

6RA7000 - 0MV62 - 0 - Z

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Plain text, where necessary

Options	Codes	Order No..
Technology software in the basic converter ("Free function blocks") (for orders at a later date, please quote factory serial number of converter)	S00	6RX1700-0AS00
Module terminal expansion (CUD2)	K00	6RX1700-0AK00
DriveMonitor PC - PMU (RS232) connecting cable, 3m		9AK1012-1AA00
User-friendly operator control panel (OP1S) AOP1 adapter for mounting OP1A in cubicle door, including 5 m connecting cable PMU-OP1S connecting cable, 3m PMU-OP1S connecting cable, 5m		6SE7090-0XX84-2FK0 6SX7010-0AA00 6SX7010-0AB03 6SX7010-0AB05
Electronics power supply 24 V DC	L05	6RY1703-0CM24
LBA Local bus adapter for the electronics box LBA is always needed to install supplementary boards (see Section 5.3.2)	K11	6SE7090-0XX84-4HA0
ADB Adapter board ADB is always needed to install CBC, CBP, EB1, EB2, SBP and SLB boards	K01, K02 ⁵⁾	6SE7090-0XX84-0KA0
SBP Pulse encoder evaluation board ^{1) 2) 3)} (miniature-format board; ADB required)	C14, C15 C16, C17 ⁵⁾	6SX7010-0FA00
EB1 Terminal expansion board ³⁾ (miniature-format board; ADB required)	G64, G65 G66, G67 ⁵⁾	6SE7090-0XX84-0KB0
EB2 Terminal expansion board ³⁾ (miniature-format board; ADB required)	G74, G75 G76, G77 ⁵⁾	6SE7090-0XX84-0KC0
SLB SIMOLINK board ^{1) 3)} (miniature-format board; ADB required)	G44, G45 G46, G47 ⁵⁾	6SX7010-0FJ00
CBP2 Communications board with interface for SINEC- L2-DP, (PROFIBUS) ^{1) 3)} (miniature-format board; ADB required)	G94, G95 G96, G97 ⁵⁾	6SX7010-0FF05
CBC Communications board with interface for CAN protocol ^{1) 3)} (miniature-format board; ADB required)	G24, G25 G26, G27 ⁵⁾	6SX7010-0FG00
CBD Communications board with interface for DeviceNet protocol ^{1) 3)} (miniature-format board; ADB required)	G54, G55 G56, G57 ⁵⁾	6SX7010-0FK00
SCB1 Serial Communication Board 1 (Master for SCI1 and SCI2 with FO link) ^{3) 4)}		6SE7090-0XX84-0BC0
SCI1 Serial Communication Interface 1 (terminal expansion with FO link to SCB1) for attachment to DIN EN 50022 rail ⁴⁾		6SE7090-0XX84-3EA0

7.7.8 Sequence of operations for starting up the serial I/O board (SCB1):



With the power supply disconnected, insert the SCB1 board into slot 2 (or, if you have installed a technology board, into slot 3).



Set bus address on SCI using DIP-Fix switch S1 (each SCI slave requires its own address number):

	Slave 1	Slave 2
Address number	1	2
Switch setting S1	open	closed



Mount the interface board(s) on the rail, make the connection to the 24 V power supply and the fiber optic connection between SCB1 and SCI.



The SCB1 board is used in conjunction with the SIMOREG CM only as the master for SCI slaves.

Depending on the type of SCI slaves used and the functions required, the following parameters are relevant with respect to board operation (for details, see function diagrams in Section 7, and parameter list in Section 11):

- U690 Configuration of analog inputs of SCI1
The type of input signal for each input is parameterized via the indices.
- U691 Smoothing time constant of analog inputs of SCI1
Filtering of the input signal for each input is parameterized via the indices.
- U692 Zero calibration of analog inputs of SCI1
The input signal for each input is zero calibrated via the indices.
- U693 Actual value output via analog outputs of SCI1
A connector number is selected via the indices to define the output quantity at each output.
- U694 Gain of analog outputs of SCI1
The gain for each output is parameterized via the indices.
- U695 Zero calibration of analog outputs of SCI1
The output signal for each output is zero calibrated via the indices.
- U698 Binector selection for binary outputs of SCI1
Selection of binectors whose states are output via the binary outputs of the SCIs.
- Display parameters n697 (diagnostic information) and n699 (display of input/output data) facilitate troubleshooting during start-up.



Switch the electronics power supply off and on again or set U710.001 or U710.002 to "0" to transfer the values of parameters U690 to U698 to the supplementary board.

Note: This initialization process will interrupt the communication of any supplementary board that has already been started up.

