4.2 Digital input module ICSI 08 E4

8 input channels 230 V AC, electrically isolated
CS31 system bus interface electrically isolated

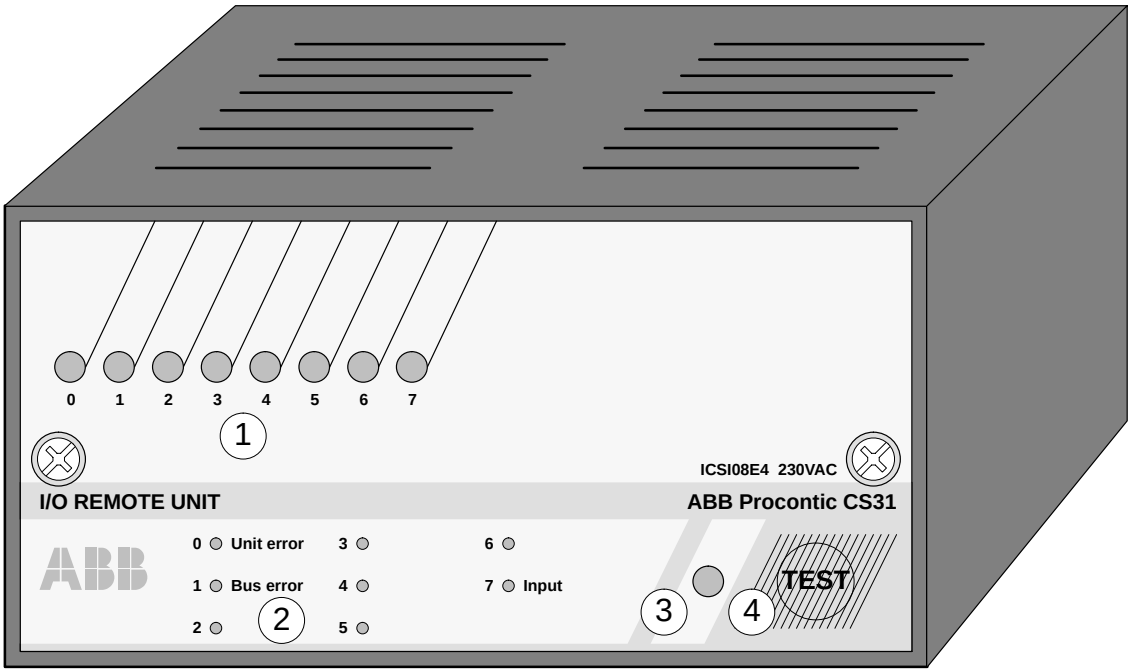


Fig. 4.2-1: Digital input module ICSI 08 E4, inputs and power supply 230 V AC

Contents

Intended purpose

The digital input module ICSI 08 E4 is used as a remote module on the CS31 system bus. It contains 8 **electrically isolated** input channels for a rated voltage of 230 V AC. The signal statuses of the input signals is indicated with 8 yellow LEDs on the front panel.

The module is powered by a supply voltage of 230 V AC. It is electrically isolated from the mains voltage. For electrical connection, it has to be mounted on a plug-in base ECZ.

The CS31 system bus interface is electrically isolated from the rest of the module.

The module offers a number of diagnosis functions (see chapter "Diagnosis and displays").

Display and operating elements on the front panel

① 8 yellow LEDs to indicate the signal status of the inputs or for displaying error and diagnosis data

② List of diagnosis information concerning the LEDs when they are used for diagnosis display

