4.1 Digital Input Module 07 DI 92

32 digital inputs 24 V DC, electrically isolated in groups, CS31 system bus

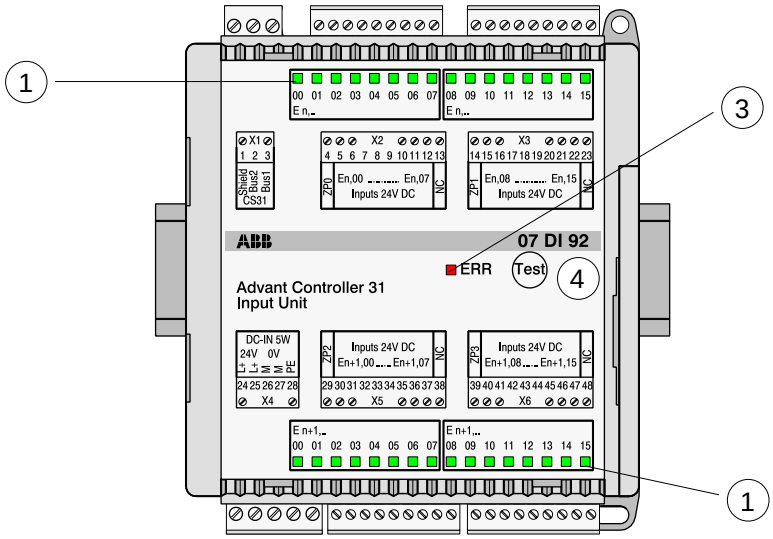


Fig. 4.1-1: Digital input module 07 DI 92

Contents

Intended purpose

The digital input module 07 DI 92 is used as a remote module on the CS31 system bus. It contains 32 inputs, 24 V DC, in 4 groups with the following features:

- The 4 groups of the inputs are electrically isolated from each other and from the rest of the unit.
- The module occupies two digital addresses for inputs on the CS31 system bus.

The unit works with a supply voltage of 24 V DC.

The system bus connection is electrically isolated from the rest of the unit.

Display and operating elements on the front panel

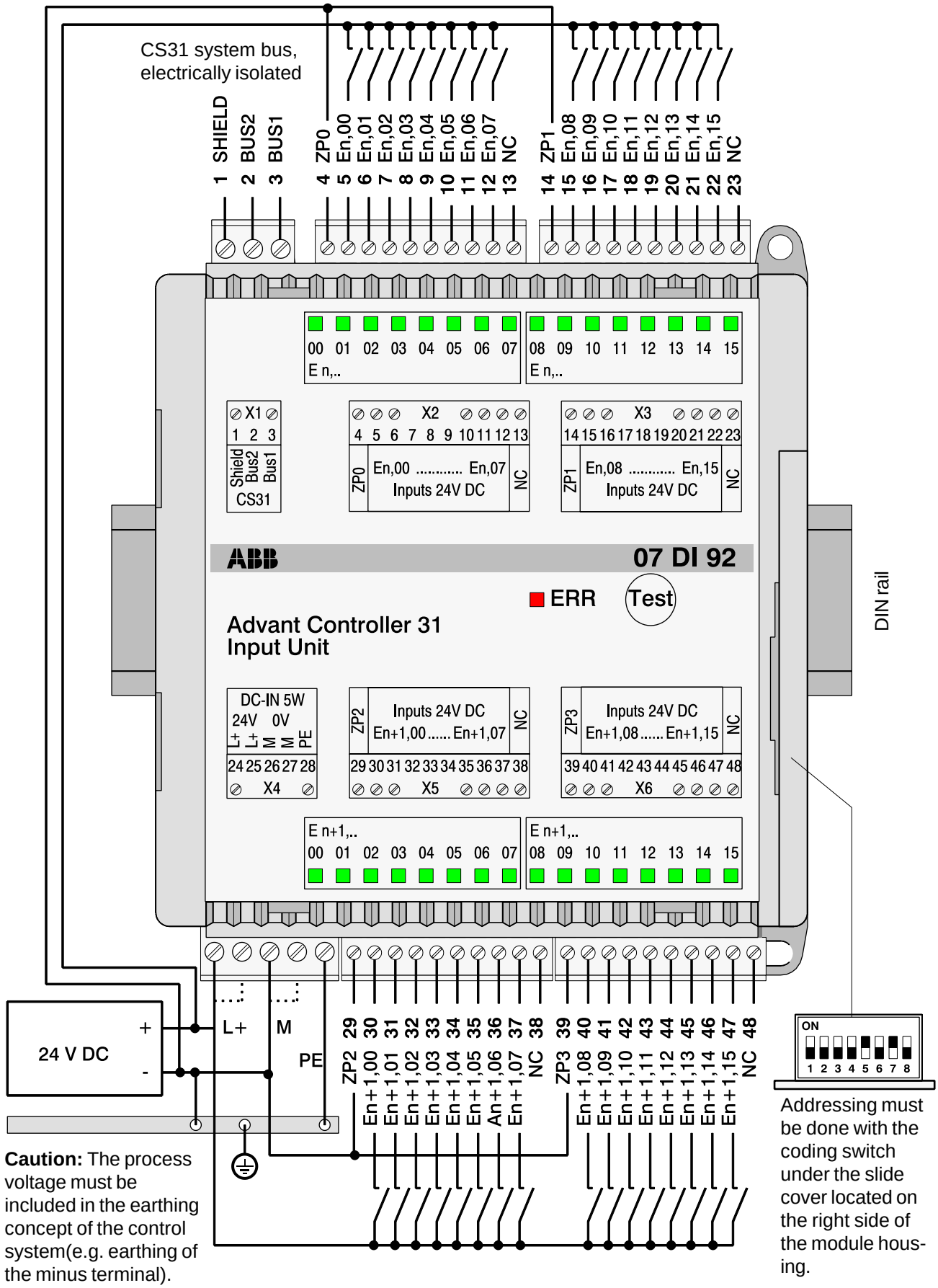
(1) 32 green LEDs to indicate the signal status of the inputs

