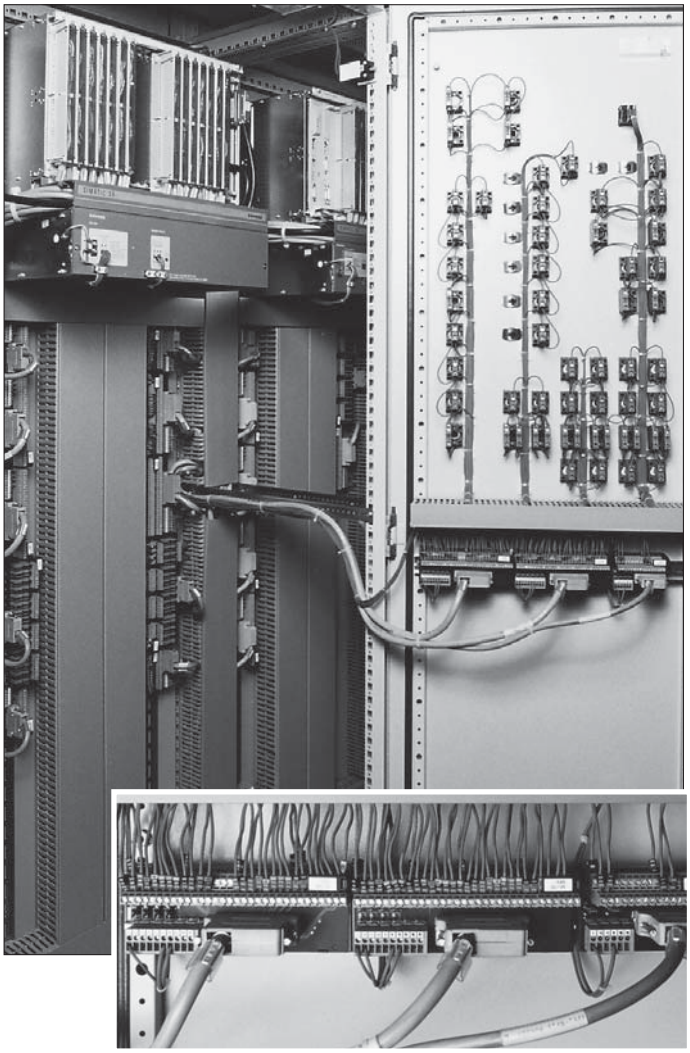
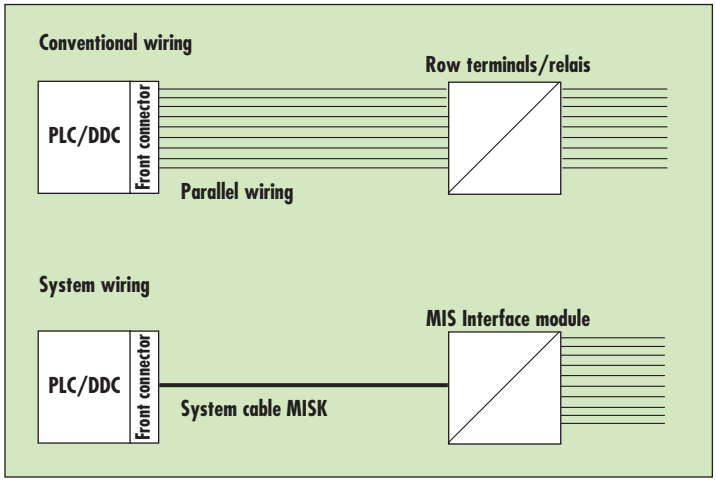


Transfer module built in the front door of a control panel

The price of the control panel must be reduced! – but how?

In modern process manufacture, more and more control systems are being used. The control system must have the ability to communicate with the individual process peripherals, in other words control and measurement signals must be swapped back and forth. To achieve this, there are three distinctive ways of wiring, either conventional wiring, system wiring (MIS) and field bus systems.

In conventional wiring the whole connection from I/O at PLC/DCC to interface section (series terminals, relays) are installed with single wires. In contrast of this, the system wiring MIS fits with only one cable.
Murrelektronik system MIS offers all components, which are necessary for an easy wiring to raise quality.



Advantage:

- Standard solution in the planning stage for both hard- & software, planning using the building block principle.
- Time saving in control panel manufacture (3 min. per wire is replaced by 3 min. per module [BG]).
- Pre-tested modules reduce the chance of faults, service and set-up costs are therefore reduced.
- The modular system makes the control system very clear and accessible. It also allows for unplanned alterations or additional I/O making it service-friendly.
- By using this system wiring, the quality remains at a constant high. The control panel will become a respected calling card for your company.
- After initial decision making, it is possible for the production and planning department to work in parallel.
- Machine can easily be split up for transportation, re-wiring on site is kept to absolute minimum and another source of fault is greatly reduced.

System wiring MISK

For connecting modules, there is a wide range of system cables available. The cables are pre-wired with I/O card connector or other connector of the desired PLC type in lengths from 0.5…25 m. Already received connections from the manufacturer can be pre-wired, too.
This greatly simplifies the job of wiring a control panel.

- I/O card connectors as well as SUB-D connectors can be plugged simply on to the transfer module
- A circuit diagram no longer forms the basic layout for the control panel, the construction drawings are enough
- The control panel assembly time can at last be calculated
- High quality panels, due to the reduction in possible fault sources

Interface modules MIS

The most important difference in the product range is between active MISR-XX and passive MISP-XX interface modules. In addition to this, is the difference between digital input/output (DI/DO) and analog input/output (AI/AO).

Passive interface module MISP-XX

The passive interface modules are most commonly used, when the PLC signal, irrespective of digital or analog, is transferred directly to the control panel terminals. The modules feature terminal blocks with a typical number of terminals to that found on PLCs.

MISP – X DI/DO/AI/AO

- Analog input/output
- Digital input/output
- Number of channles per module (8-, 16-, 32-way)
- **M**urrelektronik **I**nterface **S**ystem **P**assive

Practical features:

- Separate byte-wise voltage input for the I/O via the module
- Clearly visible separation due to the terminal layout of the module between the PLC side as well as the peripherals/field side
- The power supply is via top mounted terminals, allowing the modules to be situated up against the cable channel (connections towards the controller)
- Via jumpers, it is possible to separate or join individual circuit loops. Modules with the "with opp. potential" option, also enable the byte-wise switching off by the opposite potential, irrespective of whether input or output modules.
- Labelling plate on each module.

