with the SRC outdoor unit installed on site (see Table 2).						
Thi-A sensor replaced by 5 kΩ fixed resistor Yes ☐ No ☐						
Cooling: Temperature setpoint set to 18 °C on wired remote control Yes ☐ No ☐						
Heating: Temperature setpoint set to 30 °C on wired remote control Yes ☐ No ☐						
On wired remote control: Setpoint temperature button disabled Yes ☐ No ☐						
Wired remote control disabled by signal to X2b-D3 Yes ☐ No ☐						
Analog signal					Activated	
0-10 V		For setting the analog signal, see Set analog signal at analog input X3.			☐	
0-5 V					☐	
0-20 mA					☐	
4-20 mA					☐	

Set program 9 via DIP switches (check box as applicable)																					
Safety instruction: Before setting the DIP switches, disconnect the switch gear cabinet and Interface from the electrical supply.																					
Description of program 9: Direct frequency request with cascading				DIP Pos.	S1-1 ON	S1-2 OFF	S1-3 OFF	S1-4 ON	Program 9 activated ☐												
DIP	Pos.		Function	DIP	Pos.		Function														
S2-1	OFF	☐	Slave	S2-5	OFF	☐	Inoperative														
	ON	☐	Master		ON	☐	Forced mode														
S2-2	OFF	☐	X4b: Compressor signal; X4c: Defrost signal	S2-6	OFF	☐	All digital outputs (NO)														
	ON	☐	X4b: Operating signal; X4c: Heating signal		ON	☐	All digital outputs (NC)														
S2-3	OFF		To set the DIP switches for the analog signal ranges, see Table 1.	S2-7	OFF	☐	To set the 7-segment display, see table: 7-segment display: Set DIP switches to display frequency request.														
	ON				ON	☐															
S2-4	OFF			S2-8	OFF	☐															
	ON				ON	☐															
Program 9: Set DIP switches for direct freq. request with cascading (check box as applicable) Description of direct frequency request with cascading: Adapts both Interface PCBs to the compressor frequencies of the outdoor unit models installed on site as per Tables 1 and 2.																					
For FDC outdoor units: Set DIP switch S1 on Interface 1. Set DIP switch SW4-3 on outdoor unit PCBs of FDC outdoor units to ON (see Technical Manual of FDC series). 2. Identify which FDC outdoor units are installed on site (see Table 2). 3. Set DIP switches S1-5 to S1-8 in line with the FDC outdoor units installed on site (see Table 2). 4. On both Interface PCBs, use DIP switches S2-3 and S2-4 to set the signal ranges with or without signal overlap (see Table 1).																					
SW4-3 on outdoor unit set to ON Yes ☐ No ☐																					
For SRC outdoor units: Set DIP switch S1 on Interface Make sure there is always a request during a setpoint/actual value comparison. 1. Replace the Thi-A sensor with a 5 kΩ fixed resistor (see Technical Manual for heat exchanger connection module). 2. Set the temperature setpoint on the wired remote control: – When using to cool: Set temperature setpoint to 18 °C . – When using to heat: Set temperature setpoint to 30 °C . 3. Disable the wired remote control so temperature setpoint cannot be changed. – Alternatively: Disable the wired remote control by means of a signal to digital input X2b-D3 (Interface = Center). 4. Identify which SRC outdoor units are installed on site (see Table 2). 5. Set DIP switches S1-5 to S1-8 in line with the SRC outdoor units installed on site (see Table 2). 6. On both Interface PCBs, use DIP switches S2-3 and S2-4 to set the signal ranges with or without signal overlap (see Table 1).																					
Thi-A sensor replaced by 5 kΩ fixed resistor Yes ☐ No ☐																					
Cooling: Temperature setpoint set to 18 °C on wired remote control Yes ☐ No ☐																					
Heating: Temperature setpoint set to 30 °C on wired remote control Yes ☐ No ☐																					
On wired remote control: Setpoint temperature button disabled Yes ☐ No ☐																					
Wired remote control disabled by signal to X2b-D3 Yes ☐ No ☐																					
<table border="1"> <thead> <tr> <th>Analog signal</th> <th></th> <th>Activated</th> </tr> </thead> <tbody> <tr> <td>0-10 V</td> <td rowspan="4">For setting the analog signal, see Set analog signal at analog input X3.</td> <td>☐</td> </tr> <tr> <td>0-5 V</td> <td>☐</td> </tr> <tr> <td>0-20 mA</td> <td>☐</td> </tr> <tr> <td>4-20 mA</td> <td>☐</td> </tr> </tbody> </table>										Analog signal		Activated	0-10 V	For setting the analog signal, see Set analog signal at analog input X3.	☐	0-5 V	☐	0-20 mA	☐	4-20 mA	☐
Analog signal		Activated																			
0-10 V	For setting the analog signal, see Set analog signal at analog input X3.	☐																			
0-5 V		☐																			
0-20 mA		☐																			
4-20 mA		☐																			

