

Switching and controlling in the control cabinet



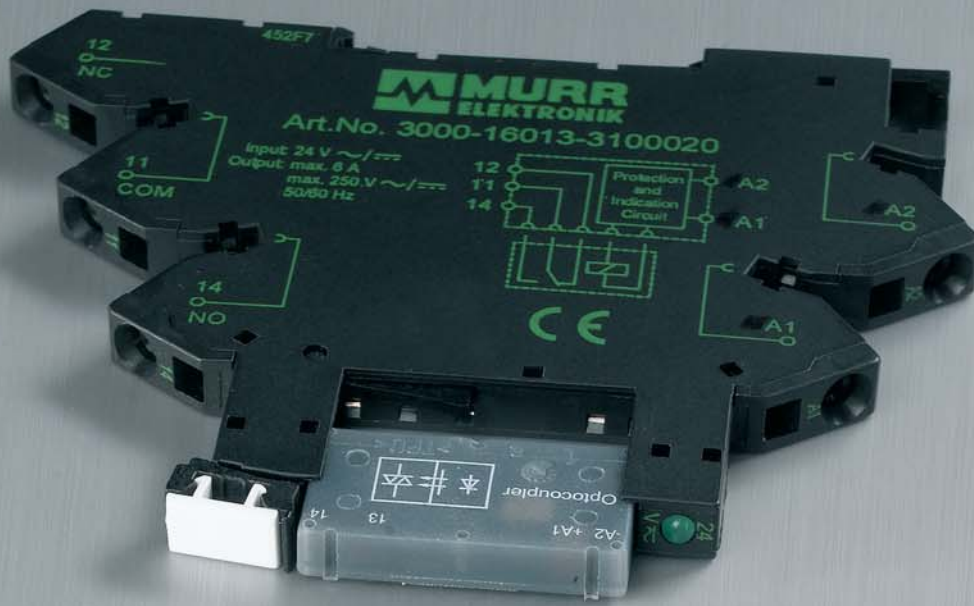
Relays

Opto-coupler

Solid state relays

Active interface technology

Safety Relays



MIRO – Interface Technology

MIRO – INTERFACE TECHNOLOGY



MARKET REQUIREMENT

The intelligent modularity saves space and provides easy, flexible replaceability.

Be it in the manufacturing industry, building automation or process technology, the signals that are transferred between process peripherals and control systems must always be transmitted reliably and potential-free. These control concepts can be achieved in extremely confined spaces using Murrelektronik relay and opto-coupler modules.

These products ensure that your costs are reduced by increasing interference immunity and therefore improving the availability of machinery and system components. Slimline housing designs require less space and therefore reduce the size of your control cabinet. The intelligent modularity of MIRO relays and opto-couplers using plug-on modules makes the replacement of switching elements both easy and low cost.

The MIRO product range has been complemented by MIRO Safe safety relays. MIRO Safe helps reduce downtime and optimize outages since MIRO Safe relays are intentionally applied to protect both workers and machines.

SWITCHING AND CONTROLLING IN THE CONTROL CABINET – ALL FROM A SINGLE SOURCE

RELAYS

- Single and multiple channels
- Potential bridging link
- Input/output relays
- Control 5...230 V AC/DC
- Slimline housing design
- Pluggable version
- Galvanic separation



OPTO-COUPLER

- Single and multiple channels
- Potential bridging link
- Overload and short circuit protection
- 0,5...10 A DC
- Up to 500 kHz switching frequency
- Slimline housing design
- Pluggable version
- Galvanic separation



RELAYS



MIRO 6.2 pluggable

- 6.2 mm slimline, pluggable relays
- Push-in connection technology
- Potential bridging link to input and output
- Sockets and plug modules available separately
- Input/output relays
- CSA-approvals



MIRO 6.2

- 6.2 mm slimline coupling relays
- Potential bridging link to input and output
- H-O-A versions
- Input/output relays
- Different input voltages
- UL-approvals



MIRO 12.4

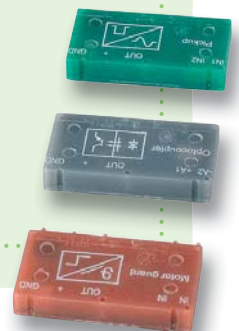
- 12.4 mm slimline, compact coupling relays
- Multi-channel variants
- Input/output relays
- Different input voltages

MIRO 6.2

Did You Know?