Active interface module MISRX

The active interface modules are used when it is necessary to split the I/O galvanically from the field peripherals, to equalise power ratings within the system or in larger process systems a clear change in power between the control level and the wiring. The module are constructed along similar lines as the passive modules.
Module definition are made as follows:

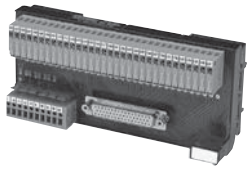
MISR-X DI	**MISR-X DO**
active input module	active output module
digital INPUT	digital OUTPUT

- Versions with relay or opto-couplers are available (voltage or power rating dependent)
- 8 or 16-channel options
- LED status indicators
- Internal suppression prevents inductive spikes from the relay
- Minimum space usage
- Byte-wise PLC power input is possible

Interface modules

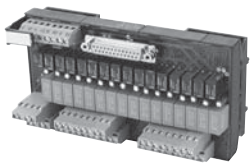
System cable MISK
– wide product range
– complete wiring of I/O plug to MIS connector
– customized cable length from 0.5…25 m

page 3.6.3



Passive interface modules
– direct convertion of PLC signals onto terminals
– analog and digital signals
– 8-, 16- and 32-way modules

page 3.6.4



Active interface modules
– galvanical separation of I/O and field peripherals
– level and power adaption possible
– assembly optional with relays or opto-coupler

page 3.6.13

General constructive layout of the system cable MISK

System cable with front connector

	MISK 50-pole SUB-D connector	MISK 25-pole SUB-D connector	MISK 2 x 25-pole SUB-D connector
			
Technical data			
Connector	1 x SUB-D 50, 60°	1 x SUB-D 25, 0°	2 x SUB-D 25, 0°
Wire diameter in resp. 0.5… 9.5 m	1 x 44 x 0.25 mm²	* 1 x 24 x 0.25 mm²	2 x 24 x 0.25 mm²
to cable length 10.0…25.0 m	1 x 44 x 0.34 mm²	* 1 x 24 x 0.34 mm²	2 x 24 x 0.34 mm²
Fixing	screw fixing UNC 4 - 40	screw fixing UNC 4 - 40	screw fixing UNC 4 - 40
I/O connector	each to PLC-type	each to PLC-type	each to PLC-type

System cable with I/O connector

	MISK 15-pole SUB-D connector, 14-pole Front plug connector with Front plug adapter	MISK 50-pole SUB-D connector with open ended wire	MISK 25-pole SUB-D connector with open ended wire
			
Technical data			
Connector	15-pole SUB-D/14-pole front plug connector	1 x SUB-D 50, 60°	1 x SUB-D 25, 0°
Wire diameter in resp. 0.5… 9.5 m	1 x 14 x 0.14 mm²	1 x 44 x 0.25 mm²	* 1 x 24 x 0.25 mm²
to cable length 10.0…25.0 m	–	1 x 44 x 0.34 mm²	* 1 x 24 x 0.34 mm²
Fixing	screw fix UNC 4 - 40/snap fix	screw fixing UNC 4 - 40	screw fixing UNC 4 - 40
I/O connector	Adapter S5 135/155	–	–

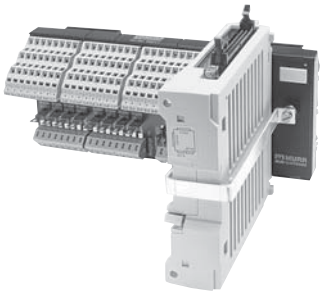
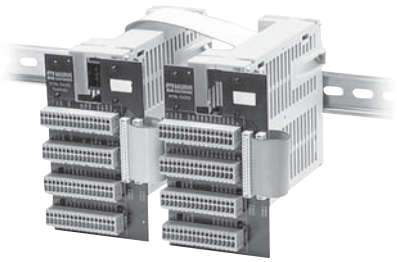
Notes

Item number for individual cable on request. * At the analog signal the cables are shielded.
If your cable is not shown, please ask. We can deliver the desired cable in a short time.

Passive interface modules screw terminals with blade contacts

3-wire

for GE-FANUC controllers

	MISP-8AI/AO[1] for I/O Link	**MISP-16AI/AO**[1] for FSSB
		
Ordering data	**Art.-No.**	**Art.-No.**
MISP - 24DI/16DO	**59211**	
MISP - 16DO	**59212**	
MISP - 32DI/24DO basic module		**546305**
MISP - 32DI/24DO expansion module		**546303**
Technical data		
Supply voltage	24 V DC	
Supply current each bit	max. 1 A	
Status indicator signals/supply	yellow/green LED	
Connector	50-pole spring clamp terminals	2 x 34-pole spring clamp terminals
Fixing	screw fixing UNC 4 - 40	
Mounting method	DIN-rail mounting to EN 60715	mounting at FANUC-controllers
Dimensions H x W x D	202.5 x 68 x 86 mm	140 x 82 x 66 mm
Temperature range	- 20…+ 60 °C	

Notes

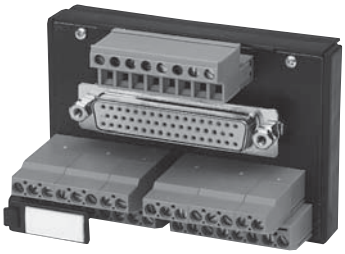
[1] Controller not included.

Passive interface modules

1-wire

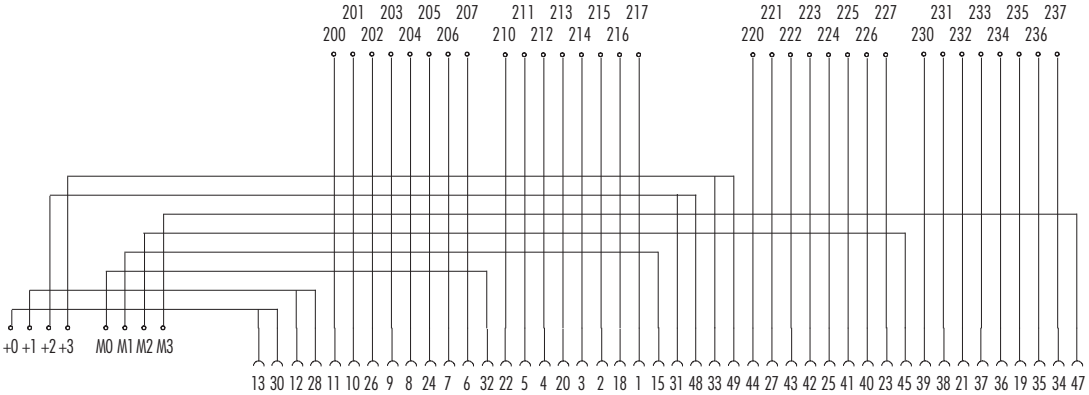
MISP-32DI/DO

screw terminals



Circuit diagram

Art.-No. 596038



Ordering data	Art.-No.
MISP - 32DI/DO screw terminal	**596038**

Technical data	
Supply voltage	125 V AC/150 V DC
Supply current each bit	max. 3 A
Connector	50-pole SUB-D female to DIN 41652
Fixing	screw fixing UNC 4 - 40
Mounting method	DIN-rail mounting to EN 60715
Dimensions H x W x D	63 x 100 x 52 mm
Temperature range	- 20…+ 60 °C