Program 10: Direct frequency request with the CompTrol Master

The required settings can be found in the Start-up Report of the CompTrol Master.
 You need a CompTrol Master to use a CompTrol interface in program 10.

Table 1: Set signal ranges on both Interface PCBs (check box as applicable)				
Interface 1				
S2-3	S2-4	Signal range	Activated	Description
OFF	OFF	A	☐	0 to 5.4 V, without signal overlap
			☐	0 to 2.7 V, without signal overlap
			☐	0 to 10.8 mA, without signal overlap
			☐	0 to 12.6 mA, without signal overlap
ON	ON	B	☐	5.4 to 10 V, without signal overlap
			☐	2.7 to 5 V, without signal overlap
			☐	10.8 to 20 mA, without signal overlap
			☐	12.6 to 20 mA, without signal overlap
OFF	ON	C	☐	0 to 5.8 V, with signal overlap
			☐	0 to 2.9 V, with signal overlap
			☐	0 to 11.6 mA, with signal overlap
			☐	0 to 13.3 mA, with signal overlap
ON	ON	D	☐	5 to 10 V, with signal overlap
			☐	2.5 to 5 V, with signal overlap
			☐	10 to 20 mA, with signal overlap
			☐	12 to 20 mA, with signal overlap
Interface 2				
S2-3	S2-4	Signal range	Activated	Description
OFF	OFF	A	☐	0 to 5.4 V, without signal overlap
			☐	0 to 2.7 V, without signal overlap
			☐	0 to 10.8 mA, without signal overlap
			☐	0 to 12.6 mA, without signal overlap
ON	ON	B	☐	5.4 to 10 V, without signal overlap
			☐	2.7 to 5 V, without signal overlap
			☐	10.8 to 20 mA, without signal overlap
			☐	12.6 to 20 mA, without signal overlap
OFF	ON	C	☐	0 to 5.8 V, with signal overlap
			☐	0 to 2.9 V, with signal overlap
			☐	0 to 11.6 mA, with signal overlap
			☐	0 to 13.3 mA, with signal overlap
ON	ON	D	☐	5 to 10 V, with signal overlap
			☐	2.5 to 5 V, with signal overlap
			☐	10 to 20 mA, with signal overlap
			☐	12 to 20 mA, with signal overlap

Table 2: Check set outdoor unit model (check box as applicable)

Outdoor unit model					DIP switch			
FDC outdoor unit	Activated		SRC outdoor unit	Activated	S1-5	S1-6	S1-7	S1-8
-	-		-	-	OFF	OFF	OFF	OFF
-	-		-	-	ON	OFF	OFF	OFF
-	-		-	-	OFF	ON	OFF	OFF
FDC100VNX/VNX-W	☐		-	-	ON	ON	OFF	OFF
FDC100VSX/VSX-W	☐		-	-				
-	-		SRC40ZSX-S/ZSX-W	☐	OFF	OFF	ON	OFF
-	-		SRC50ZSX-S/ZSX-W	☐				
FDC71VNX	☐		-	-	ON	OFF	ON	OFF
FDC100VN/VNA/VNA-W	☐		-	-	OFF	ON	ON	OFF
FDC100VS/VSA/VSA-W	☐		-	-				
FDC125VS	☐		-	-				
FDC125VSX/VSX-W	☐		-	-				
FDC140VS	☐		-	-	ON	ON	ON	OFF
FDC140VSX/VSX-W	☐		-	-				
FDC125VNX/VNX-W	☐		-	-				
FDC140VNX/VNX-W	☐		-	-				
-	-		-	-	OFF	OFF	OFF	ON
-	-		-	-	ON	OFF	OFF	ON
-	-		-	-	OFF	ON	OFF	ON
FDC125VN/VNA/VNA-W/ VSA/VSA-W	☐		-	-	ON	ON	OFF	ON
FDC140VN/VNA/VNA-W/ VSA/VSA-W	☐		-	-	OFF	OFF	ON	ON
FDC71VNX-W	☐		-	-	ON	OFF	ON	ON
-	-		SRC60ZSX-S/ZSX-W	☐	OFF	ON	ON	ON
FDC200VSA	☐		-	-	ON	ON	ON	ON
FDC250VSA	☐		-	-				
Comments:								
Final check of entire system OK ☐ NOK ☐								
Date: Test performed by: Signature:								

