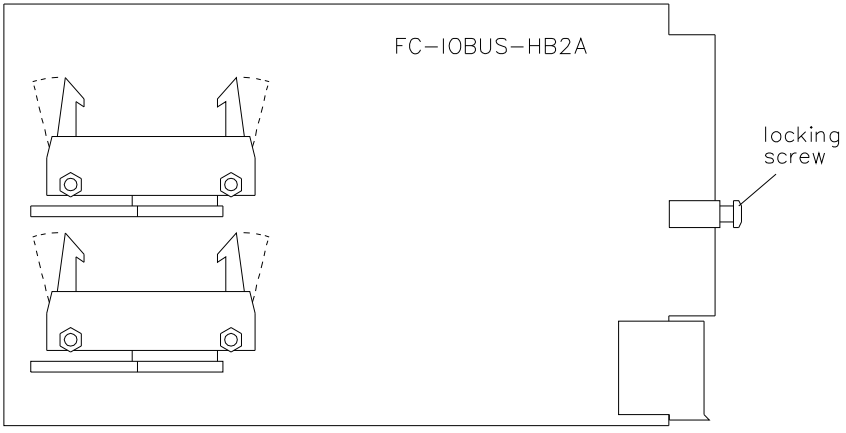
Table 21 Connectors on the IOBUS-HBS

Connector	Amount	Description	See
Flatcable connector	18	Connectors for IO modules, located at slot 1 to 18	"Input modules" on page 289 "Output modules" on page 343
26-pin flatcable assembly	1	Flatcable to the latch on the IOBUS-HB2A	"Horizontal IO bus transfer board (Safety Manager A.R.T.): IOBUS-HB2A" on page 133
10-pin flatcable assembly	1	Flatcable to the latch on the IOBUS-HB2A	"Horizontal IO bus transfer board (Safety Manager A.R.T.): IOBUS-HB2A" on page 133

Horizontal IO bus transfer board (Safety Manager A.R.T.): IOBUS-HB2A

The IOBUS-HB2A board transfers the IO bus signals on the backplane to the Horizontal IO bus on the front of the chassis.

Figure 71 Component view of the IOBUS-HB2A board

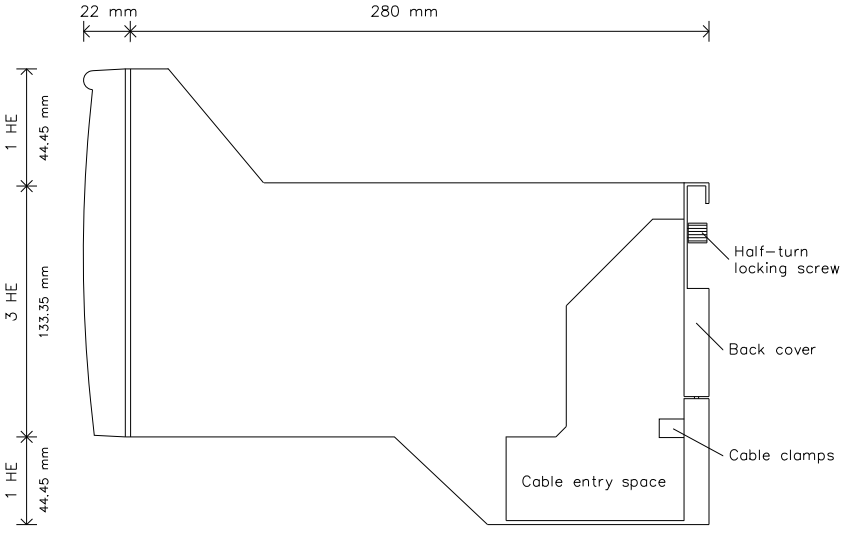


The IOBUS-HB2A is placed behind the blind front, at slot 19 of the IO chassis.

The IOBUS-HB2A is fixed on the IOB-0002S with the locking screw (see Figure 71 on page 133).

The two flatcables on (the rear of) the IOBUS-HB2S are connected to the two latches on the IOBUS-HB2A.

