

EG-Konformitätserklärung EC Declaration of Conformity

No. Khe001-04/2002

Bestellnummer / <i>part number</i>	Bezeichnung / designation	Eingehaltene Normen / <i>adherence to Standards *)</i>
6ES5441-4UA14	Digitalausgabe 441-4	1), 6)
6ES5451-4UA13	Digitalausgabe 451-4	1), 2)
6ES5451-4UA14	Digitalausgabe 451-4	1), 6)
6ES5453-4UA12	Digitalausgabe 453-4	1), 6)
6ES5454-4UA13	Digitalausgabe 454-4	1), 2)
6ES5454-4UA14	Digitalausgabe 454-4	1), 6)
6ES5455-4UA12	Digitalausgabe 455-4	1), 2), 3)
6ES5456-4UA12	Digitalausgabe 456-4	1), 3), 6)
6ES5456-4UB12	Digitalausgabe 456-4	1), 2), 3)
6ES5457-4UA12	Digitalausgabe 457-4	1), 6)
6ES5458-4UA12	Digitalausgabe 458-4	1), 2)
6ES5458-4UA13	Digitalausgabe 458-4	1), 6)
6ES5460-4UA13	Analogeingabe 460-4	1), 6)
6ES5463-4UA12	Analogeingabe 463-4 50 Hz	1), 2)
6ES5463-4UB12	Analogeingabe 463-4 60 Hz	1), 2)
6ES5463-4UA13	Analogeingabe 463-4	1), 6)
6ES5465-4UA12	Analogeingabe 465-4	1), 2)
6ES5465-4UA13	Analogeingabe 465-4	1), 6)
6ES5470-4UA12	Analogausgabe 470-4	1), 2)
6ES5470-4UA13	Analogausgabe 470-4	1), 6)
6ES5470-4UB12	Analogausgabe 470-4	1), 2)
6ES5470-4UB13	Analogausgabe 470-4	1), 6)
6ES5470-4UC12	Analogausgabe 470-4	1), 2)
6ES5470-4UC13	Analogausgabe 470-4	1), 6)
6ES5482-4UA11	Dig. Ein-Ausgabe 482-4 f.IP 257	1), 2)
6ES5482-4UA20	Dig. Ein-Ausgabe 482-4	1), 6)
6ES5498-1AA11	Messbereichsmodul 498	1), 6)
6ES5498-1AA21	Messbereichsmodul 498	1), 6)
6ES5498-1AA31	Messbereichsmodul 498	1), 6)
6ES5498-1AA41	Messbereichsmodul 498	1), 6)
6ES5498-1AA51	Messbereichsmodul 498	1), 6)
6ES5498-1AA61	Messbereichsmodul 498	1), 6)
6ES5498-1AA71	Messbereichsmodul 498	1), 6)
6ES5498-1AB11	Kontaktschutzmodul	1), 2)
6ES5524-3UA13	CP 524	1), 2)
6ES5524-3UA15	CP 524	1), 6)
6ES5525-3UA21	CP 525 (S5-DOS-Version)	1), 2)
6ES5544-3UA11	CP 544	1), 6)
6ES5544-3UB11	CP 544 B	1), 6)
6ES5581-0EA11	CP 581 GBG 4MB 386	1), 2)
6ES5581-0EB12	CP 581 GBG 486 B0-Step	1), 2)
6ES5581-0EC12	CP 581 GBG 486 B1-Step	1), 2)
6ES5581-0EC51	CP 581 GBG 486 B1-Step AUT9 (Var.1)	1), 2)
6ES5581-0EC61	CP 581 GBG 486 B1-Step AUT9 (Var.2)	1), 2)