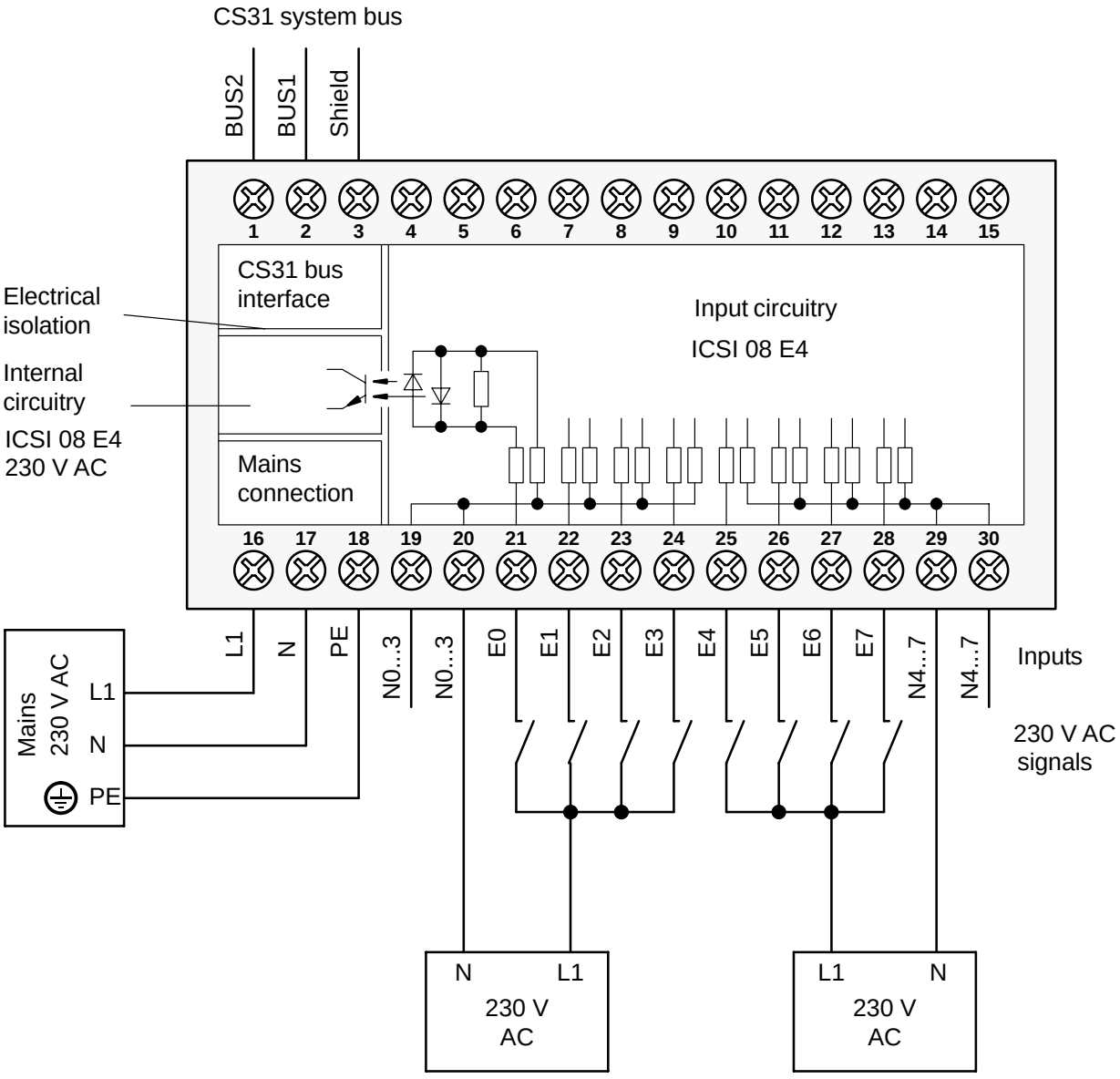
③ Red LED for error message

④ Test button

Electrical connection

The module has to be mounted on the plug-in base ECZ and then fastened with two screws. The plug-in base has a mechanical coding which prevents that a module can be plugged-in with another supply voltage than set on the ECZ. Before mounting the input module, the mechanical coding has to be set to the correct supply voltage.

The following figure shows the electrical connection of the input module.



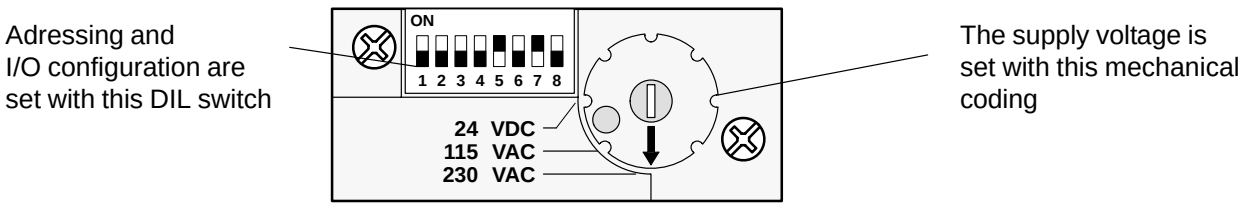


Fig. 4.2-2: Electrical connection of the digital input module ICSI 08 E4, supply voltage 230 V AC

Addressing

An address must be set for each module to enable the basic unit to correctly access the inputs.