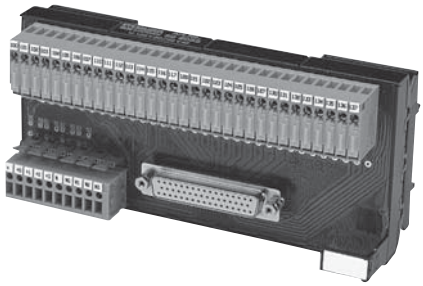
Notes

Passive interface modules

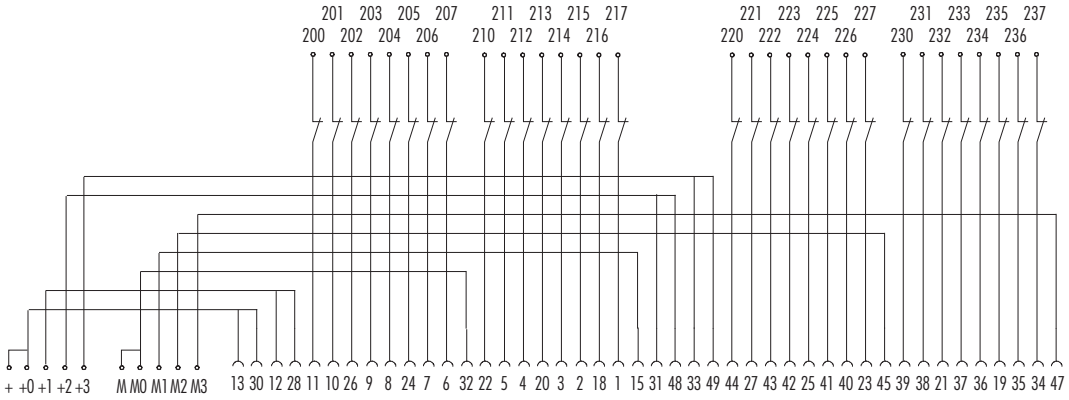
1-wire

MISP-32DI/DO

screw terminals with blade contacts



Circuit diagram



Ordering data	**Art.-No.**
MISP - 32DI/DO	**596055**

Technical data	
Supply voltage	125 V AC/150 V DC
Supply current each bit	max. 3 A
Connector	50-pole SUB-D female to DIN 41652
Fixing	screw fixing UNC 4 - 40
Mounting method	DIN-rail mounting to EN 60715
Dimensions H x W x D	86 x 180 x 75 mm
Temperature range	- 20…+ 60 °C

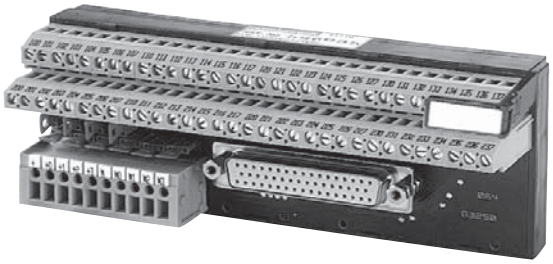
Notes

Passive interface modules

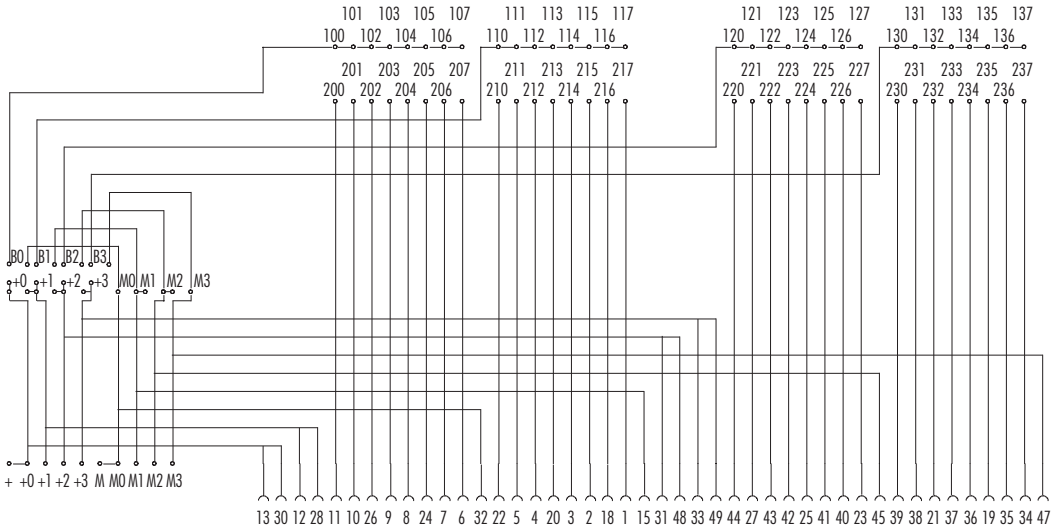
2-wire

MISP-32DI/DO

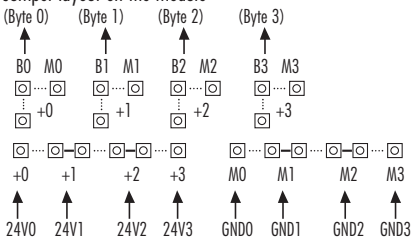
screw terminals



Circuit diagram



Jumper layout on the module



Ordering data	Art.-No.
MISP - 32DI/DO	**596035**

Technical data	
Supply voltage	max. 125 V AC, 150 V DC
Supply current each bit	max. 3 A
Connector	50-pole SUB-D female to DIN 41652
Fixing	screw fixing UNC 4 - 40
Mounting method	DIN-rail mounting to EN 60715
Dimensions H x W x D	63 x 165 x 48 mm
Temperature range	- 20…+ 60 °C