Documentation Supplement

C79000-Q8576-C017-03

U Periphery 6ES5 998-0PC22, Release 01

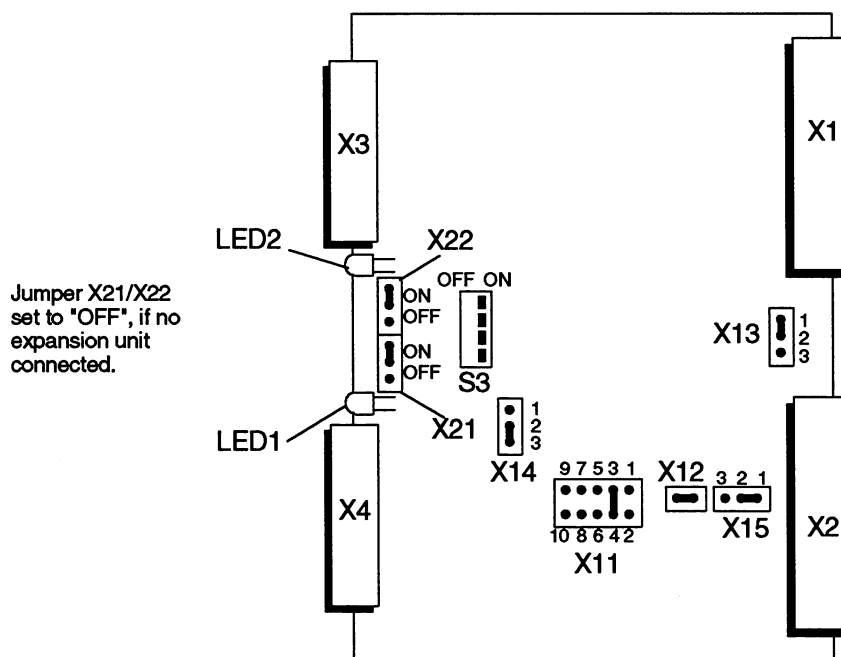
March 1993

This supplement contains additional information and corrections to the U Periphery manual which should be noted.

In the Instructions for the Interface Modules IM 304 and IM 314 (C79000-B8576-C716-02) in Part 4, on pages 14 and 16, the settings of the jumper on the jumper plug X15 are shown incorrectly. For the symmetrical connection CC - EG with IM 304 - IM 314R in S5-115H or S5-155H this jumper must be plugged between connections 1 and 2 (and not between 2 and 3).

The following diagram is therefore correct:

Symmetrical connection CC - EG with IM 304 - IM 314R (S5-115H, S5-155H)



Note:

A jumper may not be plugged on the jumper plug X15 between the connections 2 and 3.

In the descriptions for the expansion units in Parts 1, 2 and 3 you should ensure that the mains connection cable for the power supply units does not exceed a maximum cross-section of 0.75 mm².

1. 6ES5 4xx-4UA13 modules

The 6ES5 4xx-4UA13 modules function in the same manner as the 6ES5 4xx-4UA12 modules and have the same technical data.

2. Connecting the power supply unit to the mains power supply

With a power supply of 230 V/120 V AC you may only connect a cable with a maximum cross-section of 0.75 mm² to terminal 1.

3. Technical data of analog output module 6ES5 470-4UA12

The maximum capacitive load including line capacity is 1 µF for version 04 onwards of this module.

4. Connecting resistance thermometers (e.g. Pt 100) to the 6ES5 465-.. analog output modules

If you wish to perform measurements with the Pt 100 resistance thermometer, you can no longer use the channels 12 to 15.

5. Connecting transducers to the modules 6ES5 460-4UA11 and -4UA12

When you use 2-wire transducers, the reference potential (common input) of these channels must be connected to L-. This removes the galvanic isolation between the channels and the power supply L+/L-.

6. Power supply module 6ES5 955-3NC13

The technical data for output 4: 24 V at the front terminal are identical to the data for the 6ES5 955-3LC14 module.

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o Signal interchange between analog input module and CPU

Analog values can be read by analog input modules using function block FB 40 ("read analog value").

This function block takes into account the special features of the different analog input modules. With a rated input signal, it provides a value between a lower and an upper limit at the output, irrespective of the module type. These limits are determined by the user.

Both cyclic and single scanning are possible.

See also FB 80 ("read analog value") for closed-loop control with the programmable controller S5-150S.

As an example, input 2 of an analog input module is to be scanned with address 128 (starting address) by the STEP-5 program. This setting of the addressing switch results in addresses 132 and 133 for input channel 2. The CPU reads the 2 bytes (control signal MEMR) from the module memory, e.g. with a word instruction (LPW) or with two byte instructions (LPB). (Refer to the load and transfer operations of the operations list.)

The analog input module acknowledges with signal $\overline{\text{RDY}}$. The entire measured value (2 bytes = 16 bits) is stored in the CPU and subjected to further processing.

The ADC controller is reset with the signal $\overline{\text{CPKL}} = 1$. The memory contents are retained. If $\text{CPKL} = 0$, the module issues the old stored values for the first cycle; at the second cycle, these values are updated.

Signal BASP is not evaluated by the analog input modules (see Chapter 1.5).

1.3.2 Analog Input Module 463

Caution: Apart from the special details and data given for the analog input module 463, Chapter 1.3.1 of these instructions is also applicable:

The analog input module 463 has four electrically isolated input channels. The analog input signals are digitized by voltage/frequency converters (V/F) and fed via a fast optocoupler into a counter. The integration time of the module 463-4UA11 is 20 ms and of the module 463-4UB11 is $16\frac{2}{3}$ ms; these integration times ensure optimum suppression of power frequency interference (50 or 60 Hz).

The sequential controller coordinates presetting of the counter, duration of the integration time and transfer of the counter values of the four input channels into the four measured-value memories.

Scaling the input range of each channel is achieved by suitable connection of the sensor and inserting jumpers in the front connector of the module (see pin assignments of front connector).