The small, pluggable modules of the MIRO 6.2 product line are available as different models. For example:

- Input and output relay
- Optocoupler 3 A
- Optocoupler 4 A with short circuit protection
- Solid state relay 230 V/0,5 A
- Pulse lengthening device 40 ms,
- Pulse divider 10:1
- Motor-Guard



OPTO-COUPLER



MIRO 6.2 pluggable

- 6,2 mm slim, pluggable optocouplers
- 3 A and 4 A optocouplers
- Short circuit protection (4 A)
- Base and pluggable module separately available
- Common bridges at input and output



MIRO 6.2

- 6,2 mm slim optocouplers
- 0.5...10 A
- Potential bridging link
- Up to 500 kHz switching frequency



SPECIAL VERSIONS

- 10 A / 1 KHz power opto-coupler
- Multiple voltage versions

MIRO – compact & functional

MIRO – the coupling module in terminal block format

Coupling modules in the form of relay and opto-coupler modules are indispensable in controller and system construction. Coupling modules are needed for signal amplification, signal adaptation, potential separation, potential-free transfers to other parts of the system and for increasing interference immunity.

Using the MIRO range of modules will cut your costs and block out interference and overvoltage from PLC boards and construction cards. MIRO interface modules will increase the operational reliability of your system and reduce the size of your switch cabinet.

MIRO – a wide range of products in the housing

Regardless of whether they are relays (input and output relays), opto-couplers or intelligent converter modules – all modules are available with the same housing concept.

MIRO – terminal relay – just 6.2 mm wide

1 relay, 1 C/O contact with bridging link just 6.2 mm wide. The modules are suitable for clipping onto a 35 mm DIN-rail in accordance with EN 60175. The screw terminal or spring clamp terminal connection (Cage Clamp®) leaves nothing to be desired.

MIRO – easy access

The terminals are arranged in such a way that the connecting terminals are easy to access, even with high-level cable ducts.

MIRO – pluggable

If your application requires frequent switch element replacements, the MIRO 6.2 series is the answer. The relay or opto-coupler can be replaced.

SOLID STATE RELAYS



MIRO 6.2 triac

- 6.2 mm wide housing
- Potential bridging link
- Pluggable version available
- With zero voltage switching
- Different input voltages
- 0.5...2 A



MIRO triac

- Single-phase
- 5...10 A
- With zero voltage switching
- Switching voltage up to 400 V AC
- Different input voltages



MIRO triac

- Single-phase, 2-phase and 3-phase
- 20...30 A
- With zero voltage switching
- Switching voltage up to 660 V AC

INFORMATION

AC voltages can be switched without causing wear using **triacs or thyristors as semiconductor switches**. Solid state power switches are often a substitute for contactors in cases where frequent switching occurs. Zero voltage switches minimize the in-rush current and reduce the number of switching torque faults.

Example applications are: plastic processing, rubber processing, building heating, industrial furnace construction, the automotive industry and the food and drink industry.

ACTIVE INTERFACE TECHNOLOGY



MIRO analog modules

- U/U, U/I, I/I and I/U converters
- Comparator modules
- Temperature converters for PT100
- Potentiometer modules
- Pole-changing switches for DC motors



MIRO 6.2 Timer

- Relay output and opto-coupler output
- Multifunctional modules
- Galvanic separation
- Adjustment per potentiometer and DIP-switch



TREE plug module

- Input/output relays
- Opto-coupler 2 A
- Opto-coupler 4 A with current limiting
- Solid state relays 230 V/0.5 A
- Impulse expansion module

INFORMATION

In measuring and control technology, many measuring signals occur that are needed for **monitoring and indicating** the status of mechanical processes.

Before these measuring variables can be used by programmable logical controllers and process computers they must be converted into **digital informationen** or **standardized signals** (0...20 mA, 4...20 mA or 0...10 V).

