

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6ES7972-0BB41-0XA0

PROFIBUS CONNECTOR WITH PROGRAMMING PORT

Used with the applicable SIMATIC DP PROFIBUS RS485 configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens SIMATIC DP PROFIBUS RS485 applicable manufacturer data

NOTICE

A bus segment must always be terminated with the terminating resistor at both ends. This is not the case, for example, if the last bus connector node is de-energized. Because the bus connector takes its voltage from the station, this terminating resistor is ineffective.

Make sure that the stations on which the terminating resistor is activated are always supplied with power.

As an alternative, the PROFIBUS terminator can also be used for active bus termination, see Section PROFIBUS terminator (active RS485 terminator) (Page 81).

6.4 D-sub bus connector with screw terminals

6.4.1 Use of the D-sub bus connector

Use

Using the bus connector for SIMATIC NET PROFIBUS:

- Nodes with an electrical 9pin D-sub interface complying with IEC 61158-2 / EN 61158-2 can be connected directly to the SIMATIC NET PROFIBUS cables
- Electrical segments or individual nodes can be connected to the optical link module (OLM, OBT).
- Nodes or programming devices can be connected to a repeater.

Note

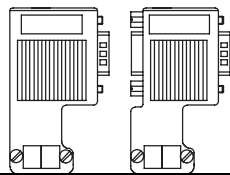
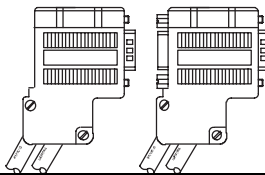
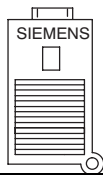
The integrated bus terminators and the mechanical specifications of the SIMATIC NET bus connectors are tailored to the SIMATIC NET PROFIBUS cables (cable type A of the PROFIBUS standard IEC 61158-2 / EN 61158-2). Fitting bus connectors to cables with different electrical or mechanical properties can cause problems during operation!

6.4.2 Area of application and technical specifications of the bus connectors

Area of application

You require bus connectors to attach the PROFIBUS bus cable to 9pin D-sub interfaces. The various bus connectors with degree of protection IP20 and the situations in which they are used are listed in the following table.

Table 6- 4 Design and applications of the IP20 bus connectors

Order numbers:	6ES7 972-0BA12-0XA0 6ES7 972-0BB12-0XA0	6ES7 972-0BA41-0XA0 6ES7 972-0BB41-0XA0	6GK1 500-0EA02
			
Recommended for: IM 308-B IM 308-C IM 467	X X X		
Use in PLC with integrated interface: S7-200 S7-300 S7-400 M7-300 C7-633 DP C7-634 DP C7 -635 C7 -636 S5-115U - S5-155U	X X X X X X X X	 X X X X X X X	
Use in PLC with IM 308 C CP 5431 FMS/DP CP 342-5 CP 343-5 CP 443-5	X X X X X	X X X X	
Use in PG with MPI interface			X

Order numbers:	6ES7 972-0BA12-0XA0 6ES7 972-0BB12-0XA0	6ES7 972-0BA41-0XA0 6ES7 972-0BB41-0XA0	6GK1 500-0EA02
Use in PG with			
IM 467	X	X	
CP 5512	X	X	X
CP 5411			X
CP 5511	X	X	X
CP 5611	X	X	X
CP 5613/14	X	X	X
ET 200B	X	X	
ET 200L	X	X	
ET 200M	X	X	
ET 200S	X	X	
PG 720/720C		X	X
PG 740		X	X
PG 760		X	X
Repeater	X	X	X
OP			
OLM	X	X	X
Use in SINUMERIK 840 C and 805 SM			
IM 328N		X	
IM 329N	X		
Use in NC 840 D and FM NC SIMODRIVE 611 MCU			
CP 342-5	X		
Use in TI 505			
TI 505 FIM			X
TI 505 PROFIBUS DP			
RBC	X		

Technical specifications

The following table shows the technical data of the various bus connectors:

Table 6- 5 Technical specifications of the IP20 bus connectors

Order numbers	6ES7 972- ... 0BA12-0XA0 ... 0BB12-0XA0	6ES7 972- ... 0BA41-0XA0 ... 0BB41-0XA0	6GK1 500- 0EA02
PG socket	0BA12: No 0BB12: Yes	0BA41: No 0BB41: Yes	No
Max. transmission speed	12 Mbps	12 Mbps	12 Mbps
Terminating resistor and disconnect function	Integrated	Integrated	Integrated
Cable outlet	90 °	35°	180 °

Order numbers	6ES7 972- ... 0BA12-0XA0 ... 0BB12-0XA0	6ES7 972- ... 0BA41-0XA0 ... 0BB41-0XA0	6GK1 500- 0EA02
Interfaces to PROFIBUS node to PROFIBUS bus cable	9-pin D-sub male 4 terminal blocks for wires up to 1.5 mm ²	9-pin D-sub male 4 terminal blocks for wires up to 1.5 mm ²	9-pin D-sub male 4 terminal blocks for wires up to 1.5 mm ²
Connectable PROFIBUS cable diameter	8 ± 0.5 mm	8 ± 0.5 mm	8 ± 0.5 mm
Power supply (must be provided by end device)	4.75 to 5.25 V DC	4.75 to 5.25 V DC	4.75 to 5.25 V DC
Current input	Max. 5 mA	Max. 5 mA	Max. 5 mA
Permitted ambient conditions			
Operating temperature	0 °C to +60 °C	0 °C to +60 °C	0 °C to +55 °C
Transportation/storage temperature	-25 °C to +80 °C	-25 °C to +80 °C	-25 °C to +70 °C
Relative humidity	max. 75 % at +25 °C	max. 75 % at +25 °C	max. 95 % at +25 °C
Dimensions (in mm)	15.8 x 54 x 34	16 x 54 x 38	15 x 39 x 57
Weight	Approx. 40 g	Approx. 40 g	Approx. 100 g

Disconnect function

The disconnect function means that the outgoing bus cable is disconnected from the bus when the terminating resistor is activated. If the terminating resistor is accidentally activated in the middle of the bus cable, the error can be recognized and localized immediately due to the nodes that are no longer accessible.

Disconnecting a station

The bus connector allows you to disconnect a node from the bus without interrupting the data traffic on the bus.

Removing the bus connector when the terminating resistor is activated at the ends of the cable causes disruptions on the bus and is not permitted.

Bus connector with a programming device socket

We recommend that you include at least one bus connector with a PG socket in each bus segment. This makes it easier to commission using a programming device or PC.

In the bus connectors with a PG socket, all the contacts are connected 1:1 with the connector pins; in other words, the pinout is the same as the pinout of the attached device.