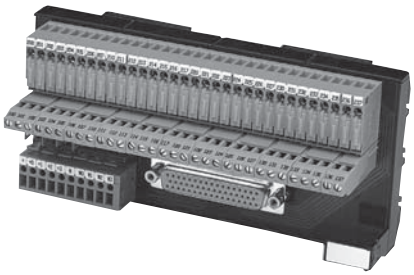
Notes

Passive interface modules

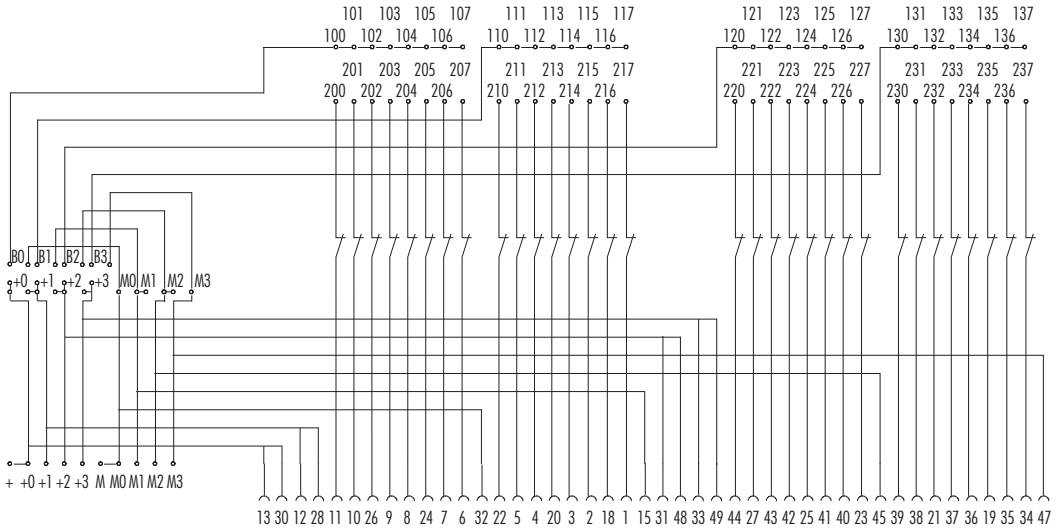
2-wire

MISP-32DI/DO

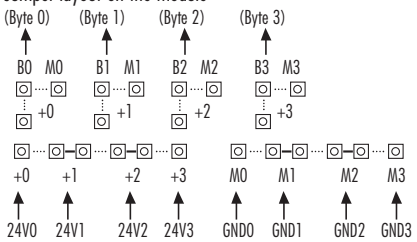
screw terminals with blade contacts



Circuit diagram



Jumper layout on the module



Ordering data	Art.-No.
MISP - 32DI/DO	**596095**

Technical data	
Supply voltage	max. 125 V AC, 150 V DC
Supply current each bit	max. 3 A
Connector	50-pole SUB-D female to DIN 41652
Fixing	screw fixing UNC 4 - 40
Mounting method	DIN-rail mounting to EN 60715
Dimensions H x W x D	63 x 95 x 48 mm
Temperature range	- 20…+ 60 °C

Notes

Passive interface modules

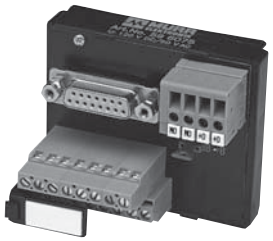
2-wire

MISP-16DI/DO

screw terminals

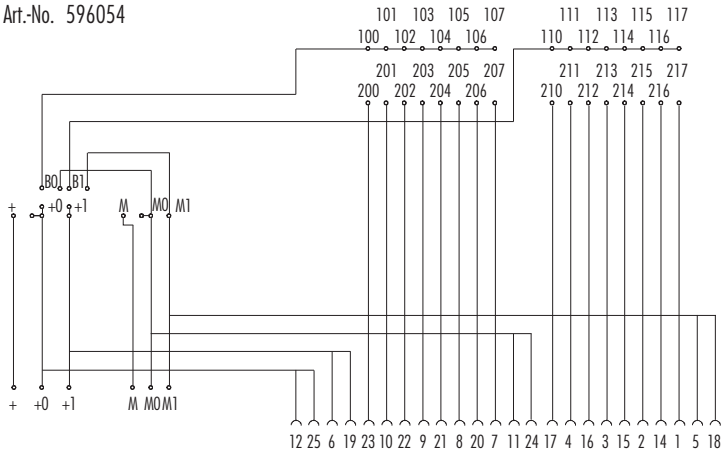
MISP-8DI/DO

screw terminals

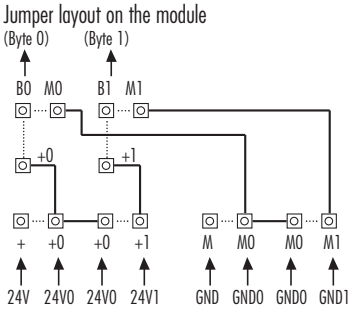


Circuit diagram

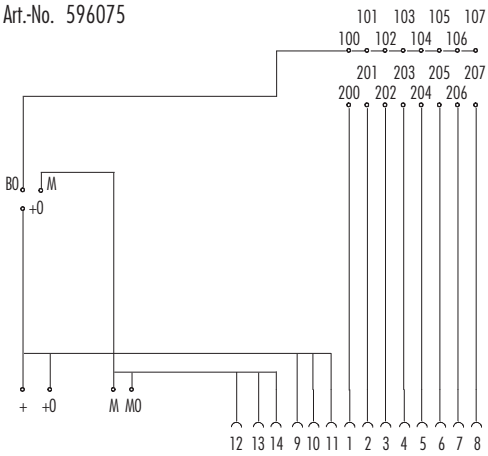
Art.-No. 596054



Jumper layout on the module



Art.-No. 596075



Ordering data	Art.-No.	Art.-No.
MISP - 16DI/DO	**596054**	
MISP - 8DI/DO		**596075**
Technical data		
Supply voltage	max. 125 V AC, 150 V DC	
Supply current each bit	max. 3 A	
Connector	25-pole SUB-D female to DIN 41642	15-pole SUB-D female to DIN 41642
Fixing	screw fixing UNC 4 - 40	
Mounting method	DIN-rail mounting to EN 60715	
Dimensions H x W x D	63 x 95 x 48 mm	63 x 75 x 48 mm
Temperature range	- 20…+ 60 °C	

