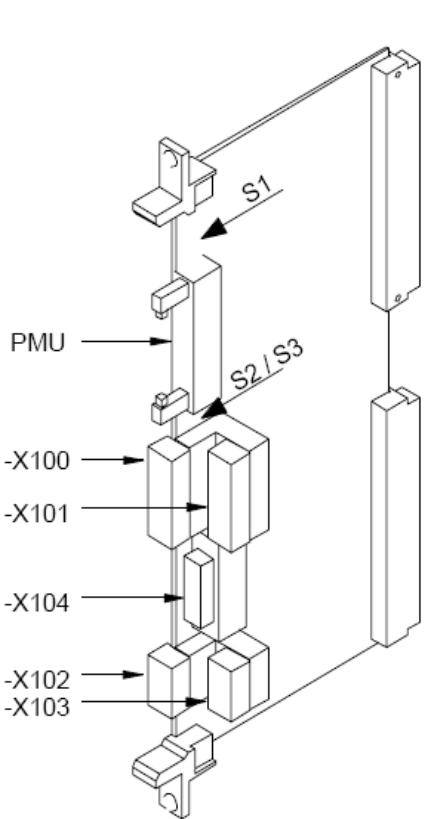# SIEMENS

1.1 Comparison CU3 and CUMC
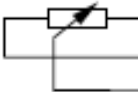
View of the CU3   **View of the CUMC**

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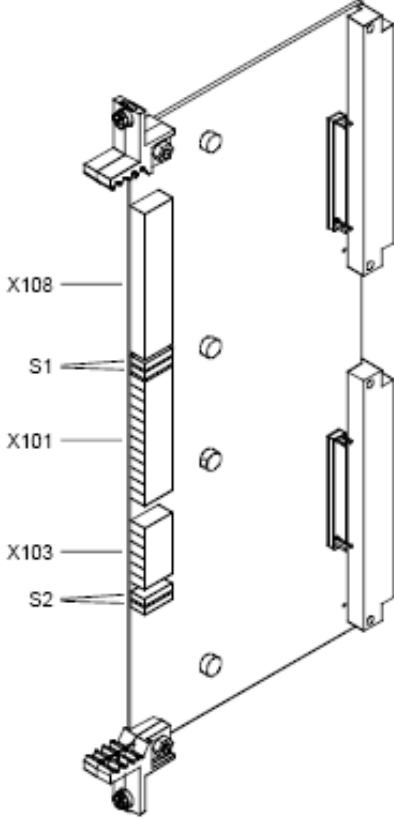
1.2. Terminal connection of the CU3

Connecting example	Term.	Function, notes
	-X100	
	1	Transmit- and receive line -RS485, differential input / -output, positive (RS485R/T+)
	2	Transmit- and receive line -RS485, differential input / -output, negative (RS485R/T−)
	3	Transmit output RS485 Standard, differential output, positive (RS485T+)
	4	Transmit output RS485 Standard, differential output, negative (RS485T−)
	5	Reference potential, RS485 interface
	NOTE	In addition to the GSST_2 interface on -X100, a GSST_1 interface -X300 is available on the parameterization unit; refer Section 4 "Start-up".
	6	Binary output, relay 1 (changeover contact) reference contact
	7	Binary output, relay 1 (changeover contact) NO contact
	8	Binary output, relay 1 (changeover contact) NC contact
	9	Binary output, relay 2 (NO contact) reference contact
	NOTES	Load capability of the binary outputs: 60 V AC, 60 VA, $\cos\varphi = 1$ / 60 V AC, 16 VA, $\cos\varphi = 0.4$ / 60 V DC, 24 W Inductive loads, e.g. contactors, relays, for DC voltage loads, must be damped using a diode or varistor, and for AC loads, with a varistor or RC element.
	-X101	
	13	+24 V, 150 mA for binary inputs and outputs
	14	Ref. potential for 24 V (ground)
	15	Ref. potential for binary inputs 1 to 7 for ext. signal voltage
	16	Binary input 1
	17	Binary input 2
	18	Binary input 3
	19	Binary input 4
	20	Binary input 5
	21	Binary output, relay 2 (NO contact) NO contact
	NOTE	Signal sensitivity of the binary inputs: H = 24 V (13 V to 33 V) I_{max} = 15.7 mA L = 0 V (−0,6 V to 3 V)

