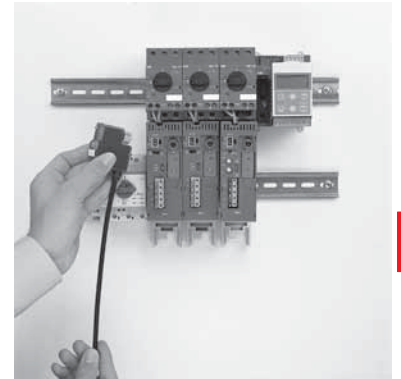


FBP Field Bus Plug



FBP Field Bus Plug



Index

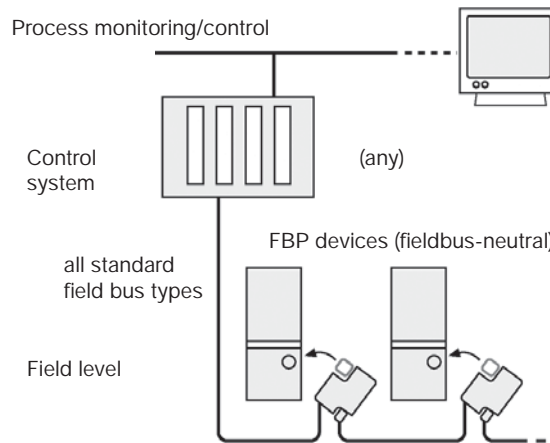
AS-Interface accessories	8.9
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General Information System Description

The FBP system connects switching devices and other similar components via any fieldbus types with usual automation systems (PLCs) in a simple and cost-efficient way. The switching devices are independent of the chosen fieldbus type. Connection to the various fieldbus types is established via the fieldbus-specific Field Bus Plug cables (FBP cables).

One device for all field bus types

Each device, and each function module within the product family, has a fieldbus-neutral interface. A specially prefabricated connection cable establishes the communications connections with its bus-specific plug interface. In this way, flexibility, transparency and reliability in the process are achieved. The connecting, operating and diagnostic elements are placed at the front of all devices providing increased ease of installation. Process monitoring/control



The components

The Field Bus Plug cable is used inside as well as outside of the control cabinet. Particularly for usage outside of the control cabinet the FBP cable complies with IP65, being at the same time a small and robust device excellently suitable for industrial usage. One of the outstanding advantages is the presence of the 24 V DC supply voltage inside the FBP cable which makes additional wiring unnecessary because the available current is sufficient for most applications. Examples of typical devices for connection are sensors, push-buttons/switches, signal lamps, motor contactors, motor branch connections, etc.

The Field Bus Plug connects

The Field Bus Plug provides a name to the new product family as a connecting element.

The various Field Bus Plugs can be used with different fieldbus types.

The definitions of the respective fieldbus standards apply.



General Information

System Description

The Field Bus Plug system, with its new installation concept, opens a multitude of further possibilities for centralized and decentralized applications. Simple integration into the process, the compact and space-saving designs of the devices, the flexibility during planning and designing as well as the cost-effective assembly and commissioning are further application-specific features. This offers considerably effects for the conception of a machine or plant:

Shorter throughput and realization times

Until now, wiring and cabling has been expensive and time-consuming in machines and plants. Standardized plug-in fieldbus connections now provide fast installation and the highest level of flexibility.

Higher quality in machines and plants

Prefabricated devices, plug-in technology and less wiring expenditure reduce failures. Standards make general planning and project planning more reliable, the assembly more effective and reduce the commissioning time.

Smaller control cabinets

The FBP product range includes particularly compact device versions. The products provide a high level of functionality in minimal space. For example, the small dimensions of the only 45 mm wide reverse motor starter MSR22-FBP makes additional space in the control cabinet.

Improved response time

Reacting flexibly to customer requirements means being able to carry out modifications even shortly before completion. All devices can be replaced in a minimum of time. Due to the devices' independence of the fieldbus type, the determination of the field bus system can be made just before the control cabinet is to be delivered.

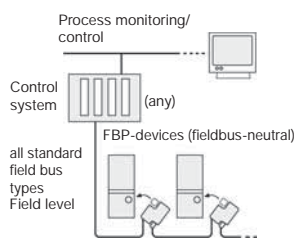
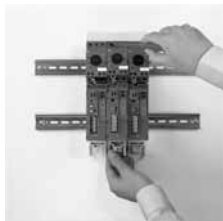
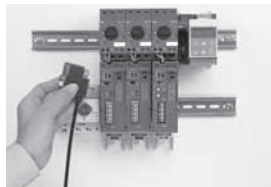
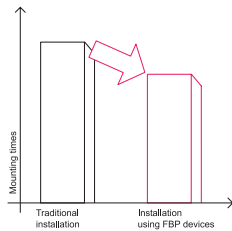
Effortless connection to the process

The FBP system also shows its high adaptability when inserted into the automation level and thus into the process. With the aid of standardized software functions, the FBP components and automation devices can be integrated into the process via standard fieldbusses. Via the fieldbus, all device information are transmitted to the automation level and thus can be visualized in the entire process. Which data are forwarded depends on the performance data of the chosen fieldbus system.

Increased availability of machines and plants

The FBP components have extensive diagnostic functions. For example, the status of each FBP device and fieldbus plug as well as of the bus is indicated by LEDs. Depending on the functionality of the device, a preventive diagnostic function enables preventive maintenance (e.g. by counting the number of switching cycles) and operating data of the motor can be displayed on an operating panel.

This allows possible malfunctions to be recognized before downtimes and production failures occur. An occurring error can be visualized thanks to the communication ability of the components and can therefore be remedied faster.



System Overview

FBP Devices

Field Bus Plug



Tmax T4/T5

Communicative Power Circuit Breakers Tmax T4 / T5

FBP interface module for connection to the Field Bus Plug.



Soft Starter PST

Communicative Soft Starter PST

Compact device with fieldbus-neutral interface for connection to the Field Bus Plug.



Position sensors inductive and capacitive

PNP-NO with M12 connection, operating at all Field Bus Plugs.



Position Sensors

Input module for Wireless Proximity Switches

Input module with fieldbus-neutral interface for connection up to 120 wireless position sensors.