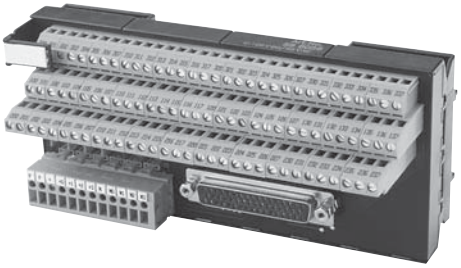
Notes

Passive interface modules

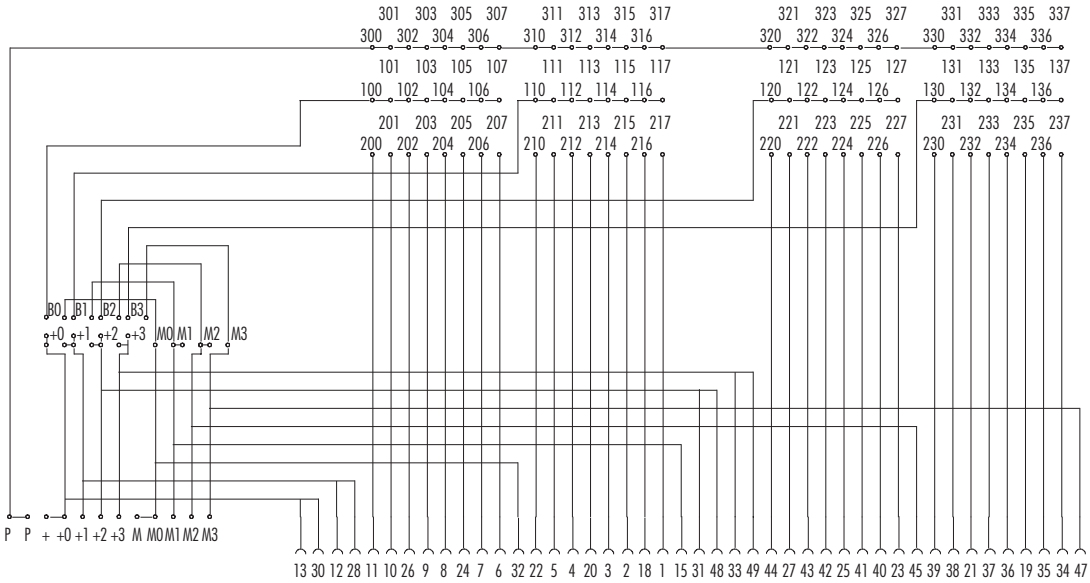
3-wire

MISP-32DI/DO

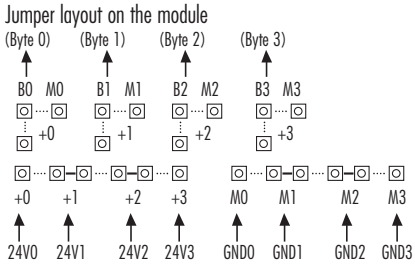
screw terminals



Circuit diagram



Jumper layout on the module



Ordering data	Art.-No.
MISP - 32DI/DO	596056

Technical data	
Supply voltage	max. 125 V AC, 150 V DC
Supply current each bit	max. 3 A
Connector	50-pole SUB-D female to DIN 41652
Fixing	screw fixing UNC 4 - 40
Mounting method	DIN-rail mounting to EN 60715
Dimensions H x W x D	86 x 180 x 75 mm
Temperature range	- 20…+ 60 °C

Notes

Passives interface modules

3-wire

MISP-8AI/AO

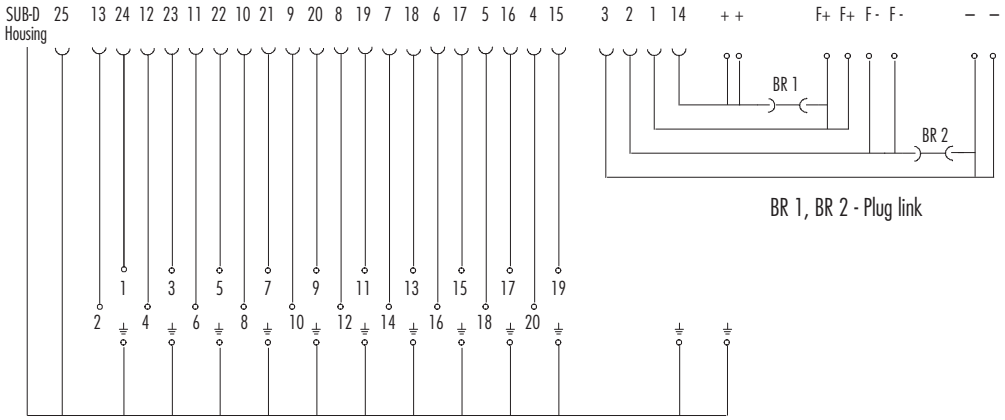
screw terminals
specified for Allen Bradley

MISP-8AI/AO

screw terminals

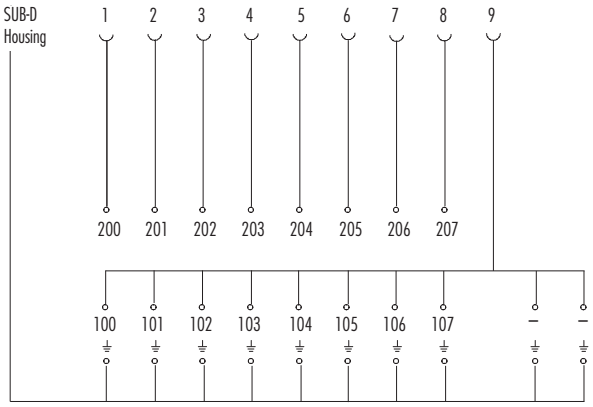
Circuit diagram

Art.-No. 596057



BR 1, BR 2 - Plug link

Art.-No. 596053



Ordering data	**Art.-No.**	**Art.-No.**
MISP - 8AI/AO – ABB	**596053**	
MISP - 8AI/AO		**596057**
Technical data		
Supply voltage	max. 125 V AC, 150 V DC	max. 30 V DC
Supply current each bit	max. 3 A	max. 0.5 A
Connector	9-pole SUB-D female to DIN 41652	25-pole SUB-D female to DIN 41652
Fixing	screw fixing UNC 4 - 40	screw fixing UNC 4 - 40
Mounting method	DIN-rail mounting to EN 60715	DIN-rail mounting to EN 60715
Dimensions H x W x D	75 x 70 x 85 mm	90 x 86 x 75 mm
Temperature range	- 20…+ 60 °C	