(3) Red LED for error messages

(4) Test button

Electrical connection

The module can be mounted on a DIN rail (15 mm high) or with 4 screws. The following illustration shows the electrical connection of the input module.



Caution: The process voltage must be included in the earthing concept of the control system(e.g. earthing of the minus terminal).

Addressing must be done with the coding switch under the slide cover located on the right side of the module housing.

Fig. 4.1-2: Electrical connection of the digital input module 07 DI 92

Addressing

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

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 located under the slide cover on the right side of the module housing.

When using basic units 07 KR 91, 07 KT 92 to 07 KT 97 as bus master, the following address assignments apply:

Basic units 07 KR 91 / 07 KT 92 to 97

Terminal	Input	Terminal	Input
5	E n,00	30	E n+1,00
6	E n,01	31	E n+1,01
7	E n,02	32	E n+1,02
8	E n,03	33	E n+1,03
9	E n,04	34	E n+1,04
10	E n,05	35	E n+1,05
11	E n,06	36	E n+1,06
12	E n,07	37	E n+1,07
15	E n,08	40	E n+1,08
16	E n,09	41	E n+1,09
17	E n,10	42	E n+1,10
18	E n,11	43	E n+1,11
19	E n,12	44	E n+1,12
20	E n,13	45	E n+1,13
21	E n,14	46	E n+1,14
22	E n,15	47	E n+1,15

n: Module address, can be set with address DIL switch with switches 2...7.
Recommended module addresses for 07 KR 91 / 07 KT 92 to 97 as bus master: 08, 10, 12....60 (even-numbered addresses)

The module occupies **two** addresses on the CS31 system bus for inputs.

Switches 1 and 8 of the address DIL switch must be set to OFF.

Fig 4.1-3: Addresses of the channels

Note:

Module 07 DI 92 reads the position of the address switch **only** during the initialization after the power was switched on, which means, that changes of the setting during operation will remain ineffective until the next initialization.

Input/output configuration

No configuration data are required for the 07 DI 92.

Normal operation

- The module automatically initializes after the power has been switched on. During that time, all LEDs are switched on.
- When the CS31 system bus does not run, LED ③ flashes
- The LED ③ goes out again after the system bus runs correctly and the unit does not detect any error.
- The 32 green LEDs ① show the signal status of the 32 inputs.

Displays

By pressing the test button, an LED test is initiated. All LEDs must light up. Following that, the position of the address switch is displayed for about 3 seconds by LEDs 00 to 07 which was set by module 07 DI 92 during the initialization. In this case LED 00 shows the setting of switch 1 (LEDs 0...7 are assigned to switches 1...8).