Figure 72 Side view of the IOCHAS-0002S



Technical data

General	Type number:	FC-IOCHAS-0002S
	Approvals:	CE; UL, CSA, TUV, FM pending
Power	5V-1:	100 mA (IO-0002 slot 20)
	5V-2:	100 mA (IO-0002 slot 21)
Dimensions	Height:	1 + 3 + 1 HE for first IO chassis 4 HE for every next IO chassis see Figure 72 on page 134 44.5 + 133.4 + 44.5 mm 1.75 + 5.25 + 1.75 in
	Width:	482.6 mm, 19 in
	Depth:	280 mm, 11 in
	Weight:	8,7 kg, 19.2 lb

IOCHAS-0002R

IO chassis for redundant IO modules (Safety Manager A.R.T.)

Description

The IOCHAS-0002R is a chassis for up to 9 pairs of redundant IO modules.

It consists of the following components:

Table 22 Components of the FC-IOCHAS-0002R

Component	Amount	Description	See
IO housing	1	19 inch mechanical case including cover plates for up to 18 IO modules	page 136
FS-IOB-0002R	1	IO Backplane for redundant IO (Safety Manager A.R.T.)	page 137
FC-IO-0002	2	IO Extender modules, slot 20 and 21 (Safety Manager A.R.T.)	page 488
FS-IOBUS-HB2R	1	Horizontal IO bus backplane for redundant IO (Safety Manager A.R.T.)	page 141
FC-IOBUS-HB2A	1	Horizontal IO bus transfer board at slot 19 (Safety Manager A.R.T.)	page 142
Blind front	1	Located at slot 19	

Figure 73 Front view of an empty IOCHAS-0002R

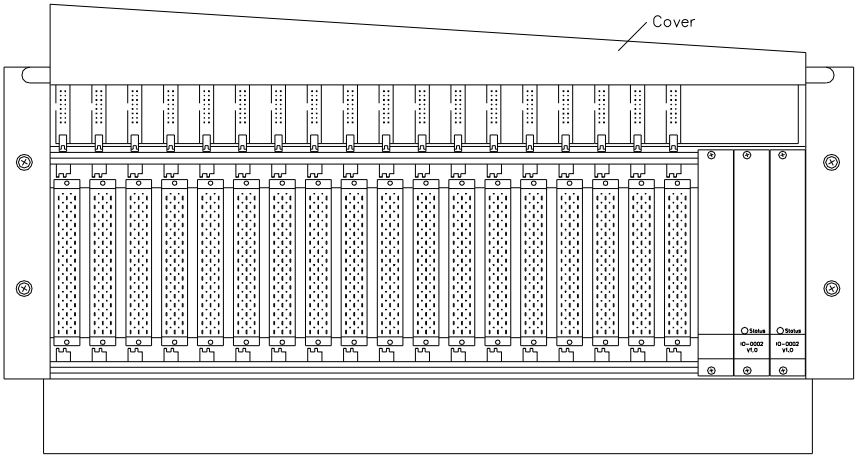


Figure 73 on page 136 shows the front side of an empty IOCHAS-0002R with the front cover raised.

A 19" chassis has 21 slots for modules (each 4TE wide). These slots are numbered 1 to 21, starting at the left-hand side of the chassis. In the IOCHAS-0002R, slots 1 to 18 are available for IO modules. They are configured in pairs.

Behind the blind front at slot 19, IOBUS-HB2A is located.

Slot 20 and slot 21 contain the IO-0002 modules.
The IOB-0002R provides the 18 IO-connectors in the middle of the chassis.
The IOBUS-HB2R provides the 18 flatcable-connectors in the top of the chassis.

IO Housing

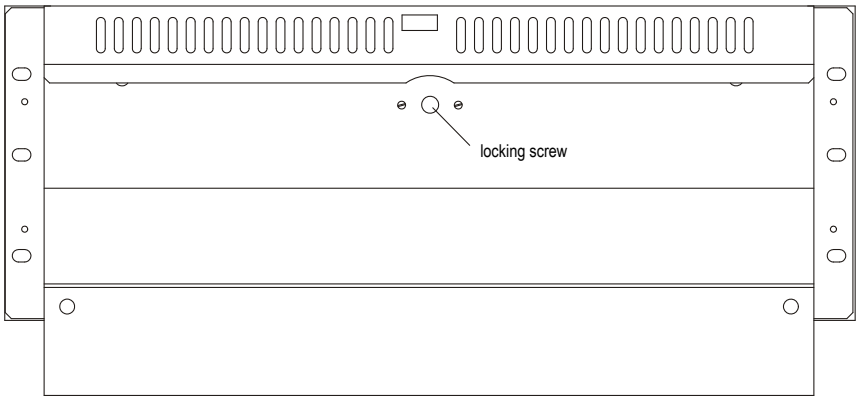
The IO housing is specifically designed for Safety Manager.

