

14 IO Busses

14.9 IOBUS-CPX-x

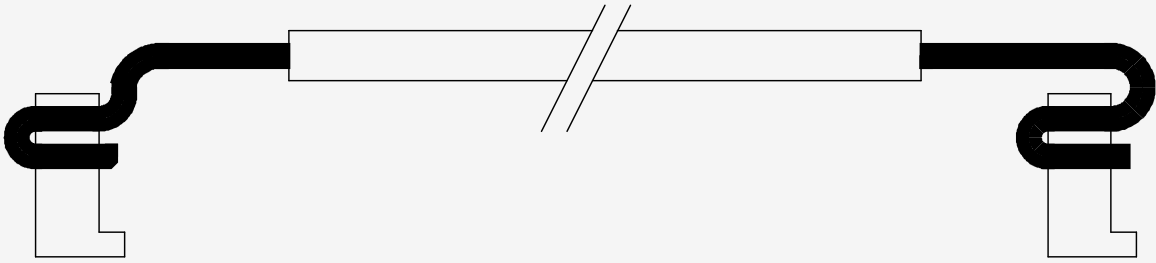


Figure 14-21: IOBUS-CPX-x side view

14.9.2 Technical data

General	Type numbers:	FS-IOBUS-CPX-1 (length 3.4 m) FS-IOBUS-CPX-2 (length 4.2 m)
	Approvals:	UL, CSA
Physical	Length:	3.4 resp. 4.2 m
	Connectors:	34 pole latch (female)

14 IO Busses

14.10 IOBUS-CPX1x

14.10 IOBUS-CPX1x

14.10.1 IO bus from Controller cabinet to extension cabinet

The IOBUS-CPX1x (where x = 1 or 2) is an IO bus (34-wire flat cable) from the Controller backplane (CPB-0001, CPB-0002 or CPB-0003) to an IOBUS-CPIX in the top of an extension cabinet. The connector that is the closest to the ferrite is connected to the controller chassis.

All scan, test and update actions between the QPP module and IO modules are routed via these IO busses. The IOBUS-CPX1x is used for redundant as well as non-redundant (Controller and/or IO) configurations.

- The IOBUS-CPX11 is used between an IO bus with ferrite from CP chassis to first extension cabinet.
- The IOBUS-CPX12 is used between an IO bus with ferrite from CP chassis to second extension cabinet.

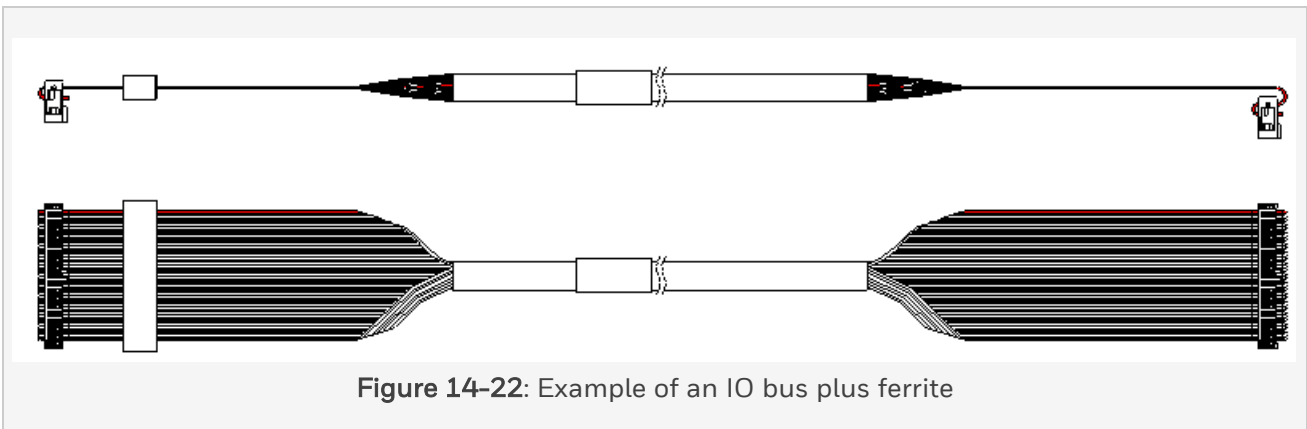


Figure 14-22: Example of an IO bus plus ferrite

14.10.2 Technical data

General	Type numbers:	FS-IOBUS-CPX11 FS-IOBUS-CPX12
	Approvals:	UL, CSA, VDE
Physical	Length:	3.4 resp. 4.2 m
	Connectors:	34 pole latch (female)

15 Field Termination Assembly Module

This chapter describes the field termination assembly modules that are available for Safety Manager.