5.3 Analog Input Module 6ES5 463-4UA11/-4UA12 and 463-4UB11/-4UB12

5.3.1 Technical Data

Rated input range (adjustable on front connector)	-0.05 to +1 V -0.5 to +10 V -1 to +20 mA +4 to 20 mA for 2-wire transd. +4 to 20 mA for 4-wire transd.
Number of inputs	4 voltage/current inputs
Measured-value representation	11 bits (two's complement) 1024 units in rated range
Overdriving range	100% (with full accuracy)
Fault signal on overflow	Yes (when overdrive is 50% or more)
Measuring principle	Integrating
Conversion principle	Voltage/frequency conversion
Electrical isolation	Yes; between 4 inputs and M and between the inputs
Permissible potential difference between ref- erence potentials of sen- sors and module (U_{CM}) and between the sensors (channels)	Max. 25 V AC/60 V DC
Power supply	
- digital section from system bus	5 V $\pm$ 5%; typ. 150 mA
- analog section from load voltage	24 V, approx. 150 mA
- module enable F+/F-	24 V; approx. 7 mA
Integration time	
- 463-4UA11/-4UA12	20 ms at 50 Hz
- 463-4UB11/-4UB12	$16^{2/3}$ ms at 60 Hz
Coding time per measured value	
- 463-4UA11/-4UA12	20 ms at 50 Hz
- 463-4UB11/-4UB12	$16^{2/3}$ ms at 60 HZ
Cycle time for 4 measured values (max. delay time of measured-value acquisition)	
- 463-4UA11/-4UA12	20 ms at 50 Hz
- 463-4UB11/-4UB12	$16^{2/3}$ ms at 60 Hz
Input impedance for input ranges	
- 1 V	> 10 Mohms
- 10 V	90 kohms
- 20 mA	50 ohms
- 4 to 20 mA	62.5 ohms

Max. permissible input voltage without destruction

± 30 V; 75 V for 1 ms max.
and duty factor 1:10

Noise suppression for

- common-mode interference
- differential-mode interference

≥ 80 dB ($f = 0$ to 50 kHz)
 ≥ 40 dB ($U_{St|f} \leq 0.1 * U_N$)
measurement range, referred to the peak value

Error, referred to rated value

- linearity
- tolerance
- temperature error

$\pm 5 \times 10^{-4}$
 ± 1 unit
 $0.6 \times 10^{-4}/K$

Insulation voltage according to VDE 0160

Between inputs and ground point
and between inputs:
tested with 500 V AC

Impulse voltage test acc. to IEC 266-4

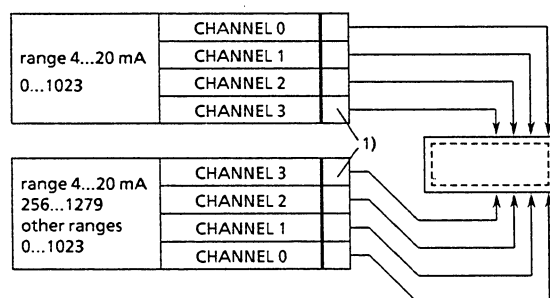
Between inputs and L-:
 $U_s = 1$ kV; 1.2/50 μ s

5.3.2 Selecting the Data Format for the Range of 4 to 20 mA

When using the 4- to 20-mA inputs data representation can be selected either from 0 to 1023 bits or from 256 to 1279 bits by pressing the corresponding switch. In this case, different data formats can be selected for each of the four input channels.

When using the voltage or 0- to 20-mA inputs the corresponding switches remain in the "Off" position.

Labelling of the switches on the module cover



- Switch position "On" (pressed)