Notes

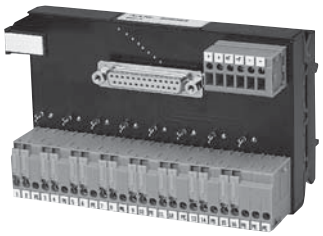
Passive interface modules

2-wire

4-wire

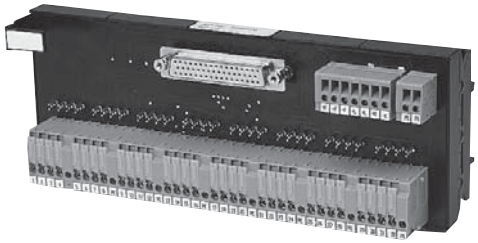
MISP-8AI/AO

screw terminals with blade contact



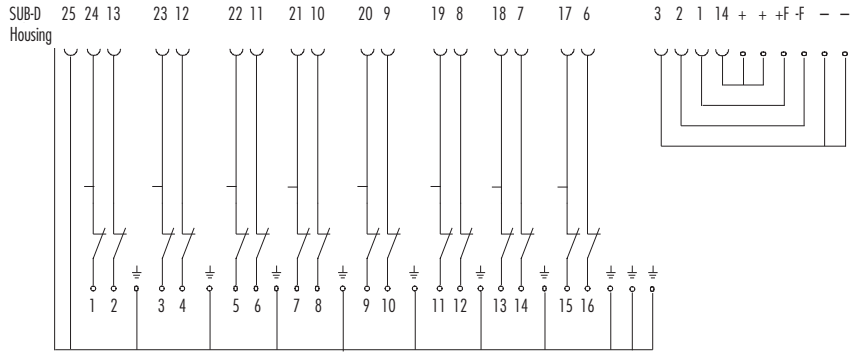
MISP-16AI/AO

screw terminals with blade contact

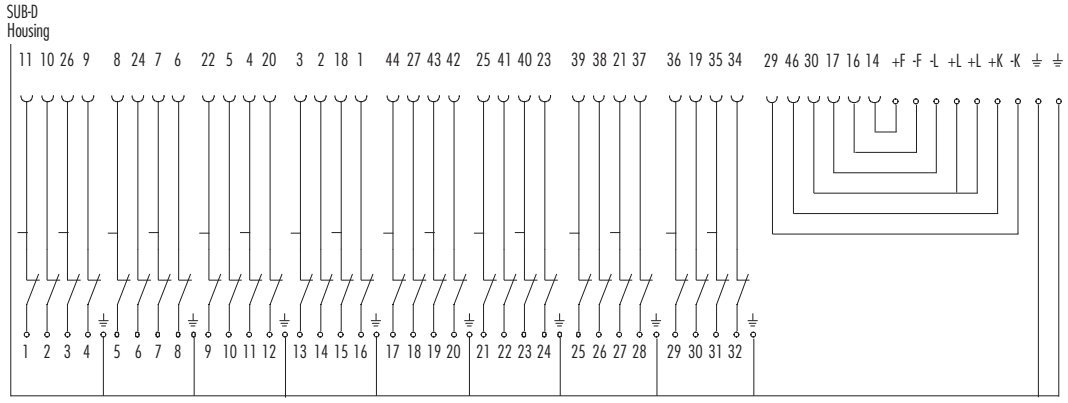


Circuit diagram

Art.-No. 596065



Art.-No. 596066



Ordering data	**Art.-No.**	**Art.-No.**
MISP - 8AI/AO	**596065**	
MISP - 16AI/AO		**596066**
Technical data		
Supply voltage	max. 50 V AC/DC	
Supply current each bit	max. 1 A	
Connector	25-pole SUB-D female to DIN 41652	50-pole SUB-D female to DIN 41652
Fixing	screw fixing UNC 4 - 40	
Mounting method	DIN-rail mounting to EN 60715	
Dimensions H x W x D	86 x 135 x 75 mm	86 x 225 x 75 mm
Temperature range	- 20…+ 60 °C	

Notes

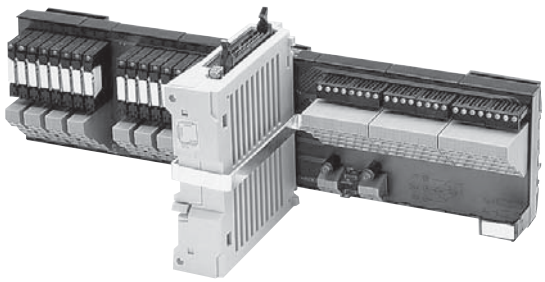
Active interface module

3-wire

for GEFANUC controllers

MISR-24DI/16DO [1)]

with safe separation



Ordering data	Art.-No.
MISR -24 DI/16 DO	*546298

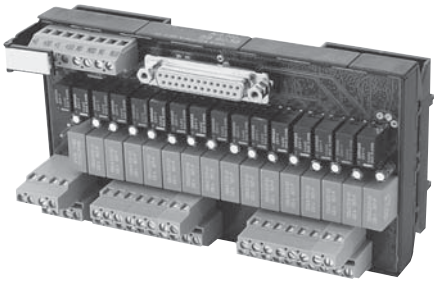
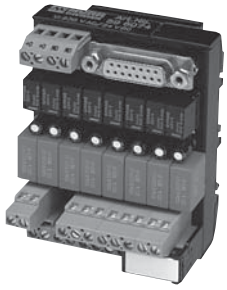
Technical data	
Input voltage (PLC output)	24 V DC
Connection current each bit	approx. 14 mA
Status indicator	LED yellow/green
Switched voltage (field side)	250 V AC/DC
Switched current	max. 3 A
Min. load current	10 mA
Contact/contact material	N/O contacts/Ag Sn O_2
Switch on, drop off and bounce time	8/ 20/ 2 ms
Mechanical relay (replacable)	Art.-No. 61513
Semiconductor (replacable)	–
Mounting method	DIN-rail mounting to EN 60715
Dimensions H x W x D	337 x 68 x 86 mm
Temperature range	- 20…+ 60 °C

Notes

Opto-coupler and other voltages on request. [1)] Controller not included.
* Safe separation to DIN VDE 0106 part 101. Root doubled