Index

Symbole

7-segment display 21

A

Abbreviations 9

Alarm signal 28

Analog input 19

 Direct frequency request 23

 Evaluating 25

 Functions 23

 Input signal type 19

 Resistive circuit 24

 S4 and S7 19, 33, 38, 44, 50,
 55, 60, 65, 70, 77

 Temperature setpoint defini-
 tion 23

Automatic fan speed control 26

Auto ON function 40

Autoswing function 26

B

Bus connections X2 and X4 20

C

Cable requirements 96

Cascading 23, 74

 Setting the signal range 83,
 84

 without signal overlap 79, 93

 with signal overlap 81

Center mode 26

Center-Remote mode 26

Compatible products 13

Compressor frequency 72

Compressor signal 29

CompTrol Interface

 connecting 98

 Connection diagram 16, 22

 disposal 106

 Functions 23

 installing 14, 95, 98

 Product description 16

 Product package 14

 Program overview 30

 starting up 100

 Status 28

CompTrol Interface bus 20

Configuration

 Program 0 31

 Program 2 36

 Program 3 42

 Program 4 48

 Program 5 53

 Program 6 58

 Program 7 63

 Program 8 68

 Program 9 74

 Program 10 87, 92

Connecting 98

Connection assignment 16

Connection diagram 16, 22, 98

 Program 0 31

 Program 2 36

 Program 3 42

 Program 4 48

 Program 5 54

 Program 6 58

 Program 7 63

 Program 8 68

 Program 10 88, 90

D

Declaration of Conformity 108

Defrost signal 29

Digital inputs 19

 Functions 25

 Program 0 35

 Program 2 40

 Program 3 46

 Program 4 52

 Program 5 57

 Program 6 61

 Program 7 66

 Program 8 73

 Program 9 85

 Program 10 94

Digital outputs 19

 Inversion 27

 Program 0 35

 Program 2 41

 Program 3 47

 Program 4 52

 Program 5 57

 Program 6 62

 Program 7 67

 Program 8 73

 Program 9 86

 Program 10 94

DIN rail mounting 96

DIP switch S1 20

 Program selection 21

DIP switch S2 21

Direct frequency request 23, 68

 with cascading 74, 87

Disclaimer 11

Disposal 106

Documents

 other applicable 13

E

Electrical installation 14

Electrical supply 18

 Pin headers S5 and S6 18
 via external electrical supply
 X5 18

 via X/Y remote control bus
 X1 18

 with CompTrol Master 18

Error code 21, 104

Evaluation

 of the analog input 25

F

Fan speed 21, 26
 depending on temperature difference 27
 Fan speed control
 automated 26
 Forced mode 26, 27
 Frequency actual value 21
 Frequency setpoint 21
 Functions
 of the analog input 23
 of the CompTrol Interface 23
 Program 0 33
 Program 2 38
 Program 3 44
 Program 4 50
 Program 5 55
 Program 6 60
 Program 7 65
 Program 8 70
 Program 9 77
 Program 10 91
 Special functions 26
 via digital inputs 25

H

Hazard level 9
 Heat exchanger connection module 58
 Heating signal 29
 Hotel remote control function 48

I

Input signal type 19
 Installation 14
 CompTrol Interface 95, 98
 Conditions 95
 electrical 14
 Installation clearance 96
 Inversion
 of digital outputs 27