A detailed description about "Addressing" can be found in the chapter "Addressing" of the basic units and couplers.

The address setting is accomplished with the DIL switch on the plug-in base ECZ. When using the basic units 07 KR 91 and 07 KT 9x as bus masters, the following address assignments are valid:

Basic unit	07 KR 91 / 07 KT 9x	
DIL switch No. 8 on the ECZ	OFF (recommended)	ON
Channel		
E0	E xx,00	E xx,08
E1	E xx,01	E xx,09
E2	E xx,02	E xx,10
E3	E xx,03	E xx,11
E4	E xx,04	E xx,12
E5	E xx,05	E xx,13
E6	E xx,06	E xx,14
E7	E xx,07	E xx,15

xx: Group number of the address, set on the DIL switch of the plug-in base with the switches 2...7. Recommended addresses with 07 KR 91 / 07 KT 9x as bus masters: 08, 10, 12...60 (even-numbered addresses)

The module uses 8 inputs on the CS31 system bus.

I/O configuration

An I/O configuration is only necessary, if the application needs other settings than the factory settings.

The following functions can be configured:

- Alteration of the input signal delay

  As factory setting both the ON delay and the OFF delay of the inputs are 10 ms. A change to values of 2...32 ms is possible via the CS31 system bus. After setting via the system bus, the real delay is 10 ms longer than the set value.

I/O configuration data, which was set via the CS31 system bus, are stored in the module even after power OFF/ ON.

Using the test button, the set configuration of all channels can be individually interrogated (see chapter "Diagnosis and displays").

For detailed descriptions about methodology of the I/O configuration via the CS31 system bus see the chapters "I/O configuration" of the used basic units and couplers.

Normal operation

- After power ON the module initializes automatically. During this period the red LED (3) flashes.
- After initialization the red LED (3) goes out, if the bus runs correctly and if the module has detected no error.
- The 8 yellow LEDs (1) indicate the signal statuses of the channels E0...E7.

Diagnosis and displays

Diagnosis functions:

– Error inside the module

– Error on the CS31 system bus

If one of these errors occurs, the red LED (3) lights up.

Using the test button (4) and the LEDs (1), diagnosis information can be achieved directly at the module.

By pressing the test button the first time, the channel **E0** is selected: LED**0** flashes. After releasing the test button, the diagnosis information of this channel is displayed with the 8 yellow LEDs for a period of ca. 3 seconds.

The ON status of the LEDs means:

0 Error inside the module (Unit error)
1 Error on the CS31 system bus (Bus error)
2 not used
3 not used
4 not used
5 not used
6 not used
7 Configuration as an input (Input)

The meaning of the LEDs (2) is also printed on the front panel of the module in English.

With every further pushing and releasing the test button, the described procedure repeats for the other channels.

After calling up the last channel (E7), a lamp test (LED test) is performed when the test button is pushed again. All 8 LEDs must light up.

After releasing the test button, the 8 LEDs show the setting of the DIL switches of the plug-in base for a period of ca. 5 seconds. LED0 shows switch 1 (LEDs 0...7 belong to the switches 1...8).

All error messages are stored in the module. They can be deleted in the following ways:

– by pressing the test button for about 10 seconds or
– with power OFF/ON or
– via the CS31 system bus.

Diagnosis data, which can be evaluated, are also sent to the basic units and couplers which work as the bus master.

For further details see the chapter "Diagnosis" in the description of the basic units and couplers.

After finishing the diagnosis procedure, the 8 LEDs again show the signal statuses of the channels. The same is valid for the pauses between the steps of the procedure.

