

## Notes on ordering communication modules for SIPROTEC 4 units

The communication modules in SIPROTEC 4 devices (except 7SS52) and in 7SJ602 can be either retrofitted or replaced. Information for ordering these modules is given below. Instructions for installation are supplied with the modules or can be obtained from your SIEMENS sales partner.

Firstly, ascertain which module type you require. If you are in any doubt about the module type used for your communications application, consult your Siemens sales partner. The tables 1a and 1b below provide an overview of all available modules together with their order numbers. The figures in the column "Can be used as" have the following meaning:

- 1 System interface (connection to the substation controller / SCADA with a specific protocol)
- 2 Serial service interface / DIGSI 4
- 3 Differential- / teleprotection interface (communication to the remote device(s))
- 4 Inter relay communication (6MD66 only)
- 5 Interface to RTD-box

Module type	Can be used as	Order No. (not valid for 7SJ602)
IEC60870-5-103 RS232 if used as system interface	1,2	C53207-A351-D641-1
IEC60870-5-103 RS485 if used as system interface	1,2,4,5	C53207-A351-D642-1
IEC60870-5-103 Optical 820nm if used as system interface	1,2	C53207-A351-D643-1
Redundant IEC60870-5-103 2*RS485 for system interface	1	C53207-A351-D644-1
IEC61850 100 MBit/s electrical Ethernet, 2 RJ45 – connectors	1	C53207-A351-D675-2
IEC61850 100 Mbit/s optical Ethernet, multimode, 1300 nm 2 LC-duplex <sup>1)</sup>	1	C53207-A351-D678-1
IEC61850 100 Mbit/s optical Ethernet, single mode 24 km, 1300 nm 2 LC-duplex <sup>1)</sup>	1	C53207-A351-D682-1
DNP3 TCP / IEC61850 100 MBit/s electrical Ethernet, 2 RJ45 – connectors	1	C53207-A351-D684-1
DNP3 TCP / IEC61850 100 Mbit/s optical Ethernet, multimode, 1300 nm 2 LC-duplex <sup>1)</sup>	1	C53207-A351-D686-1
DNP3 TCP / IEC61850 100 Mbit/s opt. Ethernet, single mode 24km, 1300 nm 2 LC-duplex <sup>1)</sup>	1	C53207-A351-D690-1
IEC60870-5-104 / IEC61850-100MBit/s electrical Ethernet, 2 RJ45 – connectors	1	C53207-A351-D692-1
IEC60870-5-104 / IEC61850-100MBit/s optical Ethernet, multimode, 1300 nm 2 LC-duplex <sup>1)</sup>	1	C53207-A351-D693-1
PROFINET IO / IEC61850 100 MBit/s electrical Ethernet, 2 RJ45 – connectors	1	C53207-A351-D688-1
PROFINET IO / IEC61850 100 Mbit/s optical Ethernet, multimode, 1300 nm 2 LC-duplex <sup>1)</sup>	1	C53207-A351-D689-1
Modbus TCP / IEC61850 100 MBit/s electrical Ethernet, 2 RJ45 – connectors	1	C53207-A351-D696-1
Modbus TCP / IEC61850 100 Mbit/s optical Ethernet, multimode, 1300 nm 2 LC-duplex <sup>1)</sup>	1	C53207-A351-D697-1
Profibus DP RS485	1	C53207-A351-D611-1
Profibus DP optical dual ring	1	C53207-A351-D613-1
Modbus RS485 serial	1	C53207-A351-D621-1
Modbus optical 820nm serial	1	C53207-A351-D623-1
DNP RS485 serial	1	C53207-A351-D631-1
DNP serial optical 820nm serial	1	C53207-A351-D633-1
FO5: optical 820 nm, ST connector, 1,5 km, multimode FO cable, for Communication Converter or direct FO connection <sup>1)</sup>	1,2,3	C53207-A351-D651-1
FO6: optical 820 nm, ST connector, 3 km, multimode FO cable, for direct FO connection <sup>1)</sup>	3	C53207-A351-D652-1
FO17: optical 1300 nm, LC connector, 24 km, singlemode FO cable, for direct FO connection <sup>1)</sup>	3	C53207-A351-D655-1
FO18: optical 1300 nm, LC connector, 60 km, singlemode FO cable, for direct FO connection <sup>1)</sup>	3	C53207-A351-D656-1
FO19: optical 1550 nm, LC connector, 100 km, singlemode FO cable, for direct FO connection <sup>1)</sup>	3	C53207-A351-D657-1
FO30: opt. 820 nm, ST connector, 1,5 km, multimode FO cable, for Communication networks with IEEE C37.94 interface or direct FO connection <sup>1)</sup>	3	C53207A-351-D658-1
Analog output (0...20mA)		C53207-A351-D661-1
Ethernet service interface electrical at Port A	2,4	C53207-A351-D151-1