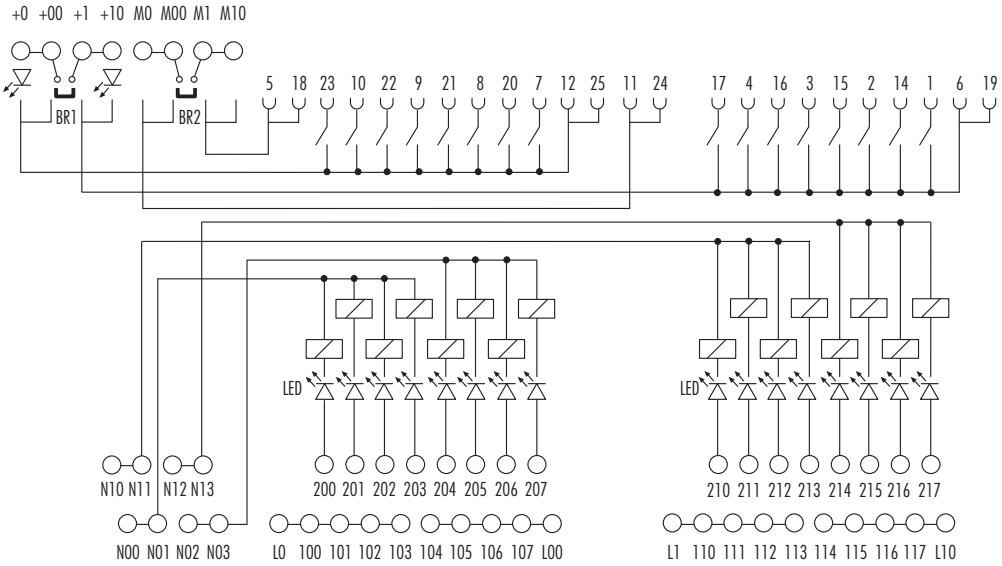
Active interface module

Input relay

	MISR-16DI	MISR-8DI
		

Circuit diagram

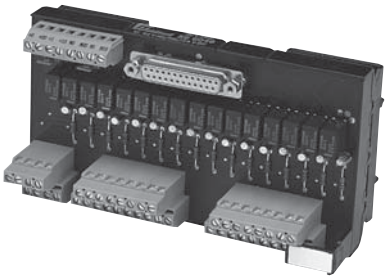
Art.-No. 596036



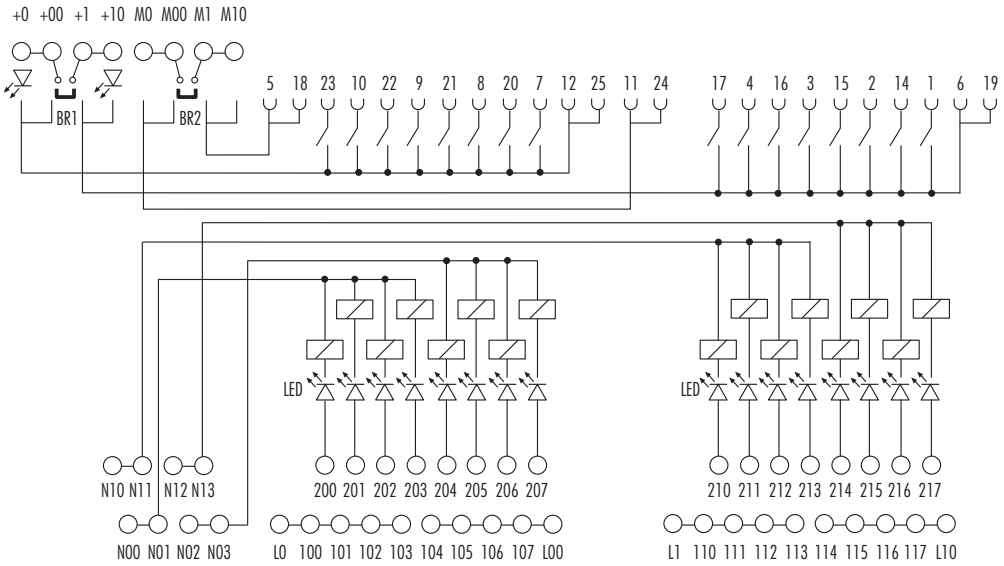
Ordering data	Art.-No.	Art.-No.
MISR - 16DI	**596036**	
MISR - 8DI		**596074**
Technical data		
Input voltage (field side)	230 V AC + 10 % – 15 %	
Connection current each bit	max. 10 mA	
Status indicator	yellow LED	
Switched voltage (PLC input)	24 V DC	
Switched current	max. 1 A	
Min.load current	1 mA	
Connector	25-pole SUB-D female to DIN 41652	15-pole SUB-D female to DIN 41652
Contact material	Ag + Au plated	
Switch on, drop off and bounce time	5/ 5/ 1 ms	
Removable single relay	HY 1NIL - 24 V Matsushita, alternative G 5 V - 1 - 24 V Omron	
	(Art.-No. 616019 as accessories)	
Fixing	screw fixing UNC 4 - 40	
Mounting method	DIN-rail mounting to EN 60715	
Temperature range	- 20…+ 60 °C	
Dimensions H x W x D	86 x 157 x 69 mm	86 x 90 x 75 mm
Notes		
	Opto-coupler and other voltages on request.	

Active interface module **MISR-16DI**

Input relay



Circuit diagram



Ordering data	**Art.-No.**	**Art.-No.**
MISR - 16DI	* **596048**	
MISR - 16DI		**596079**

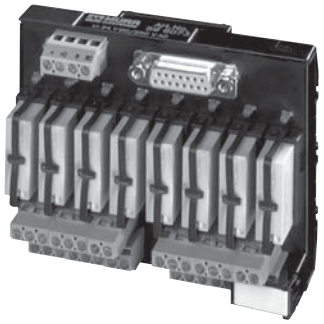
Technical data		
Input voltage (field side)	24 V DC ± 10 %	60 V DC ± 10 %
Connection current each bit	max. 10 mA	
Status indicator	yellow LED	
Switched voltage (PLC input)	24 V DC	
Switched current	max. 1 A	
Min.load current	1 mA	
Connector	25-pole SUB-D female to DIN 41652	
Contact material	Ag + Au plated	
Switch on, drop off and bounce time	5/ 5/ 1 ms	
Removable single relay	HY 1NIL - 24 V Matsushita, alternative G 5 V - 1 - 24 V Omron	
	(Art.-No. 616019 as accessories)	
Fixing	screw fixing UNC 4 - 40	
Mounting method	DIN-rail mounting to EN 60715	
Temperature range	- 20…+ 60 °C	
Dimensions H x W x D	86 x 157 x 69 mm	

Notes

* Safe separation to DIN VDE 0106 part 101. Opto-coupler and other voltages on request.