The following Field Termination Assembly (FTA) modules are described:

FTA	
Input FTAs	
TIDI-1624	Non-safe Isolated passive digital input FTA (16 channels)
TSAI-0410	Safe analog input FTA (4 channels)
TSAI-1620m	Safe 0-20 mA and 4-20 mA analog input FTA (16 channels)
TSDI-16UNI	Safe digital input FTA (24/48 V DC, NAMUR, 16 channels)
TSDI-16115	Safe active/passive digital input FTA (115 V AC/dc, 16 channels)
TSDI-1624	Safe digital input FTA (24 V DC, 16 channels)
TSDI-1624C	Safe current-limited digital input FTA (24 V DC, 16 channels)
TSDI-1648	Safe digital input FTA (48 V DC, 16 channels)
TSFIRE-1624	Safe fire detector input FTA with line monitoring (24 V DC, 16 channels)
TSGAS-1624	Safe gas / flame detector input FTA (0-20 mA, 16 channels)
TSGASH-1624P	Safe gas/flame detector input FTA with HART interface (0-20 mA, 16 channels)
TSHART-1620m	Safe 0-20 mA and 4-20 mA analog input FTA with HART interface (16 channels)

FTA	
Output FTAs	
TDO-1624	Non-safe digital output FTA (24 V DC, 16 channels)
TDOL-07120	Line-monitored relay contact digital output (7 channels, 120Vac/120Vdc)
TDOL-0724P	Line-monitored relay contact digital output (7 channels, 24Vdc)
TDOL-0724U	Line-monitored relay contact digital output (7 channels, 24Vdc, RUSIO)
TRO-0824	Non-safe dry digital output FTA (8 channels, NO/NC)
TRO-1024	Non-safe dry digital output (relay contact) FTA (10 channels)
TSAO-0220m	Safe analog output FTA (0(4)-20 mA, 2 channels)
TSAOH-0220m	Safe analog output FTA with HART interface (0-20mA, 2 channels)
TSDO-04UNI	Safe digital output FTA (24/48/110 V DC, 4 channels)
TSDO-0424	Safe digital output FTA (24 V DC, 4 channels)
TSDO-0824	Safe digital output FTA (24 V DC, 8 channels)
TSDO-0824C	Conformal coated safe digital output FTA, current limited (24 V DC, 8 channels)
TSDOL-0424C	Conformal-coated safe digital output FTA, current limited, loop monitored (24 V DC, 4 channels)
TSRO-0824	Safe dry digital output FTA for SIL3 applications (8 channels)
Special FTAs	
DCOM-232/485	RS232/485 communication FTA
DCOM-485	RS422/485 communication FTA
MTL 24571	Single channel ethernet surge protector
SDW-550EC	5 port HSE communication FTA or "switch"
TPSU-2430	24 V DC to 30 V DC / 1 A converter
TSKUNI-1624	Sub-D to Knife terminals FTA (Universal,16ch)
TSPKUNI-1624	Sub-D to Powered Knife terminals FTA (Universal,16ch)
Remote IO termination assemblies	
IOTA-NR24	Non-redundant IO Termination Assembly
IOTA-R24	Redundant IO Termination Assembly

15 Field Termination Assembly Module

15.1 General info about Termination Assembly modules

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Termination assembly modules are divided in two main groups:

- Field Termination Assembly (FTA) modules that are used in combination with Safety Manager chassis IO modules.

See FTA modules in chapter [Safety Manager Glossary](#).

- Termination Assembly modules that are used in combination Universal Safety IO modules.

See Termination Assembly modules for Universal Safety IO modules in chapter [General info about Termination Assembly modules](#).

15.1.1 FTA modules for Safety Manager chassis IO modules

This type of Field Termination Assembly (FTA) module is the interface between field components (e.g. sensors and valves) and chassis IO modules in Safety Manager.

FTA modules are connected to an IO module via a system interconnection cable (e.g. SICC-0001/Lx), which is plugged into the SIC connector on the FTA module.

The below tables show the possible connections of field signals to IO modules.

Table 1. possible connections of input field signals to input modules

Input signals				
Field signal		SICP cable		Input module
Field signal		SICP cable	Input converter module	Input module
Field signal	FTA	SICC cable		Input module
Field signal	FTA	SICC cable	Input converter module	Input module

Table 2. possible connections of output field signals to output modules

Output signals				
Output module		SICP cable		Field signal
Output module	Output converter module	SICP cable		Field signal
Output module		SICC cable	FTA	Field signal
Output module	Output converter module	SICC cable	FTA	Field signal

Specific FTAs can only be used with particular IO or IO converter modules. Table 3 shows possible FTA - IO module combinations and Table 4 shows possible FTA-CP module combinations.

15 Field Termination Assembly Module

15.1 General info about Termination Assembly modules

Table 3. possible FTA-IO module combinations

FTA module	Input module	Output module	Remarks
TDO-1624		DO-1624	
		DO-1224	
TDOL-07120	SDI-1624	SDO-0824	both modules are required
TDOL-0724P	SDI-1624	SDO-0824	both modules are required
TIDI-1624	SDI-1624		
TPSU-2430			30 Vdc supply for other FTAs
TRO-0824		SDO-0824	
TRO-1024		RO-1024	
TSAI-0410	SAI-0410		
TSAI-1620m	SAI-1620m		
TSAO-0220m		SAO-0220m	
TSAOH-0220m		SAO-0220m	with HART connection
TSDI-16115	SDI-1624		
TSDI-1624	SDI-1624		
TSDI-1624C	SDI-1624		
TSDI-1648	SDI-1648		
TSDI-16UNI	SDIL-1608		
	SDI-1624		
	SDI-1648		
TSDO-04UNI		SDO-0448	
		SDO-04110	
		SDOL-0424	
		SDOL-0448	
TSDO-0424		SDO-0424	
TSDO-0824		SDO-0824	