- 1) These fields are provided to mark the selected switch position

5.3.3 Connecting Sensors

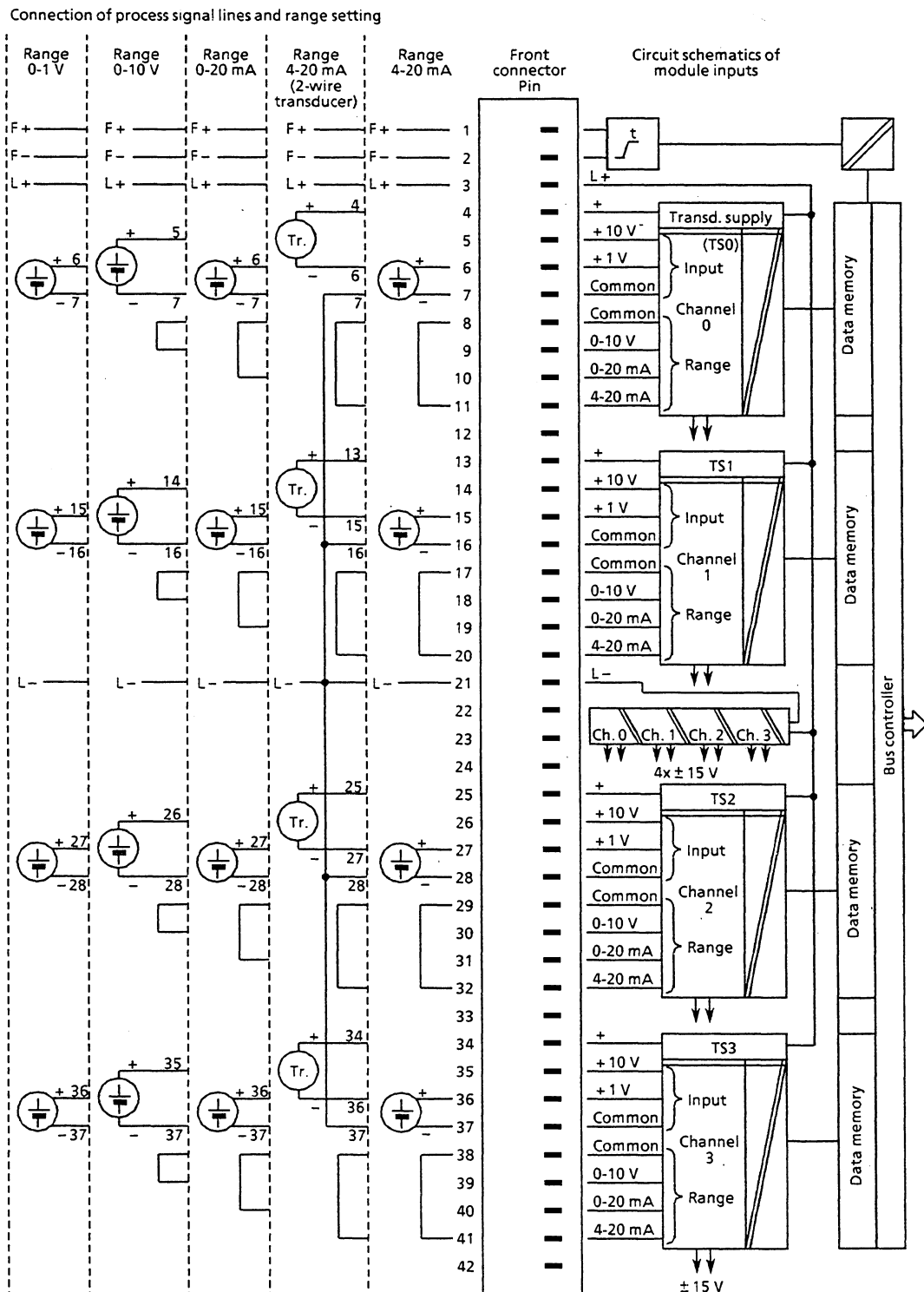
The sensors are connected to the analog input module via shielded cables with a maximum length of 200 m. If these measuring cables are laid separately from power cables, the permissible length can be increased to 500 m.

Voltage sensors, current sensors, 2-wire and 4-wire transducers can be connected in any combination as required. Four short-circuit-proof supply terminals are provided on the front connector for the connection of 2-wire transducers.

Caution: When using 2-wire transducers the reference potential (common input) of these channels must be connected to L-. The electrical isolation between the channels and the supply voltage L+/L- is thus inactivated.

Remember that the module's bus interface is activated with 24 V applied to the enable pins F+ and F- on the front connector.

5.3.4 Pin Assignments of the Front Connector



Addressing of process interface modules with 4 channels
 (463-4UA../-4UB..):

Channel number						0		1		2		3	
Subaddress (internal) Start address						0	1	0	1	0	1	0	1
						1	2	0	0	1	1	0	0
						2	4	0	0	0	0	1	1
ADB	7	6	5	4	3	HB		LB		HB		LB	
DW	128	64	32	16	8	HB		LB		HB		LB	
Address- ing switch						128	129	130	131	132	133	134	135
	•					136	137	138	139	140	141	142	143
						144	145	146	147	148	149	150	151
	•			•		152	153	154	155	156	157	158	159
	•			•	•	160	161	162	163	164	165	166	167
	•		•			168	169	170	171	172	173	174	175
	•		•	•	•	176	177	178	179	180	181	182	183
	•		•	•	•	184	185	186	187	188	189	190	191
	•		•	•	•	192	193	194	195	196	197	198	199
	•	•				200	201	202	203	204	205	206	207
	•	•			•	208	209	210	211	212	213	214	215
	•	•		•		216	217	218	219	220	221	222	223
	•	•	•			224	225	226	227	228	229	230	231
	•	•	•		•	232	233	234	235	236	237	238	239
	•	•	•	•		240	241	242	243	244	245	246	247
	•	•	•	•	•	248	249	250	251	252	253	254	255