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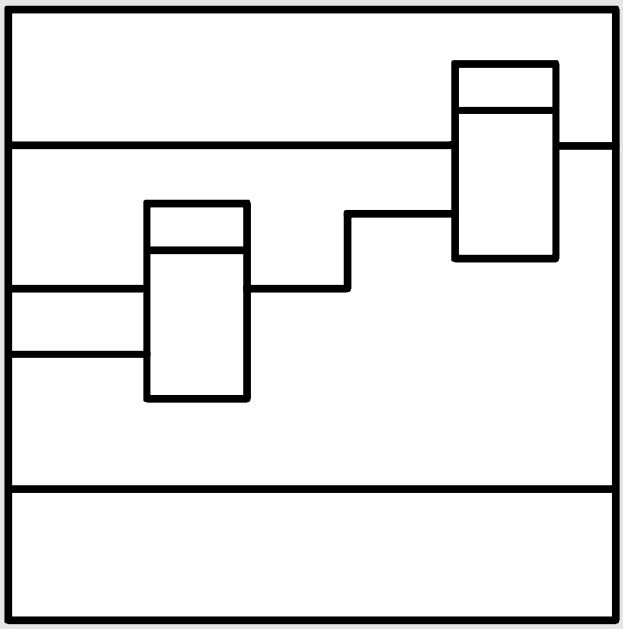
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Find the *Siemens 6DD1641-0AC0 EB11* at our website: *Click HERE*

SIMADYN D
Digital Control System

User Manual

I/O module EB11



Edition 05.95

DK-Nr. 231141

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User Manual, I/O module EB11

Edition		Edition status
1	I/O module EB11	06.93
2	I/O module EB11	05.95

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We have checked the contents of this Manual to ensure that they coincide with the described hardware and software. However, deviations cannot be completely ruled-out, so we cannot guarantee complete conformance. However, the information in this document is regularly checked and the necessary corrections included in subsequent editions. We are thankful for any recommendations or suggestions.

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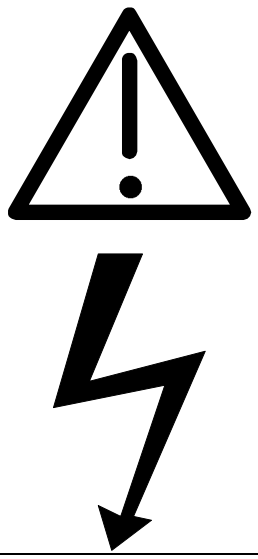
N O T E !

The information in this Manual does not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation or maintenance.

Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, please contact your local Siemens office.

Further, the contents of this Manual shall not become a part of or modify any prior or existing agreement, committment or relationship. The sales contract contains the entire obligation of Siemens. The warranty contained in the contract between the parties is the sole warranty of Siemens. Any statements contained herein do not create new warranties nor modify the existing warranty.

Warning information



W A R N I N G !

Electrical equipment has components which are at dangerous voltage levels.

If these instructions are not strictly adhered to, severe bodily injury and material damage can result.

Only appropriately qualified personnel may work on this equipment or in its vicinity.

This personnel must be completely knowledgeable about all the warnings and service measures according to this User Manual.

The successful and safe operation of this equipment is dependent on proper handling, installation, operation and maintenance.

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Definitions

* **QUALIFIED PERSONNEL**

For the purpose of this User Manual and product labels, a „Qualified person“ is someone who is familiar with the installation, mounting, start-up and operation of the equipment and the hazards involved. He or she must have the following qualifications:

1. Trained and authorized to energize, de-energize, clear, ground and tag circuits and equipment in accordance with established safety procedures.
2. Trained in the proper care and use of protective equipment in accordance with established safety procedures.
3. Trained in rendering first aid.

* **DANGER**

For the purpose of this User Manual and product labels, „Danger“ indicates death, severe personal injury and/or substantial property damage will result if proper precautions are not taken.

* **WARNING**

For the purpose of this User Manual and product labels, „Warning“ indicates death, severe personal injury or property damage can result if proper precautions are not taken.