Input module WDI

AS-Interface Field Bus Plug

AS-Interface Field Bus Plug Direct

Ready-made AS-Interface slave fieldbus interface with various cable lengths.
Applicable with MSD11-FBP and terminal devices with max. 2 input and 1 output signals.
Degree of protection IP65, diagnostic LED.

Type	Designation	Cable length	Catalog number	Pack. size	Weight p.piece kg
ASD11-FBP.025	AS-Interface FBP Direct	0.25 m	1SAJ 210 000 R 0003	1	0.09
ASD11-FBP.050	AS-Interface FBP Direct	0.50 m	1SAJ 210 000 R 0005	1	0.10
ASD11-FBP.100	AS-Interface FBP Direct	1.00 m	1SAJ 210 000 R 0010	1	0.13
ASD11-FBP.500	AS-Interface FBP Direct	5.00 m	1SAJ 210 000 R 0050	1	0.33



ASD11-FBP

AS-Interface Field Bus Plug Performance

Ready-made AS-i slave fieldbus interface with various cable lengths.
Applicable with all FBP motor starters and terminal devices with max. 4 input and 3 output signals.
Degree of protection IP65, diagnostic LED.

Type	Designation	Cable length	Catalog number	Pack. size	Weight p.piece kg
ASP22-FBP.025	AS-Interface FBP Performance	0.25 m	1SAJ 220 000 R 0003	1	0.09
ASP22-FBP.050	AS-Interface FBP Performance	0.50 m	1SAJ 220 000 R 0005	1	0.10
ASP22-FBP.100	AS-Interface FBP Performance	1.00 m	1SAJ 220 000 R 0010	1	0.13
ASP22-FBP.500	AS-Interface FBP Performance	5.00 m	1SAJ 220 000 R 0050	1	0.33



ASP22-FBP

PROFIBUS DP/V0, DP/V1 Field Bus Plug

Field Bus Plug



PDP21-FBP
PDP22-FBP

PROFIBUS DP/V0 Field Bus Plug

Ready-made PROFIBUS DP/V0 fieldbus interface with various cable lengths.
Applicable with all FBP motor starters and other terminal devices.
Degree of protection IP65, diagnostic LED.

Type	Designation	Cable length	Catalog number	Pack. size	Weight p. piece kg
PDP21-FBP.025	PROFIBUS DP/V0-FBP	0.25 m	1SAJ 240 000 R 0003	1	0.09
PDP21-FBP.050	PROFIBUS DP/V0-FBP	0.50 m	1SAJ 240 000 R 0005	1	0.10
PDP21-FBP.100	PROFIBUS DP/V0-FBP	1.00 m	1SAJ 240 000 R 0010	1	0.13
PDP21-FBP.200	PROFIBUS DP/V0-FBP	2.00 m	1SAJ 240 000 R 0020	1	0.20
PDP21-FBP.500	PROFIBUS DP/V0-FBP	5.00 m	1SAJ 240 000 R 0050	1	0.36

Profibus DP/V1 Field Bus Plug

Ready-made PROFIBUS DP/V1 fieldbus interface with various cable lengths.
Applicable with all FBP motor starters and other terminal devices.
Degree of protection IP65, diagnostic LED.

Type	Designation	Cable length	Catalog number	Pack. size	Weight p. piece kg
PDP22-FBP.025	PROFIBUS DP/V1-FBP	0.25 m	1SAJ 240 100 R 0003	1	0.09
PDP22-FBP.050	PROFIBUS DP/V1-FBP	0.50 m	1SAJ 240 100 R 0005	1	0.10
PDP22-FBP.100	PROFIBUS DP/V1-FBP	1.00 m	1SAJ 240 100 R 0010	1	0.13
PDP22-FBP.500	PROFIBUS DP/V1-FBP	5.00 m	1SAJ 240 100 R 0050	1	0.36



DNP21-FBP
COP21-FBP
MRP21-FBP

DeviceNet Field Bus Plug

Ready-made DeviceNet fieldbus interface with various cable lengths. Applicable with all FBP motor starters and other terminal devices. Degree of protection IP65, diagnostic LED.

Type	Designation	Cable length	Catalog number	Pack. size	Weight p. piece kg
DNP21-FBP.025	DeviceNet-FBP	0.25 m	1SAJ 230 000 R0003	1	0.09
DNP21-FBP.050	DeviceNet-FBP	0.50 m	1SAJ 230 000 R0005	1	0.10
DNP21-FBP.100	DeviceNet-FBP	1.00 m	1SAJ 230 000 R0010	1	0.13
DNP21-FBP.500	DeviceNet-FBP	5.00 m	1SAJ 230 000 R0050	1	0.36

CANopen Field Bus Plug ⓘ

Ready-made CANopen fieldbus interface with various cable lengths. Applicable with all FBP motor starters and other terminal devices. Degree of protection IP65, diagnostic LED.

Type	Designation	Cable length	Catalog number	Pack. size	Weight p. piece kg
COP21-FBP.025	CANopen-FBP	0.25 m	1SAJ 230 100 R0003	1	0.09
COP21-FBP.050	CANopen-FBP	0.50 m	1SAJ 230 100 R0005	1	0.10
COP21-FBP.100	CANopen-FBP	1.00 m	1SAJ 230 100 R0010	1	0.13
COP21-FBP.500	CANopen-FBP	5.00 m	1SAJ 230 100 R0050	1	0.36

MODBUS-RTU Field Bus Plug

Ready-made MODBUS-RTU fieldbus interface with various cable lengths. Applicable with all FBP motor starters and other terminal devices. Degree of protection IP65, diagnostic LED.

Type	Designation	Cable length	Catalog number	Pack. size	Weight p. piece kg
MRP21-FBP.025	MODBUS-RTU-FBP	0.25 m	1SAJ 250 000 R0003	1	0.09
MRP21-FBP.050	MODBUS-RTU-FBP	0.50 m	1SAJ 250 000 R0005	1	0.10
MRP21-FBP.100	MODBUS-RTU-FBP	1.00 m	1SAJ 250 000 R0010	1	0.13
MRP21-FBP.500	MODBUS-RTU-FBP	5.00 m	1SAJ 250 000 R0050	1	0.36

ⓘ not yet available

AS-Interface accessories

Field Bus Plug

Accessories for the AS-Interface Bus Connection

AS-Interface round cables for bus junctions

Ready-made bus cable with M12 connector and open cable end.
Applicable for bus junctions such as e.g. AS-Interface couplers or devices with integrated AS-Interface communication.