It is a 19" based housing.

A cover plate assembly at the front of the chassis shields the flatcables of the IO modules. This cover can be swung upwards to access the flatcables. To swing the cover upwards, unlock it by moving the two locking slides horizontally towards the middle of the chassis. The backside of the IO cover assembly provides room for a tag number assignment drawing.

The backside of the IO housing is covered by an IO back cover plate that can be removed by rotating the half-turn locking screw anti-clockwise (see Figure 74 on page 137).

Figure 74 Back view of a closed IOCHAS-0002R



Attention

The IO back cover plate will be completely removed from the IO chassis after the locking screw has been turned. Be careful not to drop it.

IO cable clamp support (with tie wrap) at the back of the IO housing leads all cables towards the side of the IO chassis.

Figure 80 on page 143 shows a side view of the IOCHAS-0002R.

IO Backplane for redundant IO (Safety Manager A.R.T.): IOB-0002R

The front of the IOB-0002R backplane is visible in the middle of Figure 73 on page 136.

Figure 75 on page 138 shows the back of the IOCHAS-0002R with the back-cover removed.

Table 23 on page 138 describes the connectors on the IOB-0002R.

Figure 75 back view of an open IOCHAS-0002R

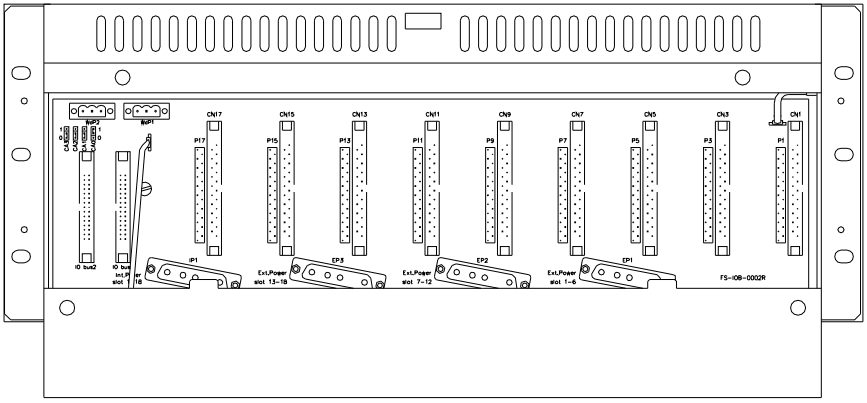


Table 23 Connectors on the IOB-0002R

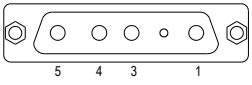
Connector	Amount	Description	See
Front side			
48-pin female chassis connector	18	For IO modules, slot 1 to 18	“Input modules” on page 289 “Output modules” on page 343
55-pin male chassis connector	1	For IOBUS-HB2A, slot 19	page 142
8-pin male power chassis connector	2	For IO extender IO-0002, slot 20 and 21	“IO-0002” on page 488
120-pin male chassis connector	2	For IO extender IO-0002, slot 20 and 21	“IO-0002” on page 488
Back side			
IO bus1	1	For IOBUS-CPIO (IO bus 1 to controller chassis)	“IOBUS-CPIO” on page 491
IO bus2	1	For IOBUS-CPIO (IO bus 2 to controller chassis)	“IOBUS-CPIO” on page 491
CN1, CN3, CN5, CN7, CN9, CN11, CN13, CN15 and CN17	9	For system interconnection cables SICC-0001/Lx or SICP-0001/Lx, slot 1, 3, 5, 7, 9, 11, 13, 15 and 17	“SICC-0001/Lx” on page 715 “SICP-0001/Lx” on page 718