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Connecting example	Term.	Function, notes
	-X102	
	25	+10 V / 5 mA, ±2 %, for setpoint pot., non-floating
	26	–10 V / 5 mA, ± 2%, for setpoint pot., non-floating
	27[1]	Analog input 1 (0 V to ±10 V)
	28	Ref. potential, analog input 1
	29[1]	Analog input 1 (0 mA to 20 mA or. 4 mA to 20 mA) int. load resistor 250 Ω
	NOTE	Terminals 33 and 34: To increase the noise immunity of the signals, an isolating amplifier should be connected between the analog output and measuring unit for cables > 4 m.
	-X103	
	35	Analog output 1 ≤ 5 mA
	36	Ref. potential, analog output 1
	NOTE	Terminals 35 and 36: To increase the noise immunity of the signals, an isolating amplifier should be connected between the analog output and the measuring unit for cables > 4m.
	37	Output, track A in the HTL level
	38	Output, track B in the HTL level
	39	Output, zero pulse in the HTL level

e.g. meter unit

Connecting example for control terminal strips -X100 and -X101

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Resolver / Encoder Interface of the CU3

Term.	Function, notes
X104	
1	Resolver field voltage R1
2	Resolver field voltage R2
3	Track C, Sincos encoders
4	Track C\, Sincos encoders
5	Track D, Sincos encoders
6	Track D\, Sincos encoders
7	0 V sensing line for 5 V encoder
8	Ref. potential for encoder or digital tacho
9	+5 V encoder power supply
10	Output voltage V_{S1-S3}, connection S1
11	Output voltage V_{S1-S3} connection S3
12	Track A, Sincos encoders
13	Track A\, Sincos encoders
14	Track B, Sincos encoders
15	Track B\, Sincos encoders
16	Zero pulse, Sincos encoders
17	Zero pulse\, Sincos encoders
18	+ 5 V sense line for 5 V encoders
19	Output voltage V_{S2-S4}, connection S2
20	Output voltage V_{S2-S4}, connection S4
21	Connection for inner screen
22	Connection for inner screen
23	Connection for inner screen
24	Connection for inner screen
25	Motor temperature input (KTY84)
26	Ref. potential for motortemperature
NOTE	Protective separation for terminals 25 and 26 must be externally guaranteed.

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1.3 Terminal connection of the CUMC

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X101 - Control terminal strip

The following connections are provided on the control terminal strip:

- ♦ 4 optionally parameterizable digital inputs and outputs
- ♦ 2 digital inputs
- ♦ 1 analog input
- ♦ 1 analog output
- ♦ 24 V aux. voltage supply (max. 150 mA, output only!) for the inputs and outputs

WARNING

⚠️

If the digital inputs are supplied from an external 24 V supply, this must be referenced to frame X101.2. Terminal X101.1 (P24 AUX) may **not** be connected with the 24V supply.
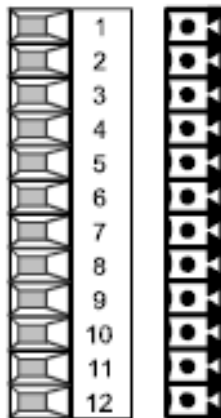
Terminal	Designation	Meaning	Range
1	P24 AUX	Aux. voltage supply	DC 24 V / 150 mA
2	M24 AUX	Reference potential	0 V
3	DIO1	Digital input/output 1	24 V, 10 mA / 20 mA
4	DIO2	Digital input/output 2	24 V, 10 mA / 20 mA
5	DIO3	Digital input/output 3	24 V, 10 mA / 20 mA
6	DIO4	Digital input/output 4	24 V, 10 mA / 20 mA
7	DI5	Digital input 5	24 V, 10 mA
8	DI6	Digital input 6	24 V, 10 mA
9	AI+	Analog input +	11 bit + sign differential input:
10	AI–	Analog input –	$\pm$ 10 V / Ri = 40 kΩ
11	AO	Analog output	8 bit + sign $\pm$ 10 V, 5 mA
12	M AO	Ground analog output	