ASF11-FBP030



ASM11-FBP030

Type	AS-Interface round cable for bus junctions	Cable length	Catalog number	Pack. size	Weight p. piece kg
ASF11-FBP030	Round cable with female connector	0.30 m	1SAJ 922 002 R 0003	1	0.03
ASM11-FBP030	Round cable with male connector	0.30 m	1SAJ 922 003 R 0003	1	0.03

AS-Interface round cables for bus extensions

Ready-made AS-Interface bus cable, round cable with M12 female and male connectors (ASX11-FBP.xxx), AS-Interface bus cable, round cable on coil (ASC11-FBP.999).



ASX11-FBP

Type	AS-Interface extension cables	Cable length	Catalog number	Pack. size	Weight p. piece kg
ASX11-FBP.100	Ready-made	1.00 m	1SAJ 922 001 R 0010	1	0.08
ASX11-FBP.300	Ready-made	3.00 m	1SAJ 922 001 R 0030	1	0.18
ASX11-FBP.500	Ready-made	5.00 m	1SAJ 922 001 R 0050	1	0.28
ASC11-FBP.999	Coil	100 m	1SAJ 922 004 R 1000	1	5.20

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AS-Interface accessories for the bus extension



ASM11-FBP0

ASF11-FBP0



AST11-FBP0

Type	AS-Interface cable connectors	Catalog number	Pack. size	Weight p. unit kg
ASM11-FBP0	Male AS-Interface round c. conn.	1SAJ 922 005 R 0001	5	0.15
ASF11-FBP0	Female AS-Interf. round c. conn.	1SAJ 922 006 R 0001	5	0.15
AST11-FBP0	Flat cable branch circuit with M12 socket (junction to round cable)	1SAJ 922 007 R 0001	1	0.11

AS-Interface addressing unit, miscellaneous accessories

Type	Designation	Catalog number	Pack. size	Weight p. unit kg
ASA21-FBP0	Addressing unit incl. plug-in power supply unit	1SAJ 922 010 R 0001	1	0.56

PROFIBUS DP/V0, DP/V1 round cables for bus junctions

Ready-made bus cable with M12 connector and open cable end.
Applicable for bus junctions such as e.g. PROFIBUS DP/V0, DP/V1 couplers or devices with integrated Profibus DP/V0, DP/V1 communication.

Type	PROFIBUS DP/V0, DP/V1 round cable for bus junctions	Cable length	Catalog number	Pack. size	Weight p. piece kg
PDF11-FBP.050	Round cable with female connector	0.50 m	1SAJ 924 002 R0005	1	0.04
PDM11-FBP.050	Round cable with male connector	0.50 m	1SAJ 924 003 R0005	1	0.04

PROFIBUS DP/V0, DP/V1 round cables for the bus extension

Ready-made PROFIBUS DP/V0, DP/V1 bus cable, round cable with M12 female and male connectors (PDX11-FBP.xxx).

PROFIBUS DP/V0, DP/V1 bus cable, round cable on coil (PDC11-FBP.999).

Type	PROFIBUS DP/V0, DP/V1 extension cable	Cable length	Catalog number	Pack. size	Weight p. piece kg
PDX11-FBP.100	Ready-made	1.00 m	1SAJ 924 001 R 0010	1	0.08
PDX11-FBP.300	Ready-made	3.00 m	1SAJ 924 001 R 0030	1	0.20
PDX11-FBP.500	Ready-made	5.00 m	1SAJ 924 001 R 0050	1	0.31
PDC11-FBP.999	Coil	100 m	1SAJ 924 004 R 1000	1	5.60

PROFIBUS DP/V0, DP/V1 accessories for the bus extension

Type	PROFIBUS DP/V0, DP/V1 cable connectors	Catalog number	Pack. size	Weight p. piece kg
PDM11-FBP.0	Male round cable connector	1SAJ 924 005 R 0001	1	0.03
PDF11-FBP.0	Female round cable connector	1SAJ 924 006 R 0001	1	0.03

PROFIBUS DP/V0, DP/V1 line termination, feeding connector, adaptor

Type	Designation	Catalog number	Pack. size	Weight p. piece kg
PDR11-FBP.150	Line termination 150 Ohm	1SAJ 924 007 R 0001	1	0.03
PDV11-FBP.0	Feeding connector 24 V DC Code B-A	1SAJ 924 008 R 0001	1	0.04
PDV12-FBP.0	Feeding connector 24 V DC Code A-A	1SAJ 924 011 R 0001	1	0.04
PDA11-FBP.050	Adaptor M12-Dsub9-M12 cable length 0.50 m	1SAJ 924 009 R 0005	1	0.04
PDA12-FBP.050	Adaptor M12-Dsub9-M12 cable length 2 x 0.50 m	1SAJ 924 010 R 0005	1	0.04



Accessories for the DeviceNet, CANopen, MODBUS-RTU bus connection

DeviceNet, CANopen, MODBUS-RTU round cables for bus junctions

Ready-made bus cable with an M12 plug and an open cable end.
Applicable with bus junctions such as DeviceNet, CANopen, MODBUS-RTU couplers or devices with an integrated DeviceNet, CANopen, MODBUS-RTU communication.



DNF11-FBP.050



DNM11-FBP.050

Type	DeviceNet, CANopen, MODBUS-RTU round cables for bus junctions	Cable length	Catalog number	Pack. size	Weight p. piece kg
DNF11-FBP.050	Round cable with male plug	0.50 m	1SAJ 923 002 R 0005	1	0.04
DNM11-FBP.050	Round cable with female plug	0.50 m	1SAJ 923 003 R 0005	1	0.04

DeviceNet, CANopen, MODBUS-RTU round cables for the bus extension

Ready-made DeviceNet, CANopen, MODBUS-RTU bus cable, round cable with M12 male and female plugs (DNX11-FBP.xxx).

DeviceNet, CANopen, MODBUS-RTU bus cable, round cable as a coil (MRC11-FBP.999).