Table 23 Connectors on the IOB-0002R

Connector	Amount	Description	See
P1, P3, P5, P7, P9, P11, P13, P15 and P17	9	For IO converter modules, slot 1, 3, 5, 7, 9, 11, 13, 15, and 17	"Input converter modules" on page 321 "Output converter modules" on page 407
IP1	1	For internal power, slot 1 to 18	Cable: FS-PDC-IOIP1, see "PDC-IOxPx" on page 809
EP1	1	For external power, slot 1 to 6	Cable: FS-PDC-IOEP1, see "PDC-IOxPx" on page 809
EP2	1	For external power, slot 7 to 12	Cable: FS-PDC-IOEP2, see "PDC-IOxPx" on page 809
EP3	1	For external power, slot 13 to 18	Cable: FS-PDC-IOEP3, see "PDC-IOxPx" on page 809
CA0 to CA3	4	Jumpers for defining the IO chassis address	"Address settings" on page 481
WdP1	1	Connector for watchdog and 5 V of CP1	"Controller backplane CPB-0002" on page 120 Cable: PDC-ART05, see "PDC-ART05" on page 846
WdP2	1	Connector for watchdog and 5 V of CP2	"Controller backplane CPB-0002" on page 120 Cable: PDC-IOR05, see "PDC-ART05" on page 846

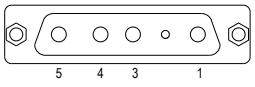
Pin allocation

The back view and pin allocation of the Internal Power connector IP1 is:



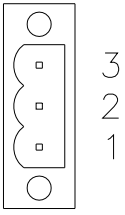
	IP1
1	IP slot 1, 3, 5, 7, 9, 11, 13, 15 and 17
3	0 V
4	0 V
5	IP slot 2, 4, 6, 8, 10, 12, 14, 16 and 18

The back view and pin allocation of the External Power connectors EP1, EP2 and EP3 are:



	EP3	EP2	EP1
1	EP slot 13, 15, 17	EP slot 7, 9, 11	EP slot 1, 3, 5
3	0 V	0 V	0 V
4	0 V	0 V	0 V
5	EP slot 14, 16, 18	EP slot 8, 10, 12	EP slot 2, 4, 6

The back view and pin allocation of the WdPx connector (see Figure 75 on page 138) is:

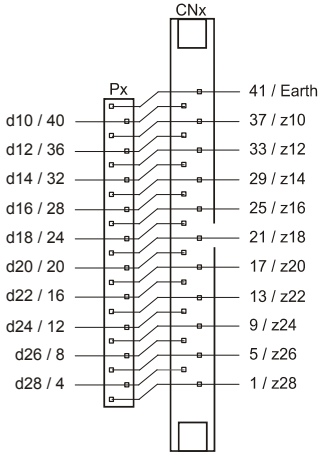


	WdP1	WdP2
3	WD of CP1	WD of CP2
2	ground	ground
1	5V of CP1	5V of CP2

The pin allocation of each respective input and output module can be found in the module datasheet.

Figure 76 on page 140 shows the pin mapping from an IO chassis connector at the front to both a SIC cable (CNx) connector and a converter (Px) connector at the back of the IO Chassis.

Figure 76 Pin mapping from IO connector to SIC cable (CNx) and converter (Px) connector



Horizontal IO bus backplane for redundant IO (Safety Manager A.R.T.): IOBUS-HB2R

Figure 73 on page 136 shows the IOBUS-HB2R (in the top of the chassis).

Figure 77 on page 141 shows a front view of a filled IOCHAS-0002R with the cover opened.

Figure 78 on page 141 shows a front view of a filled IOCHAS-0002R with the cover closed.

Table 24 on page 142 lists the connectors on the IOBUS-HB2R.