Option board **SCB1** (Serial Communication Board 1) is used to link the 6RA70 SIMOREG CM to board **SCI1** or **SCI2** (Serial Communication Interface) using a fiber optic connection (recommendation: Siemens plastic fiber optic cable, CA-1V2YP980/1000,200A or Siemens glass-fiber cable, CLY-1V01S200/230,10A). These boards can be used if the CUD2 terminal expansion module is not large enough or safe electrical isolation via fiber optics is an absolute necessity. This board only allows the SCB1 master to exchange data with the SCI slaves. Data cannot be exchanged between the SCI slaves themselves.

A maximum of 2 SCIs, of either the same or different types, can be connected to the SCB1.

SCI1 or SCI2 are terminal expansion boards which are mounted on a rail outside the SIMOREG CM and supplied with 24 V DC voltage (-17% +25%, 1A) from an external source.

The interface boards extend the converter by the following additional inputs/outputs:

SCI1	SCI2
10 binary inputs	16 binary inputs
8 binary outputs	12 binary outputs
3 analog inputs	
3 analog outputs	

Reception of SCI data by the SCB1 or transmission to the SCIs is synchronized, i.e. the data of two slaves is received simultaneously or transmitted simultaneously.

Details about the functions and connections of inputs and outputs are shown in the function diagrams in Section 8.



CAUTION

SCI boards have no external enclosure to protect them against direct contact or ingress of pollutants. To protect them against damage, they must be installed in a housing or in the control cabinet of a higher-level system.

The maximum permissible length of fiber optic cables is 10m.

An input filter must be fitted for the external power supply of the interface boards.

Ground SCI at X80 using a short lead.

Analog inputs on SCI1: Only the voltage input or the current input may be used for each channel.

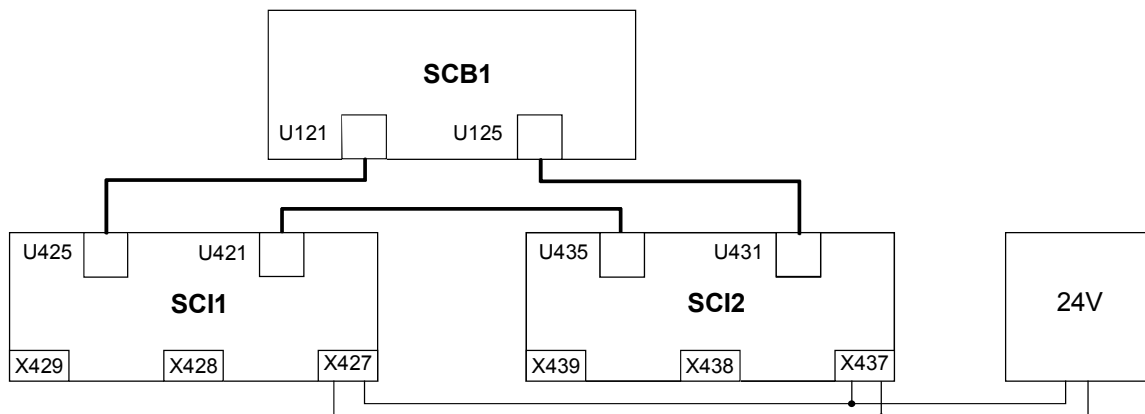
Analog outputs on SCI1: Only the voltage input or the current input may be used for each channel. The outputs are short-circuit-proof.

The binary driver outputs are short-circuit-proof. Relays may only be connected to these outputs in conjunction with an external power supply.

The binary relay outputs are not designed for protective separation.

To protect them against static discharge, the boards may only be placed on conductive surfaces.

Recommended circuit for connecting SCB1 to SCI1 and SCI2 using fiber optic cables:



WARNING



If the 24 V voltage supply for an SCI slave fails which data are being exchanged between the SCB1 and an SCI, then the "1" signal applied at a binary input is sent to the SCB1 or SIMOREG as an "0" shortly before the power finally fails. In contrast, the "1" remains applied in the SIMOREG in the event of an interruption in the fiber optic connection.

If an external voltage (logical "1") has already been applied to a binary input when the electronics supply voltage is switched on, this status will not be registered until the external voltage is disconnected and reconnected again.

7.7.8.1 Diagnostic tools:

LED display on SCB1:

LED on	Reset state
LED flashing	Normal operation
LED off	Error

LED display on SCI1 or SCI2 slave:

LED on	Reset state	
LED flashing	12Hz frequency	No telegram traffic (e.g. fiber optic cable not connected)
	5Hz frequency	Faulty telegram traffic (e.g. fiber optic ring interrupted or other slave has no supply voltage)
	0.5Hz frequency	Normal operation
LED off	Error	

Details about fault or alarm messages which may occur in relation to SCB1 or SCI (F070 to F079 and A049 and A050) can be found in Section 10.