DNX11-FBP

Type	DeviceNet, CANopen, MODBUS-RTU extension cables	Cable length	Catalog number	Pack. size	Weight p. piece kg
DNX11-FBP.100	Ready-made	1.00 m	1SAJ 923 001 R 0010	1	0.08
DNX11-FBP.300	Ready-made	3.00 m	1SAJ 923 001 R 0030	1	0.20
DNX11-FBP.500	Ready-made	5.00 m	1SAJ 923 001 R 0050	1	0.31
DNC11-FBP.999	Coil (Drop cable)	100.00 m	1SAJ 923 004 R 1000	1	5.60

DeviceNet, CANopen, MODBUS-RTU Accessories for the bus extension



DNM11-FBP.0

DNF11-FBP.0

Type	DeviceNet, CANopen, MODBUS-RTU cable connectors	Catalog number	Pack. size	Weight p. piece kg
DNM11-FBP.0	Round cable male plug	1SAJ 923 005 R 0001	5	0.15
DNF11-FBP.0	Round cable female plug	1SAJ 923 006 R 0001	5	0.15

DeviceNet, CANopen, MODBUS-RTU termination resistor and other accessories



DNR11-FBP.120

Type	DeviceNet, CANopen, MODBUS-RTU bus accessories	Catalog number	Pack. size	Weight p. piece kg
DNR11-FBP.120	Terminating resistor 120 Ohm	1SAJ 923 007 R 0001	1	0.02

Field Bus Plug addressing labels

For addressing the Field Bus Plug connectors.

Type	Designation	Catalog number	Pack. size	Weight p. unit kg
CAL11-FBP.0	400 Addressing labels for FBPs	1SAJ 929 005 R0001	1	0.15

Field Bus Plug power supply unit

Supply voltage 90...260 V AC, 47...63 Hz.
Adjustable output voltage 23...28 V DC, 5 A.

Type	Designation	Catalog number	Pack. size	Weight p. unit kg
CP-24/5.0	24 V / 5 A	1SVR 423 416 R0100	1	0.58

FBP addressing set for Profibus DP/V0, DP/V1, DeviceNet, CANopen, MODBUS-RTU

For setting the Field Bus Plug connector address (PROFIBUS DP and DeviceNet). Consisting of software package for notebook, level converter incl. battery and cable to notebook.

Type	Designation	Catalog number	Pack. size	Weight p. unit kg
CAS21-FBP.0	Addressing set for PROFIBUS DP/V0, DP/V1, DeviceNet, CANopen, MODBUS-RTU	1SAJ 929 003 R0001	1	0.40

Field Bus Plug accessories for installation inside control cabinet drawer systems

Fixing bracket for passive plug for installation of FBP terminal devices in drawer systems.
FBP passive cable for installation of FBP terminal devices in drawer systems.

Type	Designation	Length	Catalog number	Pack. size	Weight p. piece kg
CDP11-FBP.0	Passive plug fixing bracket for drawer systems.		1SAJ 929 100 R 0001	50	0.50
CDP12-FBP.100	Passive cable for drawer systems (outside)	1.00 m	1SAJ 929 120 R 0001	1	0.20
CDP13-FBP.100	Passive cable for drawer systems (inside)	1.00 m	1SAJ 929 110 R 0001	1	0.31

Field Bus Plug system documentation

Complete system documentation for planning and project planning.
Technical data, software, examples, FAQs.

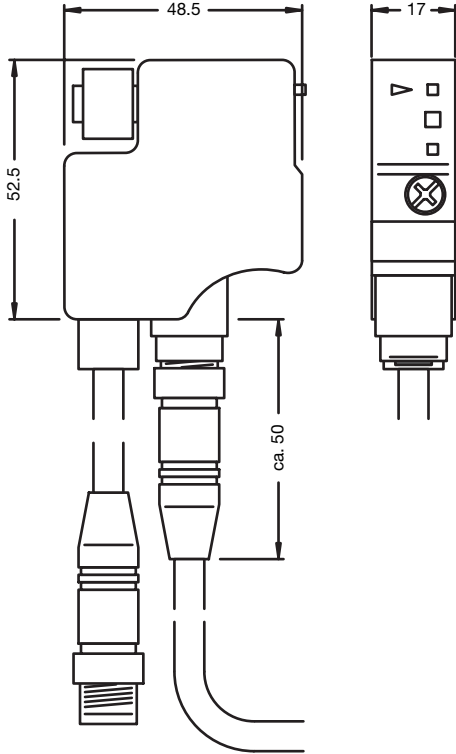
Type	Designation	Language	Catalog number	Pack. size	Weight p. piece kg
Field Bus Plug documentation	CD-ROM Version	German English	2CDC 190 008 E 0401	1	0.01

Approximate dimensions

Field Bus Plug

Field Bus Plugs

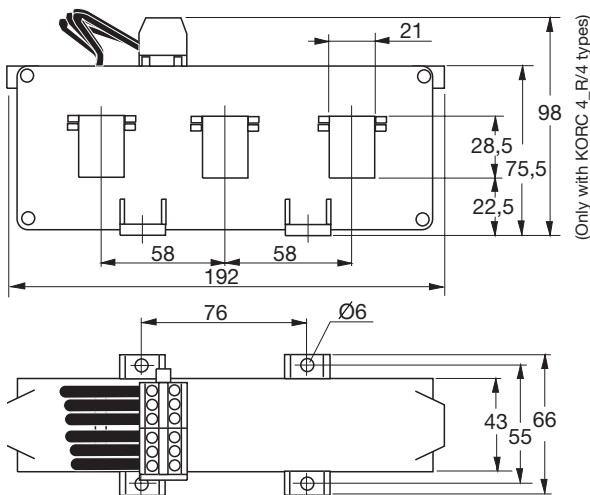
Dimensions in mm



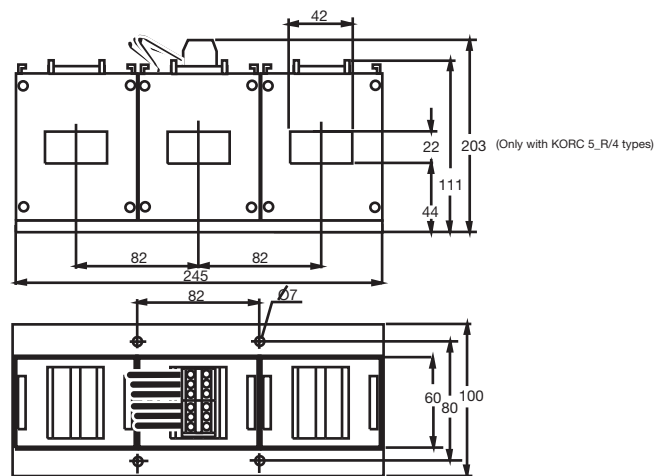
AS-Interface Field Bus Plug Direct
 AS-Interface Field Bus Plug Performance
 PROFIBUS DP/V0 Field Bus Plug
 PROFIBUS DP/V1 Field Bus Plug
 DeviceNet Field Bus Plug
 CANopen Field Bus Plug
 MODBUS-RTU Field Bus Plug