Figure 77 Front view of a filled, open IOCHAS-0002R

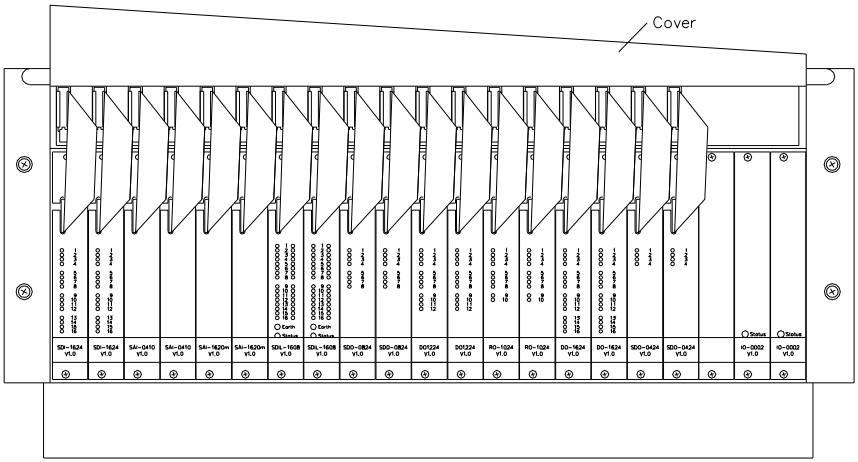


Figure 78 Front view of a filled, closed IOCHAS-0002R

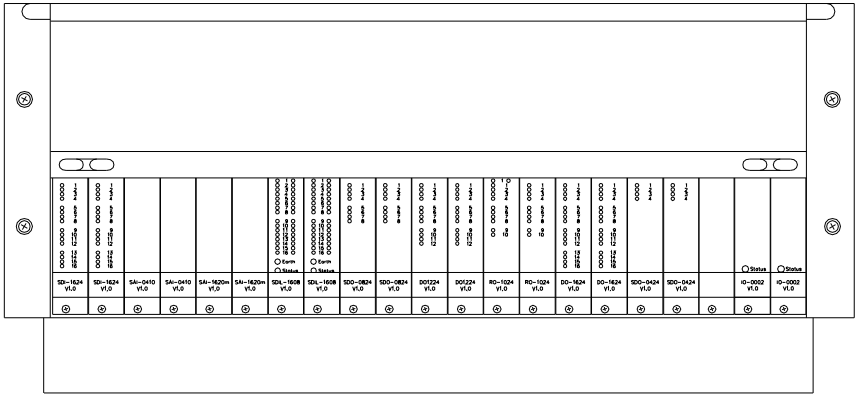


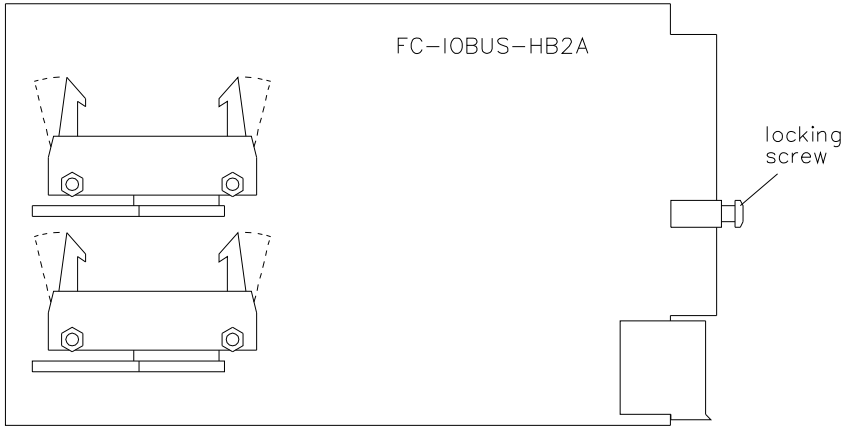
Table 24 Connectors on the IOBUS-HB2R

Connector	Amount	Description	See
Flatcable connector	18	Connectors for IO modules, slot 1 to 18	“Input modules” on page 289 “Output modules” on page 343
26-pin flatcable assembly	1	Flatcable to the latch on the IOBUS-HB2A	“Horizontal IO bus transfer board (Safety Manager A.R.T.): IOBUS-HB2A” on page 142
10-pin flatcable assembly	1	Flatcable to the latch on the IOBUS-HB2A	“Horizontal IO bus transfer board (Safety Manager A.R.T.): IOBUS-HB2A” on page 142

Horizontal IO bus transfer board (Safety Manager A.R.T.): IOBUS-HB2A

The IOBUS-HB2A board transfers the IO bus signals on the backplane to the Horizontal IO bus on the front of the chassis.

Figure 79 Component view of the IOBUS-HB2A board



The IOBUS-HB2A is placed behind the blind front, at slot 19 of the IO chassis.

The IOBUS-HB2A is fixed on the IOB-0002R with the locking screw (see Figure 79 on page 142).

The two flatcables on (the rear of) the IOBUS-HB2R are connected to the two latches on the IOBUS-HB2A.