Technical data 07 DI 92

In general, the technical system data listed under "System data and system configuration" in chapter 1 of volume 2 of the Advant Controller 31 system description are valid. Additional data or data which are different from the system data are listed as follows.

Technical data for the complete unit

Permissible temperature range during operation		0...55 °C
Rated supply voltage		24 V DC
Nominal signal voltage at inputs		24 V DC
Max. current consumption		0.15 A
Max. nominal load capacity for supply terminals		4.0 A
Max. power dissipation inside the unit		10 W
Protection against incorrect polarity of supply voltage		yes
Conductor cross section		
for removable connectors		
power supply		max. 2.5 mm^2
CS31 system bus		max. 2.5 mm^2
signal terminals		max. 1.5 mm^2
reference potentials ZP0, ZP1, ZP2, ZP3		max. 1.5 mm^2
Number of inputs		32
Electrical isolation	CS31 system bus	from the rest of the unit
	inputs	group from group, all groups from the rest of the unit
Reference potential for inputs		each group has a separate reference potential see Fig. 4.1-2
Number of interfaces		1 CS31 system bus interface
Address setting		Coding switch under the cover located on the right side of the housing
Operation and error displays		a total of 33 LEDs

Technical data for the digital inputs

Number of channels per module		32
Division of channels into groups		4 groups with 8 channels each, channels En,00...En,07 and En,08...En,15 channels En+1,00...En+1,07 and En+1,08...En+1,15
Reference potentials for the inputs		ZP0, ZP1, ZP2 and ZP3
Electrical isolation		group from group, all groups from the rest of the unit
Input signal delay		typ. 7 ms
Signalization of the input signals		one green LED per channel, LEDs activated according to the input signal
Input signal voltage		24 V DC
0 signal		- 30 V...+ 5 V
1 signal		+ 13 V...+ 30 V
residual ripple	for 0 signal	within - 30 V...+ 5 V
	for 1 signal	within + 13 V...+ 30 V

Input current per channel	
input voltage = + 24 V	typ. 7.0 mA
input voltage = + 5 V	≥ 0.2 mA
input voltage = + 13 V	≥ 2.0 mA
input voltage = + 30 V	≤ 9.0 mA
Conductor cross section	
for the removable terminal blocks	max. 1.5 mm^2 (distance between terminals 3.81 mm)

Connection to the CS31 system bus

Interface standard	EIA RS-485
Electrical isolation	against supply voltage, inputs and outputs
Conductor cross section	
for the removable terminal blocks	max. 2.5 mm^2 (grid space 5.08 mm)

Mechanical data

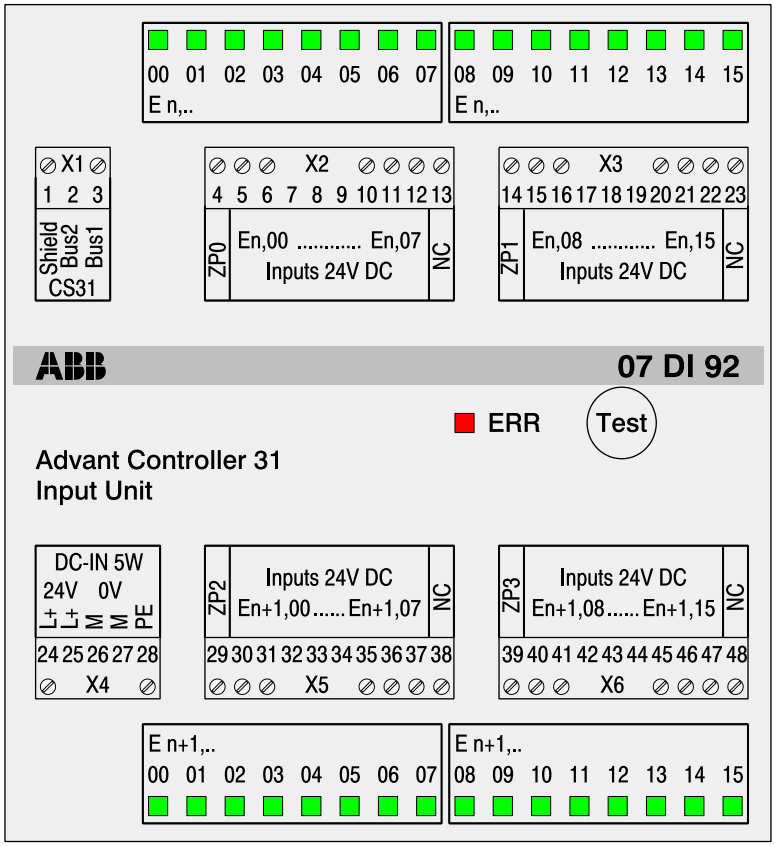
Mounting and DIN rail	according to DIN EN 50022–35, 15 mm deep. The DIN rail is centrally positioned between upper and lower edge of the module.
Mounting with screws	4 screws M4
Width x height x depth	120 x 140 x 85 mm
Connection method	removable connectors with screw-type terminals
cross section	max. 2.5 mm^2 (grid space 5.08 mm) max. 1.5 mm^2 (grid space 3.81 mm)
Weight	450 g
Dimensions for installation	see illustration on next page