ASD11-FBP
 ASP22-FBP
 PDP21-FBP
 PDP22-FBP
 DNP21-FBP
 COP21-FBP
 MRP21-FBP

Current transformers for use with Universal Controller UMC22-FBP



(Only with KORC 4_R/4 types)



(Only with KORC 5_R/4 types)

Current transformer KORK 4L185 R/4
 KORK 4L310 R/4

Current transformer KORK 5L500 R/4
 KORK 5L850 R/4

Field Bus Plug terminal devices Field Bus Plug bus connectors	Field Bus Plug terminal devices				Full usability of terminal device functions with Field Bus Plug ...					Remarks
	MSD11-FBP	MSR22-FBP	MF121-FBP	UMC22-FBP	ASD11-FBP	ASP22-FBP	PDP21-FBP PDP22-FBP	DMP21-FBP COP22-FBP MRP21-FBP		
Functions and technical data										For detailed technical information please refer to the Field Bus Plug system documentation
Integrated diagnostic functions										
LED supply voltage	x	x	x		x	x	x	x		green
LED ready to operation				x						green
LED switch pos. contactor(s)	x	x								yellow
LED switch pos. motor protection	x									yellow
LED bus failure					x	D / B	x	x		red
LED function failure		x	x	x			x	x		red
LED motor running				x						yellow
LED for states of digital I/Os			x	x						yellow
Bus info contactors	x	x	x	x	x	x	x	x		Information to PLC
Bus info contactors			x				x	x		Information to PLC
Bus info motor protection				x			x	x		Information to PLC
Bus info motor current			x	x			x	x		Information to PLC
Parameter settings										
Change-over time via potentiometer			x							fixed basic time 50 ms
Change-over time via operat. panel				x						fixed basic time 50 ms
Change-over time via PLC program			x	x			x	x		fixed basic time 50 ms
Motor current	x	x	x		x	x	x	x		at the motor protecting switch
Motor current, trip category				x			x	x		optional operating panel
Motor current, trip category				x			x	x		PLC program
Mounting										
Mounting on DIN rail	x	x	x	x						35 mm DIN rail
Mounting on 2 DIN rails	x	x								increased vibration resistance
Mounting by screws				x						4 Screws M4
Connections and conductor cross sections										
Connecting terminals	x	x	x	x						1 x 2.5 bzw. 2 x 1.5 mm ² max.
PE tapping directly on DIN rail	x	x								to motor connecting plug
Bus connection via FBP conn.	x	x	x	x	x	x	x	x		
Bushing-type transformer				x						25 mm ² max. (diameter 11 mm)
Ambient conditions										
Degree of protection IP20	IP20				IP65					
Storage temp. - 40 ... + 80°C	x	x	x	x	x	x	x	x		
Operating temp. 0 ... + 55°C	x	x	x	x	x	x	x	x		
Approvals										
CE, UL, CSA, GL, BV, LRS	x	x	x	x	x	x	x	x		partly in preparation
ATEX				x						

Motor starters

Field Bus Plug



MSD11-FBP

Motor Starter Direct MSD11-FBP

Fuseless motor branch circuit for 1 motor, 1 direction of rotation, IP 20.
 Motor protection with thermal and electromagnetic tripping.
 Compact device with fieldbus-independent interface for connection to FBP fieldbus connector.
 400 V AC, 12 A max., incl. motor connecting plug and plug for external control voltage (24 V DC).

Type	Motor Starter Direct Setting range	I _{cs} kA	Catalog number	Pack. size	Weight p. piece kg
MSD11-FBP.0.16	0.1-0.16A	50	1SAJ 310 000 R0001	1	0.65
MSD11-FBP.0.25	0.16-0.25A	50	1SAJ 310 000 R0002	1	0.65
MSD11-FBP.0.4	0.25-0.4A	50	1SAJ 310 000 R0003	1	0.65
MSD11-FBP.0.63	0.4-0.63A	50	1SAJ 310 000 R0004	1	0.65
MSD11-FBP.1	0.63-1.0A	50	1SAJ 310 000 R0005	1	0.65
MSD11-FBP.1.6	1.0-1.6A	50	1SAJ 310 000 R0006	1	0.65
MSD11-FBP.2.5	1.6-2.5A	50	1SAJ 310 000 R0007	1	0.65
MSD11-FBP.4	2.5-4.0A	50	1SAJ 310 000 R0008	1	0.65
MSD11-FBP.6.3	4.0-6.3A	50	1SAJ 310 000 R0009	1	0.65
MSD11-FBP.10	6.3-10.0A	12.5	1SAJ 310 000 R0010	1	0.65
MSD11-FBP.12	10.0-12A	10	1SAJ 310 000 R0011	1	0.65



MSR22-FBP

Motor Starter Reverse MSR22-FBP

Fuseless motor branch circuit for 1 motor, 2 directions of rotation, IP 20.
 Motor protection with thermal and electromagnetic tripping.
 Compact device with fieldbus-independent interface for connection to FBP fieldbus connector.
 400 V AC, 12 A max., incl. motor connecting plug and plug for external control voltage (24 V DC).