Technical data

General data of the module

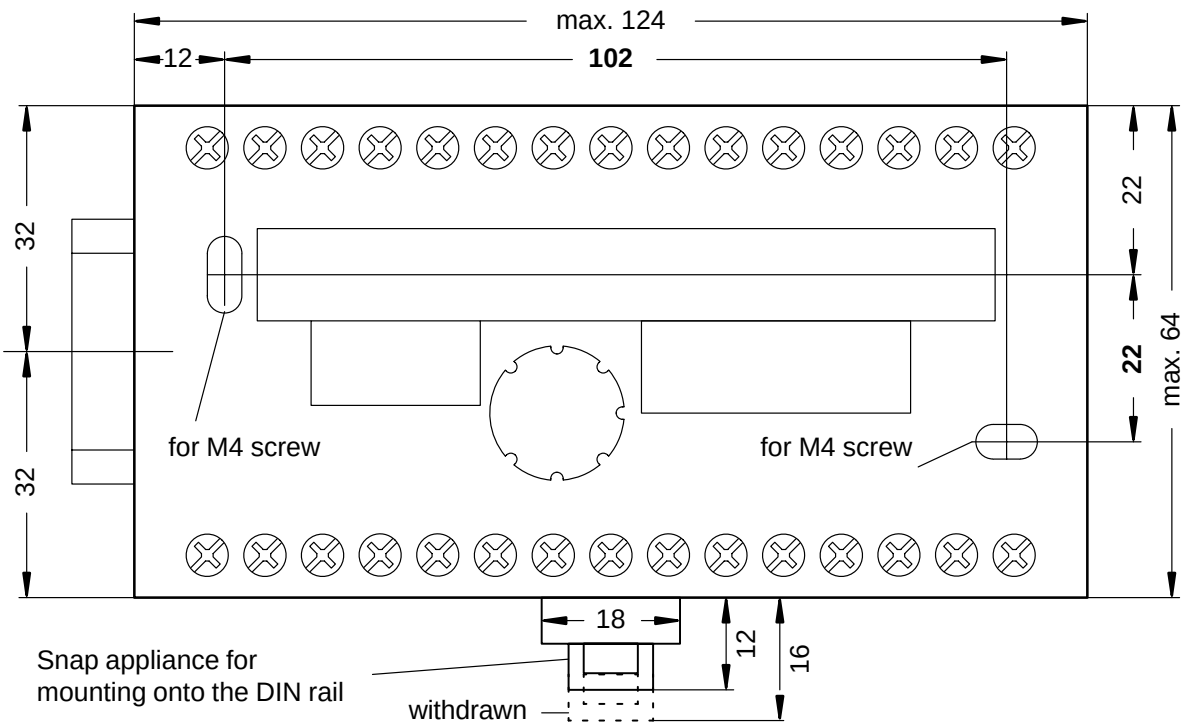
Versions		**R 0016**
Rated power supply voltage		230 V AC, 50 or 60 Hz
Max. input power		5 VA
Max. power dissipation in the module		6 W
Max. conductor cross section of the terminals (flexible lead with wire end ferrule)		2 cores of 2.5 mm^2 per terminal
Weight	plug-in base ECZ module ICSI 08 E4	200 g 430 g

Technical data of the inputs

Number of inputs per module	8
Arrangement of the inputs	in 2 groups of 4 channels each, each group has its own reference potential
Electrical isolation	yes, between the groups and from the rest of the module
Electrical isolation from the mains voltage	yes
Signal levels of the inputs:	
Rated voltage	230 V AC, 50 or 60 Hz
Signal 0	0...40 V AC
Signal 1	159...253 V AC
Supply current at 230 V AC	ca. 6.5 mA
Input signal delay transition $0 \rightarrow 1$ or $1 \rightarrow 0$	2 to 32 ms configurable, standard setting is 10 ms. After setting via the system bus, the real delay is 10 ms longer than the set value.
Signalling	1 yellow LED per channel

Mechanical data

Installation methods	on a DIN rail or fastening by screws
Mounting depth including the plug-in base and a flat DIN rail	117 mm
Dimensions of the plug-in base (see the drawing below)	
snapping onto the DIN rail	centrally between top and bottom of the plug-in base
fastening by M4 screws	102 mm x 22 mm
max. outline dimensions of the plug-in base	124 mm x 64 (+12) mm



The dimensions for mounting with screws are shown in **bold** print.

Fig. 4.2-3: Mounting the plug-in base ECZ for installation of the input module ICSI 08 E4

Ordering data

Order numbers	Plug-in base ECZ	FPR3700001R0001
	Module ICSI 08 E4 230 V AC	FPR3316401R0016