* **CAUTION**

For the purpose of this User Manual and product labels, „Caution“ indicates that minor personal injury or material damage can result if proper precautions are not taken.

* **NOTE**

For the purpose of this User Manual, „Note“ indicates information about the product or the respective part of the User Manual which is essential to highlight.



C A U T I O N !

This board contains components which can be destroyed by electrostatic discharge. Prior to touching any electronics board, your body must be electrically discharged. This can be simply done by touching a conductive, grounded object immediately beforehand (e.g. bare metal cabinet components, socket protective conductor contact).



W A R N I N G !

Hazardous voltages are present in this electrical equipment during operation.

Non-observance of the safety instructions can result in severe personal injury or property damage.

It is especially important that the warning information in all of the relevant Operating Instructions are strictly observed.

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1. Description

The external EB11 module is used in the SIMADYN D system for the input and output of binary information. The two 40-way ribbon cable connectors X5 and X6 (with equal priority) on the frontplate are each organized in groups of 4 x 10 pins, each ten pins being organized in eight bits of information and an external power supply P24 and ground. The four units of a connector are divided into two units for input and two for output.

The S1 and S2 pushbuttons with integral LEDs also located on the frontplate are used for the visual indication of output inhibit signals (LED function) and/or for the manual resetting of output inhibit signals (pushbutton function). Pushbutton S1 is assigned to connector X5 and pushbutton S2 to connector X6.

Output inhibits occur at output bits that are overloaded. The pushbutton LEDs can only be used to determine which overloaded output bit(s) is(are) assigned to which connector.

The inputs and outputs have a rated voltage of 24 V. The inputs load the source with 5 mA and the outputs supply 50 mA.

2. Module construction

- 1 plug-in station (corresponds to 1 1/3 SPS for standard plug-in stations)

- SIMADYN D local bus connection

- Programmable address decoder (PAD) with module identification

- 2 x 2 x 8-bit inputs

- 2 x 2 x 8-bit outputs (switched off on thermal overload and switched back on see 'Notes for the user')

- 2 LED pushbuttons

3. Notes for the user

The EB 11 external module can be installed both in each SIMADYN D rack and is connected to the local bus. It takes up one plug-in station in the subrack.

The module only functions properly if it is screwed down in position in the subrack (also during commissioning).

If the module is plugged onto an adapter, the frontplate or, even better, one of the two frontplate end pieces, must be connected with chassis by a short cable.

The binary inputs/outputs are connected via interface modules that are snapped onto the mounting rail. The connections from the module (connector X5/X6) to the interface modules are established with a ribbon cable (both cable ends with ribbon cable socket connectors).

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The following options (shown in figure 1, appendix) are provided for connecting each of the two connectors X5 and X6 (shown only for X5):

Re a) All 16 binary inputs/outputs of the EB 11 (connector X5/X6) are connected to the SE3.1/SE23 interface module via a 40-way ribbon cable. This module contains the external connections to the plant (screw-type terminals).

Re b) The 16 binary inputs/outputs of a connector are distributed over four different interface modules. This is done by splitting the ends of a ribbon cable (4 x 10-way) and running it to the various interface modules. This makes it possible, to connect 8 inputs/outputs at a time via different interface modules to the plant (e. g. with/without isolation, changing 48 V to 24 V or 24 V to 48 V).

An output channel is switched off (output = 0 V) on thermal overload (e. g. by short circuit). The LED of the appropriate connector turns on. The output can be switched back to normal operation after cooling the output element by a few degrees Celsius.

This reset operation is normally be done by a test program running in the background. It is called in time distances like the SIMADYN D monitor.
Therefore much variable periods can exist between the occurance of overload and the automatic reset by the background program. On a very high processor load conditioned by configuring it is also thinkable, that the background program is called never or only after a long time.

In this case all the affected outputs of a connector can be reset by the pushbutton function of the LED pushbutton.

Additional components used for the EB 11:

a) Binary I/O cable

* 40-way	2.0 m	SC18	6DD 1684-0BJ0
* 40-way --> 4+10-way	2.0 m	SC13	6DD 1684-0BD0

If cables in other lengths are needed, all the necessary informations for manufacturing can be taken from the dimension drawings.