Type	Motor Starter Reverse Setting range	I _{cs} kA	Catalog number	Pack. size	Weight p. piece kg
MSR22-FBP.0.16	0.1-0.16A	50	1SAJ 320 000 R0001	1	0.85
MSR22-FBP.0.25	0.16-0.25A	50	1SAJ 320 000 R0002	1	0.85
MSR22-FBP.0.4	0.25-0.4A	50	1SAJ 320 000 R0003	1	0.85
MSR22-FBP.0.63	0.4-0.63A	50	1SAJ 320 000 R0004	1	0.85
MSR22-FBP.1	0.63-1.0A	50	1SAJ 320 000 R0005	1	0.85
MSR22-FBP.1.6	1.0-1.6A	50	1SAJ 320 000 R0006	1	0.85
MSR22-FBP.2.5	1.6-2.5A	50	1SAJ 320 000 R0007	1	0.85
MSR22-FBP.4	2.5-4.0A	50	1SAJ 320 000 R0008	1	0.85
MSR22-FBP.6.3	4.0-6.3A	50	1SAJ 320 000 R0009	1	0.85
MSR22-FBP.10	6.3-10.0A	12.5	1SAJ 320 000 R0010	1	0.85
MSR22-FBP.12	10.0-12A	10	1SAJ 320 000 R0011	1	0.85

Accessories for Motor Starters MSD11-FBP and MSR22-FBP

Busbar blocks for MSD11-FBP and MSR22-FBP for cross-wiring.
 Feeder blocks for busbar blocks for MSD11-FBP and MSR22-FBP.
 Max. current-carrying capacity 63 A, conductor cross section 25/16 mm² multiple/fine-wire.



PS1-x-0



S1-M1

S1-M2

Type	Designation	Catalog number	Pack. size	Weight p. piece kg
PS1-2-0	Busbar block for 2 devices	1SAM 201 906 R1002	10	0.035
PS1-3-0	Busbar block for 3 devices	1SAM 201 906 R1003	10	0.056
PS1-4-0	Busbar block for 4 devices	1SAM 201 906 R1004	10	0.080
PS1-5-0	Busbar block for 5 devices	1SAM 201 906 R1005	10	0.102
S1-M1	Feeder block, flat design	1SAM 201 907 R1001	10	0.039
S1-M2	Feeder block, high design	1SAM 201 907 R1002	10	0.053

Note: For system accessories and documentation please refer to page 3/56.

Motor starters with control functions



MFI21-FBP

Motor starter Fieldbus Interface MFI21-FBP

Fieldbus interface, IP20, for coupling to motor protecting switch MS325 ①
Integrated motor control functions: Direct starting, reverse starting, star-delta starting. Diagnostic functions, integrated potentiometer. 3 digital inputs, 3 relay outputs, 1 direct-coupled digital input for switch position detection of MS325, fieldbus-independent interface for connection to FBP fieldbus connectors.

Type	Designation	Catalog number	Pack. size	Weight p. piece kg
MFI21-FBP.0	Motor starter Fieldbus Interface	1SAJ 410 000 R0100	1	0.12



UMC22-FBP

Universal Motor Controller UMC22-FBP

Universal motor controller with thermal overload protection 0.24 - 63 A in a single device type. Bushing-type transformer, cable cross section 25 mm² (max. diameter incl. insulation = 11 mm). Integrated motor control functions: Direct starting, reverse starting, star-delta starting, servo-drive functions. Diagnostic functions: Overload, phase failure, trip categories 5, 10, 20, 30. Integrated storage of parameters and motor data. 6 digital inputs, 3 relay outputs. Fieldbus-independent interface for connection to FBP fieldbus connectors, interface to operating panel ACS100-PAN.

Type	Designation	Nominal motor current	Catalog number	Pack. size	Weight p. piece kg
UMC22-FBP.0	Universal Motor-Controller	0.24 - 63 A	1SAJ 510 000 R 0100	1	0.36
UMC22-FBP.0	Universal Motor-Controller ATEX-Version	0.24 - 63 A	1SAJ 510 000 R 0200	1	0.36



ACS100-PAN

Accessories for Universal Motor Controller UMC22-FBP

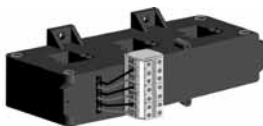
Operating, diagnostics and parameter setting panel for Universal Motor Controller UMC22-FBP.
Setting of motor and bus parameters.

Type	Designation	Usage with	Catalog number	Pack. size	Weight p. piece kg
ACS100-PAN	Operating panel	UMC22-FBP	1SAJ 510 001 R0001	1	0.04

Accessories for operating panel ACS100-PAN

Extension cable 3 m and door mounting set IP65 (front side) for ACS100-PAN operating panel

Type	Designation	Usage with	Catalog number	Pack. size	Weight p. piece kg
ACS100-CAB.300	Extension cable 3m with door mounting set	ACS100-PAN	1SAJ 510 002 R0001	1	0.40
ACS100-CAB.070	Extension cable 3m with front mounting set	ACS100-PAN	1SAJ 510 003 R0001	1	0.40



KORC 4L...



KORC 5L...

Current transformers for use with the Universal Controller UMC22-FBP

Secondary-linear transformer, 3-phase with terminal block, intended for conductors Cu 2.5 mm²

Type	Designation	Current range recommended	Catalog number	Pack. size	Weight p. piece kg
KORC 4L 185 R/4	Current transformer	60 ... 185 A	1SCA 022 193 R 7830	1	1.550
KORC 4L 310 R/4	Current transformer	180 ... 310 A	1SCA 022 181 R 0760	1	1.442
KORC 5L 500 R/4	Current transformer	300 ... 500 A	1SCA 022 208 R 1010	1	1.700
KORC 5L 850 R/4	Current transformer	500 ... 850 A	1SCA 022 208 R 1440	1	1.900

Connection kit for use with the KORC-current-transformers

Connection kit for applications with KORC-current-transformers with A-series-contactors

Type	Designation	Appropriate for contactor type	Catalog number	Pack. size	Weight p. piece kg
DT 450 / A185	Connection kit	AF145 - AF185	1SAZ 501 901 R 1001	1	0.500
DT 450 / A300	Connection kit	AF260 - AF300	1SAZ 501 902 R 1001	1	0.750
DT 500 / AF460L	Connection kit ②	AF400 - AF460	1SAX 701 902 R 1001	1	0.500
DT 800 / AF750L	Connection kit ②	AF580 - AF750	1SAX 801 902 R 1001	1	0.750

① For motor protecting switch MS325 and accessories for MS325 please refer to chapter 4 - Motor Protecting Switches