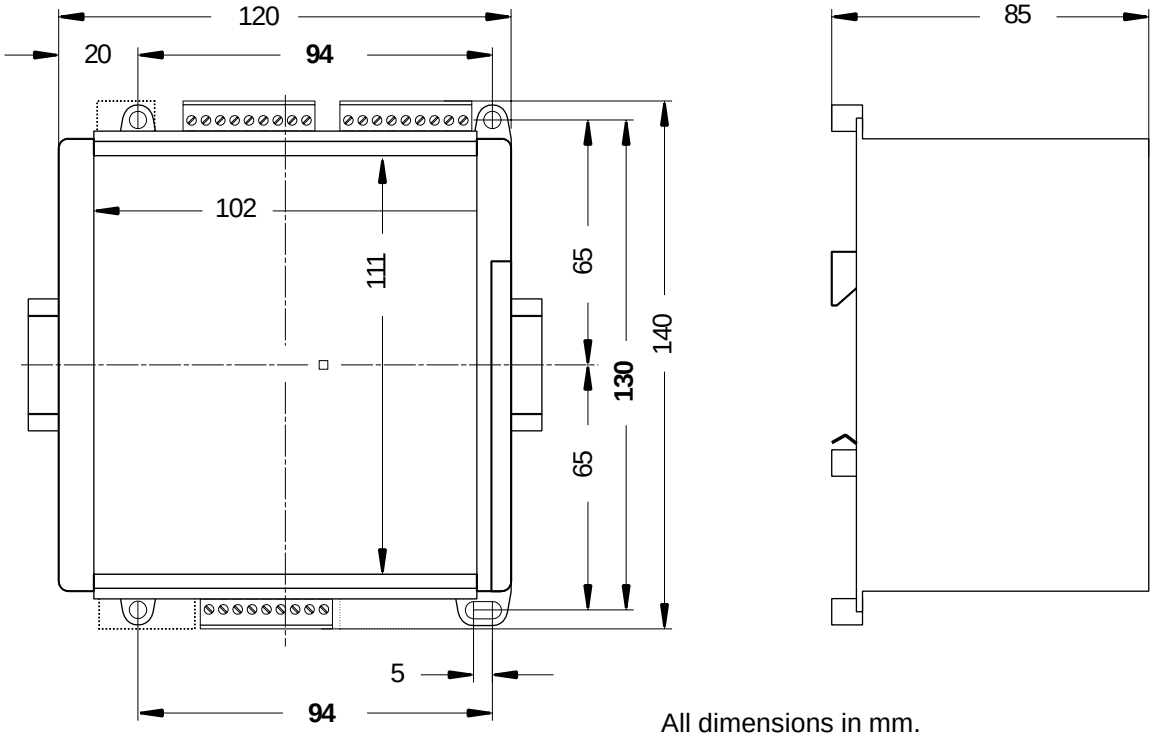
Installation instructions

Mounting position	vertical, connectors must point upward and downward
Cooling	The natural convection cooling must not be obstructed by cable ducts or other components in the cabinet

Ordering data

Module 07 DI 92	Order No. GJR5 2524 00 R0101
Scope of delivery	Digital input module 07 DI 92 1 5-pin connector (grid space 5.08 mm) 1 3-pin connector (grid space 5.08 mm) 4 10-pin connectors (grid space 3.81 mm)





All dimensions in mm.

The depth of the unit is 85 mm. If a DIN rail is used for the installation, the installation depth increases by the depth of the DIN rail.

Fig. 4.1-4: 07 DI 92, Front panel and outline dimensions
Dimensions for the installation holes are shown in bold print