SAFETY RELAYS



MIRO SAFE SWITCH HCS/HA

Emergency-stop and guard door applications

- TÜV and UL approved for reliability
- Applicable up to safety category 4/PLe
- Minimum space required (22.5 mm) and optimum ease of connection
- With and without monitoring of the start button
- 3 N/O-1 N/C contacts
- 24 V AC/DC and 230 V AC
- Pluggable spring clamp terminals



MIRO SAFE SWITCH BCS/BA

Emergency-stop and guard door applications

- TÜV and UL approved for reliability
- Applicable up to safety category 3/PLd
- Minimum space required (22.5 mm) and optimum ease of connection
- With and without monitoring of the start button
- 2 N/O contact
- 24 V AC/DC and 230 V AC
- Pluggable spring clamp terminal with quick connection technology



MIRO SAFE HAND

Two-hand control

- TÜV and UL approved for reliability
- Applicable up to safety category type IIIc
- Minimum space required (22.5 mm) and optimum ease of connection
- 2 N/O contacts / 1 N/C contact / 1 PLC output
- 24 V AC/DC and 230 V AC
- Pluggable spring clamp terminal with quick connection technology



MIRO SAFE STEP

For safety mat applications

- TÜV and UL approved for reliability
- Applicable up to safety category 3/PLd
- Minimum space required (22.5 mm) and optimum ease of connection
- With automatic start
- 3 N/O-1 N/C contacts
- 24 V AC/DC
- Pluggable spring clamp terminal with quick connection technology



MIRO SAFE T

Emergency-Stop and guard door applications with time delay

- TÜV- and UL approved for reliability
- Applicable up to safety category 4/PLe
- Minimum space required (35 mm) and ease of connection
- 2 N/O / 1 N/C and 2 N/Os delayed
- Time delay 0.05 – 600 s
- Automatic / manual and monitored start-up
- 24 V AC/DC
- Pluggable spring clamp terminal with quick connection technology



MIRO SAFE LIGHT

for light barrier / array applications

- TÜV- and UL approved for reliability
- Applicable up to safety category 4/PLe
- Minimum space required (22,5 mm) and ease of connection
- 3 N/O contacts
- 24 V DC
- Pluggable spring clamp terminal with quick connection technology

SAFETY RELAYS



MIRO SAFE SSO

Emergency-Stop and guard door applications (with solid state outputs)

- TÜV- and UL approved for reliability
- Applicable up to safety category 4/PLe
- Minimum space required (22,5 mm) and ease of connection
- 4 Safe solid state outputs „N/O“ (safety relay outputs)
- Total switching current for all 4 outputs 2.7A/24DC
- Outputs that never wear out, no bouncing, high resistance to shock and vibration
- Pluggable spring clamp terminal with quick connection technology



MIRO SAFE FLEX

Emergency-Stop/guard door, two-hand operation, light barriers and pulsing safety switches

- TÜV approved for reliability
- Applicable up to safety category 4/PLe
- Minimum space required (22,5 mm) and ease of connection
- For flexible use in many applications
- 2 N/O/1 N/C
- 24 V DC
- Pluggable spring clamp terminal with quick connection technology



MIRO SAFE E/EQ

Expansion module for contact multiplication

- TÜV- and UL approved for reliability
- Applicable up to safety category 4/PLe
- Minimum space required (22,5 mm) and ease of connection
- 4 N/O/1 N/C
- With or without cross circuit monitoring
- 24 V AC/DC
- Pluggable spring clamp terminal with quick connection technology



The MIRO modules are equipped with spring clamp terminals that allow quick cable connections. The ferrule ends of the rigid or flexible connectors are directly plugged into the contact without requiring the use of an opening lever. This creates an automatic connection – in line with our plug-and-play concept.

MIRO SAFE – A SAFE PRODUCT!

MIRO SAFE – Proven relay technology for maximum safety

MIRO SAFE relays are an important component of a consistent safety chain. MIRO SAFE safety relays can be used for emergency stop and guard-door monitoring, two-hand controls, and for safety mat and light barrier applications.

With the safety-related application of MIRO SAFE, designed for the protection of workers and machines, you reduce downtime and outages

MIRO SAFE – Maximum safety

MIRO SAFE safety relays are applicable up to the maximum safety category 4 (EN 954-1). All MIRO SAFE safety relays are TÜV and UL approved.