② Connection kit for Star-Delta-Starter

Combination motor starters

Field Bus Plug

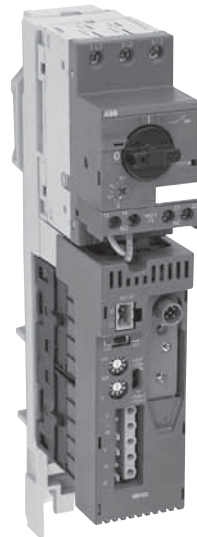
Communicative motor starters - compact devices

Motor Starter Direct MSD11-FBP



Motor Starter Direct
MSD11-FBP

Dimensions	45 x 260 x 120 (138) mm
Mounting	DIN rail, on 1 or 2 rails as desired (spacing 125 mm), usage of 2 rails increases vibration resistance
Optional	Woehner conductor rail system adapter, Rittal, Germany
Degree of protection	IP 20
Power feeding	Comb-shaped rail or cable
Operating voltage V_i	400 V AC, 50 and 60 Hz, three-phase current
Control voltage feeding	Simplest feeding via bus connector; switchable to ext. feeding
External attachment plug	1.5 mm ² max. (supplied on delivery)
Control voltage	24 V DC (+ 30%, - 20%)
Motor connection	Plug-in conn. on front-side (plug supplied on del.) L1, L2, L3, PE
Conductor cross section	2.5 mm ² max.
Motor protection	Integr. motor protecting switch MS116 (overload, short-circuit)
Conductor cross section	2 x 1...4 mm ² (single- or multiple-wire) 2 x 0.75...2.5 mm ² (fine-wire with wire-end ferrules)
Nominal current ranges	11
Applicability	0.1...12 A
Short-circuit capacity ICS	50 kA (0.1 - 6.3 A), 12.5 kA (6.3 - 10 A), 10 kA (10 - 12 A)
Switching frequency (motor starting)	max. 15 starts per hour max. 60 starts per hour at 40 % duty ratio and $t_{starting} = 1$ s
Contactor	Integrated contactor B7
Contact rating	12 A max., AC-3, 400 V AC
Contact lifetime	700,000 switching cycles at 12 A, AC-3
Integrated diagnostic functions	LED for control voltage LED for contactor switch position LED for motor protection



Motor starter Reverse MSR22-FBP

Motor Starter Reverse MSR22-FBP

Dimensions	45 x 260 x 120 (150) mm
Mounting	DIN rail, on 1 or 2 rails as desired (spacing 125 mm), usage of 2 rails increases vibration resistance
Optional	Woehner conductor rail system adapter, Rittal, Germany
Degree of protection	IP 20
Power feeding	Comb-shaped rail or cable
Operating voltage V_i	400 V AC, 50 and 60 Hz, three-phase current
Control voltage feeding	Simplest feeding via bus connector; switchable to ext. feeding
External attachment plug	1.5 mm ² max. (supplied on delivery)
Control voltage	24 V DC (+ 30%, - 20%)
Motor connection	Plug-in conn. on front-side (plug supplied on del.) L1, L2, L3, PE
Conductor cross section	2.5 mm ² max.
Motor protection	Integr. motor protecting switch MS116 (overload, short-circuit)
Conductor cross section	2 x 1...4 mm ² (single- or multiple-wire) 2 x 0.75...2.5 mm ² (fine-wire with wire-end ferrules)
Nominal current ranges	11
Applicability	0.1...12 A
Short-circuit capacity ICS	50 kA (0.1 - 6.3 A), 12.5 kA (6.3 - 10 A), 10 kA (10 - 12 A)
Switching frequency (motor starting)	max. 15 starts per hour max. 60 starts per hour at 40 % duty ratio and $t_{starting} = 1$ s
Contactor	Integrated contactor 2 x B7
Contact rating	12 A max., AC-3, 400 V AC
Contact lifetime	700,000 switching cycles at 12 A, AC-3
Integrated diagnostic functions	LED for control voltage LED for contactors switch positions LED for motor protection



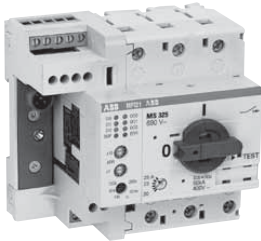
Communicative motor starters with control functions

Universal Motor Controller UMC22-FBP

Dimensions	70 x 105 x 87,5 (110) mm
Mounting	On DIN rail or with screws (4 screws M4)
Degree of protection	IP 20
Power feeding	Bar-type current transf. max. 25 mm ² (max. diameter. = 11 mm)
Operating voltage U _e	690 V AC, 50 and 60 Hz, 3-phase AC
Nominal motor current	0.24 ... 63 A with protective current transformers up to 850 A
Short-circuit protection	By fuse on mains side
Control voltage feeding	Simplest feeding via bus connector; switchable to ext. feeding
Connection	max. 1.5 mm ²
Control voltage	24 V DC (+30%, -20%)
Conductor cross section terminals	max. 1 x 2.5 mm ² or max. 2 x 1.5 mm ²
Integrated inputs	6 digital inputs 24 V DC
Integrated outputs	3 relay outputs with common supply
Voltage switching capacity	24 V AC/DC ... 250 V AC/DC
Current switching cap. per relay	
240 V AC (AC 15)	max. 1.5 A
120 V AC (AC 15)	max. 3 A
250 V DC (DC 13)	max. 0.11 A
24 V DC (DC 13)	max. 1 A
Load current via common	I _{max} = 4 A (thermal limit)
Relay contact lifetime	> 5 x 10 ⁶ switching cycles - mechanical lifetime > 1 x 10 ⁶ switching cycles - at 230 V AC, 0.5 A
Protective circuits with inductive loads	For direct current free-wheeling diodes, For alternating current varistors / VDRs
Integrated control functions	Direct starting, reverse starting, star-delta-starting, servo-drive, transparent mode (not for AS-Interface) Stand alone operation (operation also without bus connection)
Integrated motor protection functions	Adjustm. of starting and change-over times via operat. panel Error acknowledgement via operating panel or bus Selectable disabling of outputs on error (PLC or bus) Overload monitoring / phase failure detection Detection of blocking motors Integrated storage of parameters and motor data
Integrated diagnostic functions	LED for control voltage LED for "motor running" LED for "device ready for operation" LED for state indication of digital inputs and outputs Contactor switching cycles count and data transmission to automation device (not for AS-Interface)
Optional operating panel	For adjustment and visualization of motor and device data as well as of bus parameters