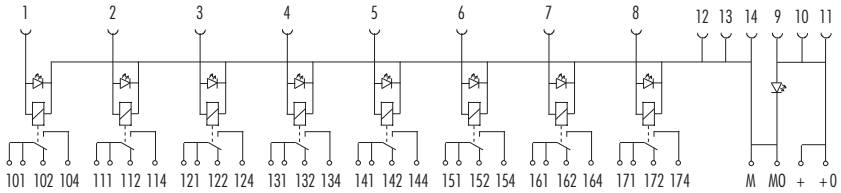
Active interface module

Output relay

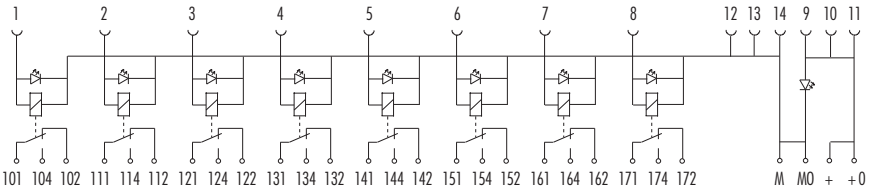
	MISR-8DO	**MISSNR-8DO**
	with safe separation	
		

Circuit diagram

Art.-No. 596073



Art.-No. 596133



Ordering data	**Art.-No.**	**Art.-No.**
MISR - 8DO	* **596073**	
MISSNR - 8DO		**596133**

Technical data		
Input voltage (PLC output)	24 V DC ± 10 %	
Connection current each bit	max. 30 mA	approx. 11 mA
Status indicator	red LED	green LED
Switched voltage (field side)	250 V AC/150 V DC	250 V AC/DC
Switched current	max. 5 A	max. 6 A
Min.load current	100 mA	10 mA
Connector	15-pole SUB-D female to DIN 41652	
Contact/contact material	C/O contacts/AgNi hv	C/O contacts/AgSn O_2
Switch on, drop off and bounce time	10/ 10/ 2 ms	10/ 15/ 1.5 ms
Mechanical relay (replacable)	RYS 01 024 Schrack, alternative M15FBH 0018 24 V DC FEME	SNR relays, 24 V DC switched current max. 6 A, Art.-No. 61513
Semiconductor (replacable)	–	ELR semiconductor, 24 V DC switched current max. 2 A, Art.-No. 61506
Fixing	screw fixing UNC 4 - 40	
Mounting method	DIN-rail mounting to EN 60715	
Dimensions H x W x D	86 x 112.5 x 75 mm	86 x 67.5 x 75 mm
Temperature range	- 20…+ 60 °C	

Notes

Opto-coupler and other voltages on request.
* Safe separation to DIN VDE 0106 part 101. Root doubled

Active interface module	MISR-16DO	MISRS-16DO	MISR-16DO with safe separation
Output relay			

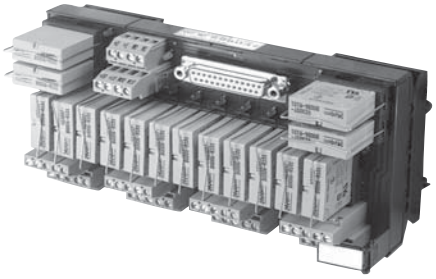


image: 596037

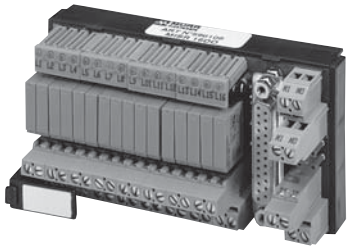
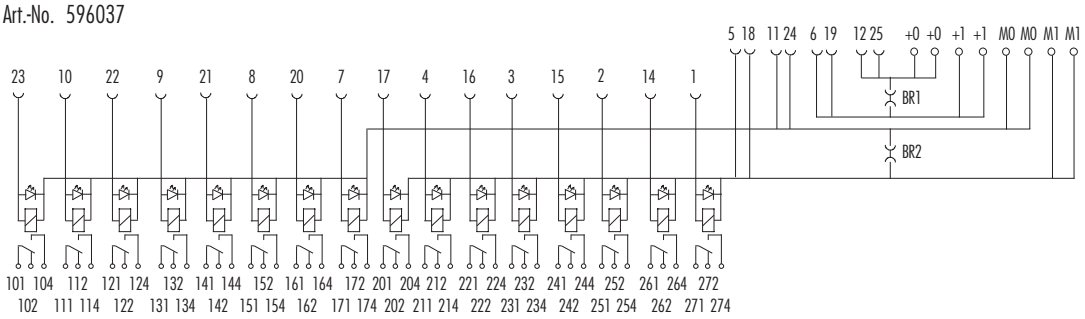


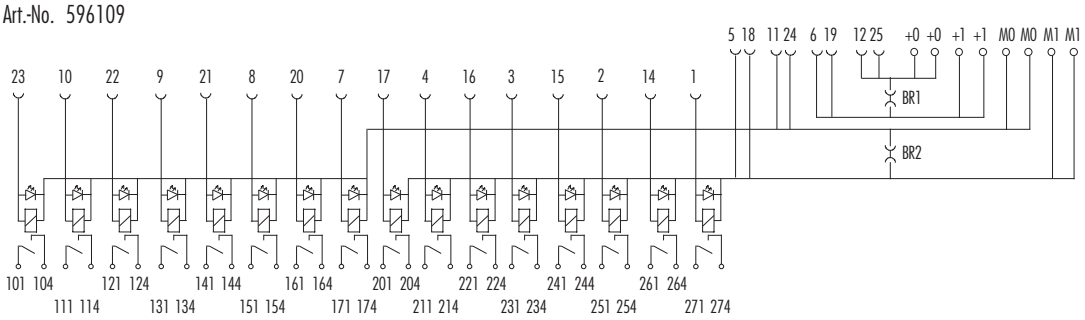
image: 596109

Circuit diagram

Art.-No. 596037



Art.-No. 596109



Ordering data	Art.-No.	Art.-No.	Art.-No.
MISR -16DO	**596037**		
MISRS-16DO		**596109**	
MISR -16DO			* **596058**

Technical data			
Input voltage (PLC output)	24 V DC ± 10 %		
Connection current each bit	max. 30 mA		
Status indicator	red LED		
Switched voltage (field side)	250 V AC/300 V DC	250 V AC/150 V DC	
Switched current	max. 5 A	3 A	max. 5 A
Min.load current	100 mA	1 mA	100 mA
Connector	25-pole SUB-D female to DIN 41652		
Contact/contact material	C/O contacts/Ag hv	N/O contacts/Ag hv	C/O contacts/AgNi hv
Switch on, drop off and bounce time	10/ 10/ 2 ms		
Removable single relay	V 23 057-B0006-A201 Tyco	NYP-24W-K Takamisawa	RYS 01 024 Schrack, alternative M15FBH 0018
	(Art.-No. 61410 as accessories)	–	24 V DC FEME
Fixing	screw fixing UNC 4 - 40		
Mounting method	DIN-rail mounting to EN 60715		
Dimensions H x W x D	86 x 180 x 75 mm	63 x 115 x 48 mm	86 x 225 x 75 mm
Temperature range	- 20…+ 60 °C		

Notes

Opto-coupler and other voltages on request.
* Safe separation to DIN VDE 0106 part 101. Root doubled