MIRO SAFE – Proven relay technology

MIRO SAFE safety relays are based on proven relay technology. Thus no conversion to new, complex technologies is required and existing knowledge can be used during start-up, operation and in case of maintenance.

MIRO SAFE – Safe and installation friendly

Pluggable spring clamp terminals or double spring clamp terminals allow simple and quick installation and start-up. Application friendly circuit diagrams attached to the MIRO SAFE relays help reduce the risk of mis-wiring. MIRO SAFE stands for easy connectivity with maximum functionality and a slim design of 22.5 mm.

MIRO SAFE – Safe and cost-efficient

From an economic point of view, the application of proven relay technology on a high level shows positive results. Thanks to the preventive functioning of MIRO SAFE, fatal danger for workers and machines are detected immediately and can be avoided. MIRO SAFE eliminates negative effects. Using MIRO SAFE shortens downtime and production outages, thus reducing your costs and increasing efficiency.

RELAY MODULES

Output relays

MIRO 6.2

1 C/O contact



MIRO 6.2

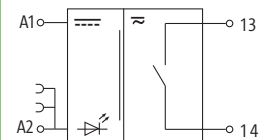
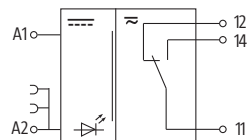
1 N/O contact



Circuit diagram

Common connection up to max. 50 V AC/DC

At connection voltages of 110 and 230 V A2 does not feature potential sockets



Ordering data

Connection voltage	spring clamp/screw terminals	Art.-No.	spring clamp/screw terminals	Art.-No.
12 V DC	cUL	6652050		
24 V DC	UL + CSA	6652000	UL + CSA	6652002
24 V AC/DC	UL + CSA	6652001	cUL	6652015
48 V DC	UL + CSA	6652020		
110 V AC/DC	UL + CSA	6652030		
230 V AC/DC	UL + CSA	6652040		

Technical data

Switching voltage	12...250 V AC/DC
Switching current	10 mA...6 A (switching capabilities to EN 60947-5-1)

Input relays

MIRO 6.2

1 C/O contact



MIRO 6.2

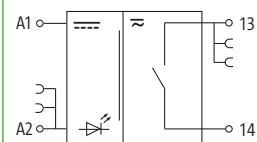
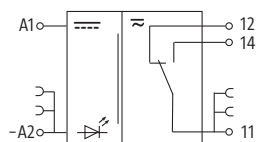
1 N/O contact



Circuit diagram

Common connection up to max. 50 V AC/DC

At connection voltages of 110 and 230 V A2 does not feature potential sockets



Ordering data

Connection voltage	spring clamp/screw terminals	Art.-No.	spring clamp/screw terminals	Art.-No.
24 V DC	UL + CSA	6652005	UL + CSA	6652004
24 V AC/DC	UL + CSA	6652003		
48 V DC	UL + CSA	6652021		
110 V AC/DC	UL + CSA	6652031		
230 V AC/DC	UL + CSA	6652041		

Technical data

Switching voltage	12...250 V AC/DC
Switching current	1 mA...50 mA (switch. capabilities to EN 60947-5-1) (when the listed values are exceeded the gold plating is destroyed, then will take on the properties of an output type)

RELAY MODULES

Output relays

MIRO 6.2

1 N/O contact
with protected H-O-A switch



MIRO 6.2

1 C/O contact
with isolation function

MIRO 6.2

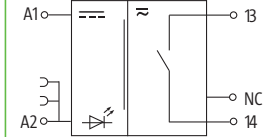
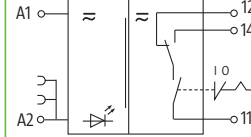
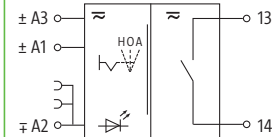
1 N/O contact
with soldering terminal

common return for NC

Circuit diagram

Common connection up to max. 50 V AC/DC

At connection voltages of 110 and 230 V A2 does not feature potential sockets



Ordering data	Art.-No.	Art.-No.	Art.-No.
Connection voltage	spring clamp/screw terminals	spring clamp/screw terminals	spring clamp/screw terminals
24 V DC			UL + CSA
24 V AC/DC	UL + CSA	6652007	6652010
Technical data			
Switching voltage	12...250 V AC/DC		
Switching current	10 mA...6 A (switching capabilities to EN 60947-5-1)		