Dimension drawings

cable type	No. of dimension drawing
* 40-way	3GE 465 684 9000.01 MB
* 40-way --> 4+10-way	3GE 465 684 9000.02 MB

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b) Interface module

* SE3.1 16 non-floating binary inputs and 16 non-floating binary outputs	6DD 1681-0AD1
* SE23 16 binary inputs and 16 binary outputs (40-way one-to-one connection)	6DD 1681-0CD0
* SE8 Eight binary inputs or outputs (10-way one-to-one connection)	6DD 1681-0AJ0
* SE4.1 Eight non-floating binary inputs or outputs	6DD 1681-0AE1
* SE5.3 Eight 220 V floating binary inputs	6DD 1681-0AF3
* SE6.1 Eight floating binary outputs for max. 220V	6DD 1681-0AG1
* SE37 Eight 24 V floating binary outputs	6DD 1681-0DH0
* SE41.1 Eight floating 48 V binary inputs	6DD 1681-0EB1
* SE41.2 Eight floating 24 V binary inputs	6DD 1681-0EB2

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4. Technical specification

GENERAL	
INSULATION GROUP	B to VDE 0110 paragraph 13, group 2 at 24 V DC, 15V, 5 V DC
AMBIENT TEMPERATURE	0 to 55 deg. C with forced ventilation
STORAGE TEMPERATURE	-40 to +70 deg. C
HUMIDITY CLASS	F to DIN 40040
ALTITUDE RATING	S to DIN 40040
MECHANICAL STRESS	Installation in stationary equipment, sensitive to vibrations
PACKAGING SYSTEM	ES 902 C
DIMENSIONS	233.4 x 220 mm
MODULE WIDTH	1 1/3 SPS = 1 plug-in station = 20.14 mm
WEIGHT	0.6 kg
CURRENT CONSUMPTION	P5 0.4 A P15 0.0 A N15 O.02 A P24 0.2 A (from external supply) + current consumption of conn. interf. m. + current consumption of binary outputs
BINARY INPUTS	
QUANTITY	32
INPUT VOLTAGE	+ 24 V rated valu&e
FOR 0 SIGNAL	-1 V to +6 V; or binary inputs open
FOR 1 SIGNAL	+13 V to +33 V
INPUT CURRENT	
AT 1 SIGNAL	5 mA (typ.)
DELAY TIME	200 us
BINARY OUTPUTS	
QUANTITY	32
SUPPLY VOLTAGE	
- RATED VALUE	24 V DC
- RIPPLE	3.6 V DC
- PERM. RANGE	+20 to +30 V including ripple
- SHORT-TIME OVERLOAD	+35 V T < 0.5 s
OUTPUT CURRENT AT 1 SIGNAL	
- RATED VALUE	50 mA
- PERM. RANGE	0.2 mA to 50 mA
SHORT-CIRCUIT PROTECTION	electronic
LIMITATION OF VOLTAGE INDUCED ON CIRCUIT INTERRUPTION	to VP + 1 V
TOTAL LOAD	80 % at 50oC, all outputs with 50 mA
RESIDUAL CURRENT	20 uA at 0 signal
SIGNAL LEVEL	
- 0 SIGNAL	3 V max.
- 1 SIGNAL	-2.5 V min. supply voltage
DELAY	15 us

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5. Connector pin assignments of the EB11