Motor starter interface

Field Bus Plug



Motor Starter Fieldbus Interface MFI21-FBP

Communicative motor starters with control functions

Motor Starter Fieldbus Interface MFI21-FBP

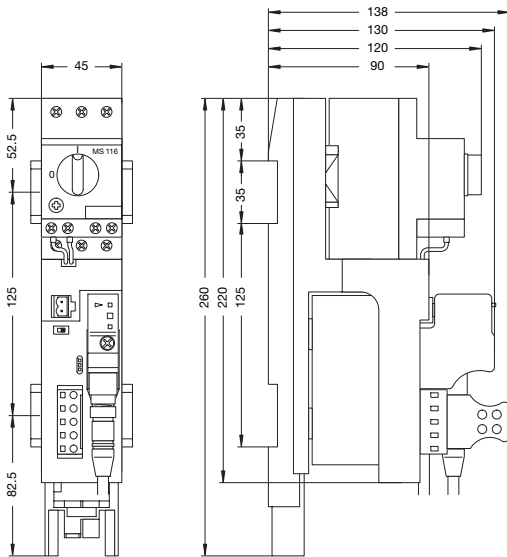
Dimensions	36 (90) x 90 x 70 mm	
Mounting	DIN rail	
	Mechanical coupling to motor protecting switch MS 325	
Degree of protection	IP 20	
Power feeding	see MS 325	
Control voltage feeding	simplest feeding via bus connector; switchable to ext. feeding	
Connection	max. 1.5 mm ²	
Control voltage	24 V DC (+ 30%, - 20%)	
Motor connection	see MS 325	
Conductor cross section terminals	max. 1 x 2.5 mm ² or max. 2 x 1.5 mm ²	
Integrated inputs	3 digital inputs 24 V DC	
	1 digital input, mechanically coupled with MS325 switch position	
Integrated outputs	3 relay outputs with common supply	
	Voltage switching capacity	24 V AC/DC ... 250 V AC/DC
Current switching cap. per relay	240 V AC (AC 15)	max. 1.5 A
	120 V AC (AC 15)	max. 3 A
	250 V DC (DC 13)	max. 0.11 A
	24 V DC (DC 13)	max. 1 A
Load current via common	$I_{max} = 3 \text{ A}$ (thermal limit)	
Relay contact lifetime	> 5 x 10 ⁶ switching cycles - mechanical lifetime	
	> 1 x 10 ⁶ switching cycles - at 230 V AC, 0.5 A	
Protective circuits with inductive loads	for direct current free-wheeling diodes, for alternating current varistors / VDRs	
Integrated control functions	Direct starting, reverse starting, star-delta starting, transparent mode (not for AS-Interface)	
Diagnosis at the device	LED - Internal supply voltage	
	LED - Device error	
	LED - Status of the digital inputs and outputs	
	Contacting switching cycles count and data transmission to the automation device (not for AS-Interface)	

8

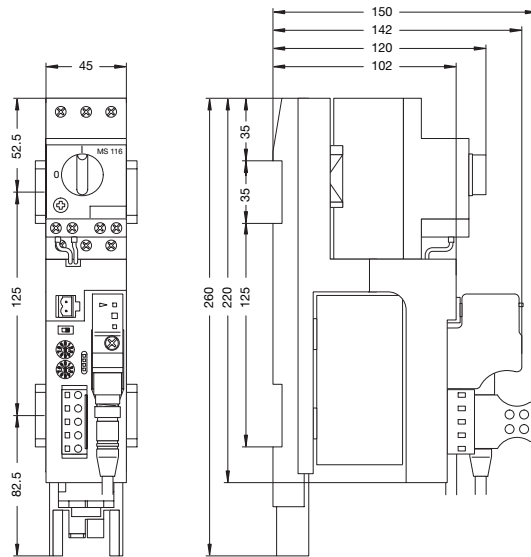
Approximate dimensions

Communicative motor starters - compact devices

Diameter in mm

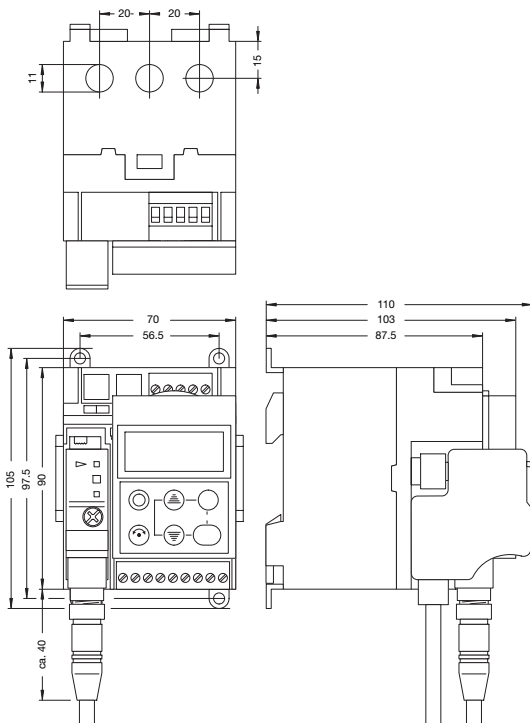


Motor Starter Direct MSD11-FBP

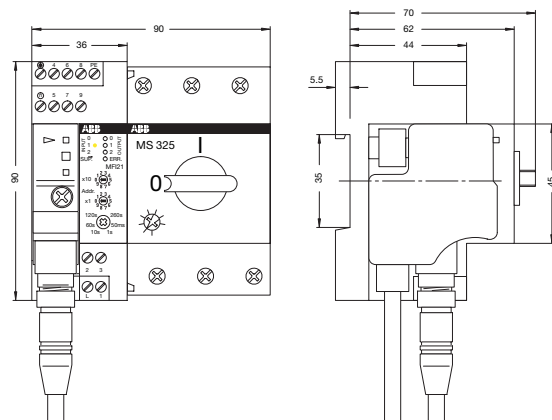


Motor Starter Reverse MSR22-FBP

Communicative motor starters with control functions



Universal Motor Controller UMC22-FBP



Motor Starter Fieldbus Interface MFI21-FBP