Table 1a: Communication module order numbers for SIPROTEC 4 devices (not valid for 7SJ602)

1) Not available for devices for surface mounting

Module type	Can be used as	Order No. ( valid for 7SJ602 only)
RS232 (protocol IEC 60870-5-103)	1	C53207-A351-D645-1
RS485 (protocol IEC 60870-5-103 if used as system interface)	1,5	C53207-A351-D646-1
Optical 820nm (protocol IEC 60870-5-103)	1	C53207-A351-D647-1
Profibus DP RS485	1	C53207-A351-D612-1
Profibus DP optical dual ring	1	C53207-A351-D614-1
Modbus RS485	1	C53207-A351-D622-1
Modbus optical 820nm	1	C53207-A351-D624-1

Table 1b: Communication module order numbers (valid for 7SJ602 only)

Once you have ascertained which module you require for your application you must also check whether your device can be retrofitted with this module. Please clarify the following points:

1. Can the selected module be used with your device type?
2. Is the hardware version of your device sufficiently up to date?
3. Can the firmware version used in your device communicate with the module correctly?

The information given in Table 2 will help you to answer these questions. Please also observe the following general notes:

- Devices in surface mounting housings cannot be upgraded or retrofitted by the customer. This work must be performed in the factory.
- Concerning question 1: Devices can only be upgraded with those modules with which they could also have been ordered from the factory. If, for example, a device cannot be supplied with a MODBUS communications module, it cannot be upgraded with a MODBUS communications module either.
- Concerning question 2: If you find out that the hardware version of your device is not sufficiently up to date, clarify with your Siemens contact how your device can be upgraded. In most cases, it will be necessary to replace a module.
- Concerning question 3: If you find out that the firmware version of your device is not sufficient, you must update the firmware. Firmware updates are available on [www.siprotec.com](http://www.siprotec.com) . There you will also find service guidelines with detailed instructions.

This table indicates which device and firmware version is suited to the installation of the individual modules. If applicable hardware restrictions are also stated.	6MD63	6MD663/4	6MD665	7SA522	7SA6	7SD52/53	7SJ602 from /CC	7SJ80 7SK80	7SJ61 ... 4	7UM61	7UM62	7VE6	7SD610	7UT6
IEC 60870-5-103 RS232	4.00	4.00	4.00	4.00	4.00	4.00	V3.5	4.60	4.00	4.00	4.00	4.00	4.00	4.00
IEC 60870-5-103 RS485	4.00	4.00 <sup>3)</sup>	4.00 <sup>3)</sup>	4.00	4.00	4.00	V3.5	4.60	4.00	4.00	4.00	4.00	4.00	4.00
IEC 60870-5-103 FO 820nm	4.00	4.00	4.00	4.00	4.00	4.00	V3.5	4.60	4.00	4.00	4.00	4.00	4.00	4.00
IEC 61850 / DIGSI	4.60	4.60	4.60	4.60	4.60	4.60		4.60	4.60		4.60		4.60	4.60
Profibus FMS RS485 <sup>8)</sup>	4.10	4.00 <sup>2)</sup>	4.00 <sup>1)</sup>	4.20 <sup>1)</sup>	4.00 <sup>2)</sup>	4.30 <sup>5)</sup>			4.10					4.00
Profibus FMS optical dual ring <sup>8)</sup>	4.10	4.00 <sup>2)</sup>	4.00 <sup>1)</sup>	4.20 <sup>1)</sup>	4.00 <sup>2)</sup>	4.30 <sup>5)</sup>			4.10					4.00
Profibus FMS optical single ring <sup>8)</sup>	4.10	4.00 <sup>2)</sup>	4.00 <sup>1)</sup>	4.20 <sup>1)</sup>	4.00 <sup>2)</sup>				4.10					4.00
Profibus DP RS485	4.20	4.20 <sup>4)</sup>		4.20 <sup>1)</sup>	4.20 <sup>2)</sup>	4.21	V3.5	4.60	4.20	4.00	4.00	4.00	4.20	4.00
Profibus DP optical dual ring	4.20	4.20 <sup>4)</sup>		4.20 <sup>1)</sup>	4.20 <sup>2)</sup>	4.21	V3.5	4.60	4.20	4.00	4.00	4.00	4.20	4.00
Modbus serial RS485	4.20						V3.5	4.60	4.20	4.10	4.00	4.00	4.60	4.00
Modbus serial optical 820nm	4.20						V3.5	4.60	4.20	4.10	4.00	4.00	4.60	4.00
DNP serial RS485	4.20			4.20 <sup>1)</sup>	4.20 <sup>2)</sup>	4.21		4.60	4.20	4.10	4.10	4.00	4.20	4.00
DNP serial optical 820nm	4.20			4.20 <sup>1)</sup>	4.20 <sup>2)</sup>	4.21		4.60	4.20	4.10	4.10	4.00	4.20	4.00
DNP3 TCP / IEC 61850								4.70	4.90					
IEC60870-5-104 / IEC 61850								4.72						
Modbus TCP / IEC 61850								4.74						
PROFINET IO / IEC 61850								4.70	4.90		4.70			
2*RS485 for redundant IEC 60870-5-103 system interface <sup>6)</sup>					4.70 <sup>6)</sup>			4.60 <sup>6)</sup>						
FO5: opt. 820nm, 1.5 km				4.20	4.20	4.00							4.00	
FO6: opt. 820nm, 3.0 km				4.20	4.20	4.00							4.00	
FO17: opt. 1300 nm, 25 km				4.60	4.60	4.31							4.32	
FO18: opt. 1300 nm, 60 km				4.60	4.60	4.31							4.32	
FO19: opt 1550 nm, 100km				4.60	4.60	4.31							4.32	
FO30(IEEE C37.94): opt 820 nm, 1,5km				4.70	4.70	4.70							4.70	
Analog output (0...20mA)					4.00							4.00		
Ethernet service interface electrical at Port A <sup>7)</sup>								4.60 <sup>7)</sup>						