Pin	Designation	Connector	Pin	Designation	Connector
1	Output 1	X5 A	1	Output 1	X6 A
2	Output 2	X5 A	2	Output 2	X6 A
3	Output 3	X5 A	3	Output 3	X6 A
4	Output 4	X5 A	4	Output 4	X6 A
5	Output 5	X5 A	5	Output 5	X6 A
6	Output 6	X5 A	6	Output 6	X6 A
7	Output 7	X5 A	7	Output 7	X6 A
8	Output 8	X5 A	8	Output 8	X6 A
9	P external	X5 A	9	P external	X6 A
10	M external	X5 A	10	M external	X6 A
11	Output 9	X5 B	11	Output 9	X6 B
12	Output 10	X5 B	12	Output 10	X6 B
13	Output 11	X5 B	13	Output 11	X6 B
14	Output 12	X5 B	14	Output 12	X6 B
15	Output 13	X5 B	15	Output 13	X6 B
16	Output 14	X5 B	16	Output 14	X6 B
17	Output 15	X5 B	17	Output 15	X6 B
18	Output 16	X5 B	18	Output 16	X6 B
19	P external	X5 B	19	P external	X6 B
20	M external	X5 B	20	M external	X6 B
21	Output 1	X5 C	21	Output 1	X6 C
22	Output 2	X5 C	22	Output 2	X6 C
23	Output 3	X5 C	23	Output 3	X6 C
24	Output 4	X5 C	24	Output 4	X6 C
25	Output 5	X5 C	25	Output 5	X6 C
26	Output 6	X5 C	26	Output 6	X6 C
27	Output 7	X5 C	27	Output 7	X6 C
28	Output 8	X5 C	28	Output 8	X6 C
29	int.conn.:pin19	X5 C	29	int.conn.:pin19	X6 C
30	M external	X5 C	30	M external	X6 C
31	Output 9	X5 D	31	Output 9	X6 D
32	Output 10	X5 D	32	Output 10	X6 D
33	Output 11	X5 D	33	Output 11	X6 D
34	Output 12	X5 D	34	Output 12	X6 D
35	Output 13	X5 D	35	Output 13	X6 D
36	Output 14	X5 D	36	Output 14	X6 D
37	Output 15	X5 D	37	Output 15	X6 D
38	Output 16	X5 D	38	Output 16	X6 D
39	int.conn.:pin19	X5 D	39	int.conn.:pin19	X6 D
40	M external	X5 D	40	M external	X6 D

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6. STRUC-L menu of the EB11 module in the master program

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

      :EB11             "binary I/O-module 1, L-bus"
ISE 1C = N               "ignore failed message (RDYINT) (Y/N) ?"
X5C 8K <                 "binary inputs 1"
X5D 8K <                 "binary inputs 2"
X6C 8K <                 "binary inputs 3"
X6D 8K <                 "binary inputs 4"
X5A 8K >                 "binary outputs 1"
X5B 8K >                 "binary outputs 2"
X6A 8K >                 "binary outputs 3"
X6B 8K >                 "binary outputs 4"