L

Liability claims for defects 11
 Lockout function 53

M

Master 28
 Mode selection 26

N

NC (normally closed) 27
 Nomenclature 10
 NO (normally open) 27

O

Other applicable documents 13

P

Packaging 14
 Pin headers
 S5, S6 18
 S8, S9 19
 Power bus 20
 Preset fan speed 26
 Product description 16
 Product package 15
 Products
 compatible 13
 Program 0 31
 configuring 31
 Connection diagram 31
 Description 31
 Digital inputs 35
 Digital outputs 35
 Functions 33
 setting 33
 Temperature setpoint 34
 Program 2 36
 configuring 36
 Connection diagram 36
 Description 36
 Digital inputs 40
 Digital outputs 41
 Functions 38
 setting 38
 Temperature setpoint 39
 Program 3 42
 configuring 42
 Connection diagram 42
 Description 42
 Digital inputs 46
 Digital outputs 47
 Functions 44
 setting 44
 Temperature setpoint 45

Program 4 48
 configuring 48
 Connection diagram 48
 Description 48
 Digital inputs 52
 Digital outputs 52
 Functions 50
 setting 50
 Temperature setpoint 51
 Program 5 53
 configuring 53
 Connection diagram 54
 Description 53
 Digital inputs 57
 Digital outputs 57
 Functions 55
 setting 55
 Temperature setpoint 56
 Program 6 58
 configuring 58
 Connection diagram 58
 Description 58
 Digital inputs 61
 Digital outputs 62
 Functions 60
 setting 60
 Temperature setpoint 61
 Program 7 63
 configuring 63
 Connection diagram 63
 Description 63
 Digital inputs 66
 Digital outputs 67
 Functions 65
 setting 65
 Temperature setpoint 66
 Program 8 68
 configuring 68
 Connection diagram 68
 Description 68
 Digital inputs 73
 Digital outputs 73
 Functions 70
 setting 70
 Program 9 74
 configuring 74
 Connection diagram 75
 Description 74
 Digital inputs 85
 Digital outputs 86
 Functions 77
 setting 77

Program 10 87
 configuring 87, 92
 Connection diagrams 88
 Description 87
 Digital outputs 94
 Functions 91
 setting 91
Program overview 30
Program selection 21
Proper use 12

Q

Qualification requirements 9, 13

R

Remote ON/OFF 26
Resistance values
 for voltage dividers 25
Resistive circuit
 of the analog input 24

S

Safety instructions 12
Scope 9
Service clearance space 96
Setting
 Electrical supply 18
 Input signal 19, 33, 38, 44,
 50, 55, 60, 65, 70, 77
 Program 0 33
 Program 2 38
 Program 3 44
 Program 4 50
 Program 5 55
 Program 6 60
 Program 7 65
 Program 8 70
 Program 9 77
 Program 10 91
 SRC outdoor units 71, 78, 92
 Temperature limit value 45
Signal boundary value monitoring 27
Slave 28
Spare parts 14, 109
Specialist electrician 13
SRC outdoor units
 setting 71, 78, 92
Start-up 100
Start-up report 113

Status of the CompTrol Interface 28
Status signal 29
 Compressor signal 29
 Defrost signal 29
 Heating signal 29
 Temperature limit alarm 29
 Window contact signal 29
Storage 14
System reboot 106

T

Target group 9
Tasks of the CompTrol Interface 12
Technical data 107
Temperature actual value 21
Temperature limit alarm 42
Temperature limit value
 setting 45
Temperature setpoint 21
 Program 0 34
 Program 2 39
 Program 3 45
 Program 4 51
 Program 5 56
 Program 6 61
 Program 7 66
Temperature setpoint definition 23
 for equipment rooms with temperature limit alarm 42
 for heat exchanger connection module 58
 via analog signal 31
 with hotel remote control function 48
 with lockout function 53
 without signal boundary value monitoring 63
 with window contact function 36
Transport 14
Transport damage 14
Troubleshooting 101
Type of connection 19
 Analog input 19
 Bus connections X2 and X4 20
 Digital inputs 19
 Digital outputs 19
 Electrical supply X5 18
 X/Y remote control bus 20

U

Use
 proper 12

V

Value tables
 setting 82

W

Window contact function 36, 40
Window contact signal 29
Wiring 14

X

X/Y remote control bus 20, 28

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