Table 2: Compatibility of communication modules with devices

Additional information about hardware:

- <sup>1)</sup> In this case you must also check whether the hardware version of the CPU module (C-CPU1) is sufficient. After opening the device read off the module version. You will find the hardware version on the module behind the item number C53207-A324-B10. It must be at least 5. If the hardware version is lower, you must upgrade the module (version 4) or replace it (for versions below 4). Devices manufactured on and after 12/2000 are sufficiently up to date.
- <sup>2)</sup> In this case you must additionally check whether the hardware version of the CPU module (C-CPU2) is sufficient. After opening the device read off the module version. You will find the hardware version on the module behind the item number C53207-A330-B11/12. It must be at least 4. If the hardware version is smaller, you must upgrade the module (version 3) or replace it (for versions below 3). Devices manufactured on and after 12/2000 are sufficiently up to date.
- <sup>3)</sup> Inter relay communication requires firmware version V4.12 or higher.
- <sup>4)</sup> Module firmware version V3.00 or higher is required.
- <sup>5)</sup> This requires a device hardware version /EE or higher (delivery from 02/2004)
- <sup>6)</sup> Only for 7SJ61, 7SJ62 and 7SJ64 up from firmware version 4.70 as well as 7SJ80 and 7SK80 up from firmware version 4.60 available. **Not available** for other SIPROTEC 4 devices.
- <sup>7)</sup> Only for 7SJ80 and 7SK80 up from firmware version 4.60 available. **Not available** for other SIPROTEC 4 devices. For the connection of DIGSI 4 or an RTD-box via Ethernet – interface.
- <sup>8)</sup> Delivery will be terminated from 10/2013

Please observe the following information with regard to DIGSI 4:

- Communication modules for PROFIBUS DP, MODBUS and DNP 3.0 can be operated with DIGSI versions V4.1 and higher. With DIGSI V4.2 and higher, the scope of information for these communications profiles can be changed.
- If you have to update the firmware of your device before installing a communications module you will have to manually enter the parameters of the device in the following case: Update of 7SJ61/2/3 or 6MD63 from V4.0\* or V4.1\* to V4.2\*.
- Devices with electrical or optical Ethernet - module can be operated with DIGSI versions V4.6 and higher.

The scope of information available on the system interface is preset at the factory for each device type and each communication profile and can be altered by the user with DIGSI (version V4.20 or higher). The default settings for the scope of information for the communication profile acc. to IEC 60870-5-103 and PROFIBUS FMS are given in the equipment manuals. Relevant information for the other profiles can be found in the Internet. There you will also find information about communication acc. to IEC

60870-5-103 and several other profiles for all devices. ([www.siprotec.com](http://www.siprotec.com) → devices → common information)

The prices of separately ordered communication modules are equivalent the prices of the communication options in the relays. For details, please see our actual pricelist.

For orders or further information please contact your Siemens representative.

Internally, orders should be send via EDI to IC SG EA MF (Berlin)