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

See also description of master program

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7. Miscellaneous

7.1. Appendices

7.1.1. Figures

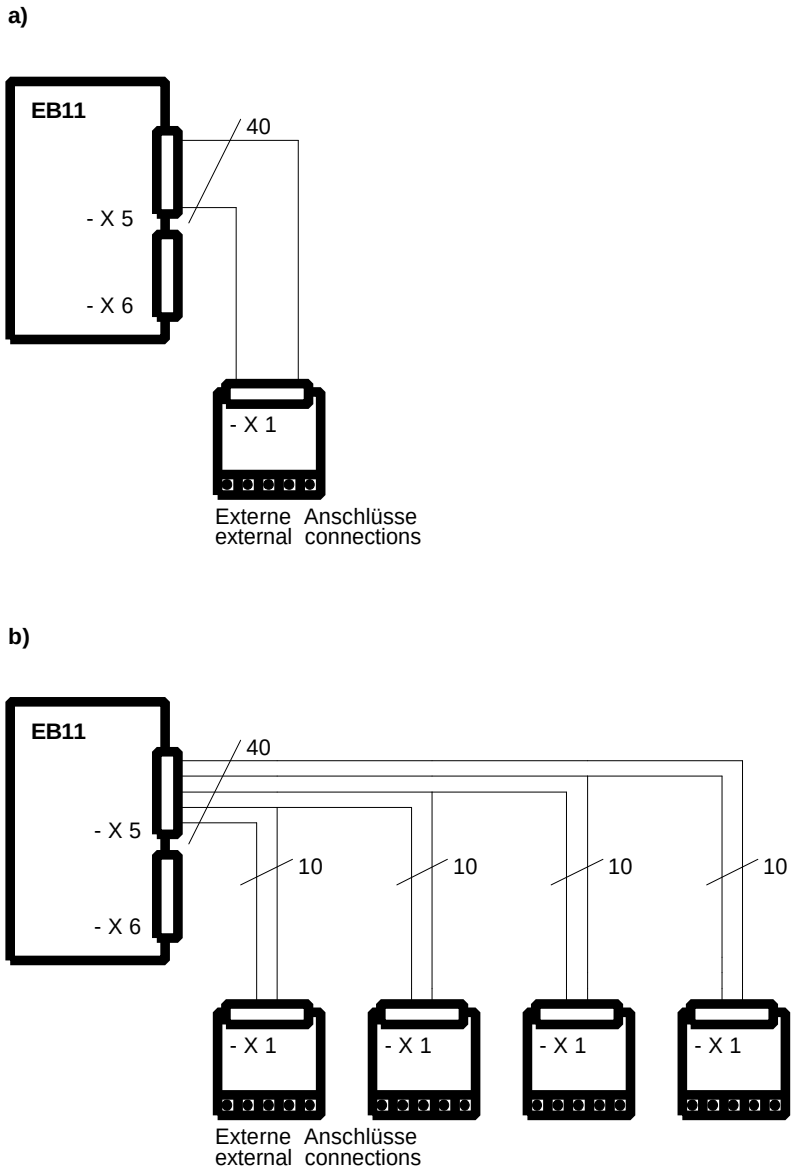


Figure 1

7.1.2. Drawings

Block diagram	3GE 465 641 9002.00 SU
Dimension drawing, front plate and table of connectors used	3GE 465 641 9002.00 MB
Location diagram EB11	3GE 465 641.9002.00 AO

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8. ECB instructions

Components which can be destroyed by electrostatic discharge (ECB)

Generally, electronic boards should only be touched when absolutely necessary.

The human body must be electrically discharged before touching an electronic board. This can be simply done by touching a conductive, grounded object directly beforehand (e.g. bare metal cubicle components, socket outlet protective conductor contact.

Boards must not come into contact with highly-insulating materials - e.g. plastic foils, insulated desktops, articles of clothing manufactured from man-made fibers.

Boards must only be placed on conductive surfaces.

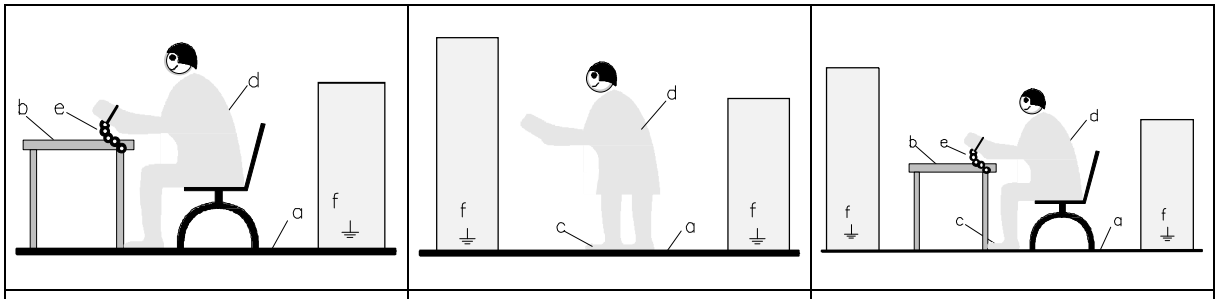
When soldering, the soldering iron tip must be grounded.

Boards and components should only be stored and transported in conductive packaging (e.g. metalized plastic boxes, metal containers).

If the packing material is not conductive, the boards must be wrapped with a conductive packing material, e.g. conductive foam rubber or household aluminum foil.

The necessary ECB protective measures are clearly shown in the following diagram.

a = Conductive floor surface
b = ECB table
c = ECB shoes
d = ECB overall
e = ECB chain
f = Cubicle ground connection

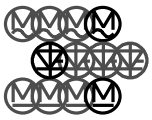


Seated	Standing	Standing/sitting

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