Connectable cross-section: 0.14 mm^2 to 1.5 mm^2 (AWG 16)

Terminal 1 is at the top when installed.

NOTE

The outputs of the customer terminal can assume undefined states during power up/board initialization/execution time overflow, unless a specific response has been expressly defined (and implemented in the hardware) for these periods.

If the digital in- and outputs on the CUMC are not adequate, so for example on slot A an extension board EB1 or EB2 would be required. Details are found the catalogue DA65.11 2003/2004.

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X103 - 10 V voltage output, SCom1, SCom2
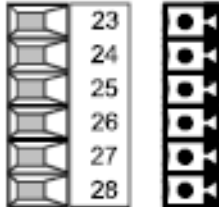
The following connections are provided on the control terminal strip:

♦ 10 V aux. voltage (max. 5 mA) for the supply of external potentiometers

♦ 2 serial interfaces SCom1 and SCom2 (USS / RS485)

Terminal	Designation	Meaning	Range
23	P10 V	+10 V supply for ext. potentiometer	+10 V ±1.3 %, Imax = 5 mA
24	N10 V	-10 V supply for ext. potentiometer	-10 V ±1.3 %, Imax = 5 mA
25	RS485 P (SST2)	USS bus connection SCom2	RS485
26	RS485 N (SST2)	USS bus connection SCom2	RS485
27	RS485 P (SST1)	USS bus connection SCom1	RS485
28	RS485 N (SST1)	USS bus connection SCom1	RS485

Connectable cross-section: 0.14 mm^2 to 1.5 mm^2 (AWG 16)

The terminals 23 and 24 are short-circuit proof.

Terminal 23 is at the top when installed.

X300 - Serial interface

Either an OP1S or a PC can be connected up via the 9-pole SUB D socket.

The 9-pole SUB D socket is internally coupled with the USS bus, with the result that it is possible to exchange data with further converters and inverters which are linked via the USS bus.
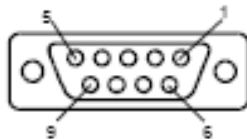
Pin	Name	Meaning	Range
1	n.c.	Not connected	
2	RS232 RxD	Receive data via RS232	RS232
3	RS485 P	Data via RS485	RS485
4	Boot	Control signal for software update	Digital signal, low active
5	M5V	Reference potential to P5V	0 V
6	P5V	5 V aux. voltage supply	+5 V, Imax = 200 mA
7	RS232 TxD	Transmit data via RS232	RS232
8	RS485 N	Data via RS485	RS485
9	M_RS232/485	Digital ground (choked)	

An encoder interface doesn't exist on the CUMC!

An encoder evaluation has to be chosen referring to the existing motor encoder from the catalogue DA65.11 1003/2004 and plugged in on slot „C" on the CUMC.
If the encoder cable is not going to be replaced, then either the existing sub-D connector has to be replaced or an adapter piece has to be manufactured.
Please have a look in the following FAQs:
Resolver connection for retrofitting Masterdrives CU3 (SC) to CUMC, **ID:**27044474
Encoder connection when retrofitting Masterdrives CU3 (SC) to CUMC, **ID:**27247211

If a pulse encoder simulation is needed, the correct evaluation board has to be chosen, e.g. a SBR2 or SBM2.