Pluggable relays

MIRO 6.2 pluggable

Output relay, 1 C/O contact



MIRO 6.2 Plug module

Output relay, 1 C/O contact



MIRO 6.2 pluggable

Output relay, 1 C/O contact

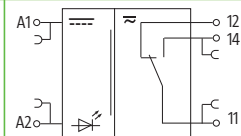


MIRO 6.2 Plug module

Input relay, 1 C/O contact



Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.
Connection voltage	spring clamp terminals			
6 V AC/DC	CSA	3000-16023-3100022	3000-16023-2100000	
12 V AC/DC	CSA	3000-16023-3100005	3000-16023-2100005	
24 V DC	CSA	3000-16013-2100010	3000-16023-2100010	
24 V AC/DC	CSA	3000-16013-3100020	3000-16023-2100010	CSA
48 V AC/DC	CSA	3000-16523-3100000	3000-16523-2100000	
60 V AC/DC	CSA	3000-16513-3100022	3000-16023-2100020	
115 V AC/DC	CSA	3000-16013-3100025	3000-16023-2100020	
230 V AC/DC	CSA	3000-16013-3100030	3000-16023-2100020	
Technical data				
Switching voltage	12...250 V AC/DC			
Switching current	10 mA...6 A (switching capabilities to EN 60947-5-1)		1 mA...50 mA (when the listed values are exceeded the gold plating is destroyed, then will take on the properties of an output type)	
Accessories				
Bridging link, blue	for connecting terminals, up to max. 20 modules			3000-90000-0300010
Bridging link, black	for connecting terminals, up to max. 20 modules			3000-90000-0300020

RELAY MODULES

Output relays

MIRO 12.4

2 C/O contacts
with enhanced features



MIRO 12.4

2 N/O contacts



MIRO 12.4

2 N/O contacts



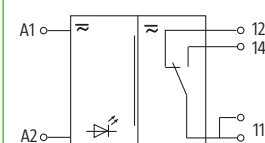
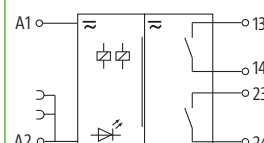
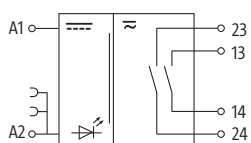
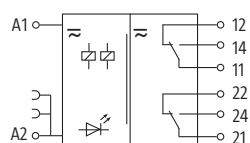
MIRO 12.4

1 C/O contact
multi-voltage input



Circuit diagram

At connection voltages of 110 and 230 V A2 does not feature potential sockets



Ordering data

Connection voltage	spring clamp/screw terminals	Art.-No.	Art.-No.	Art.-No.	Art.-No.
24 V DC	cUL	6652102	6652106	6652104	52160
24 V AC/DC	cUL	6652103			52160
48 V DC	cUL	6652120			52160
110 V AC/DC	cUL	6652130			52160
230 V AC/DC	cUL	6652140			52160

Technical data

Switching voltage	12...250 V AC/DC
Switching current	10 mA...6 A (switching capabilities to EN 60947-5-1)
Max. power rating (voltage dependent)	1500 VA/120 W

Input relays

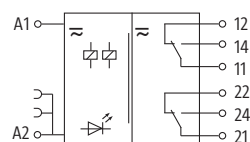
MIRO 12,4

2 C/O contacts with enhanced features



Circuit diagram

At connection voltages of 110 and 230 V A2 does not feature potential sockets



Ordering data

Connection voltage	spring clamp/screw terminals	Art.-No.
24 V DC	cUL	6652110
24 V AC/DC	cUL	6652111
48 V DC	cUL	6652126
110 V AC/DC	cUL	6652136
230 V AC/DC	cUL	6652146

Technical data

Switching voltage	12...250 V AC/DC
Switching current	1 mA...50 mA (switch. capabilities to EN 60947-5-1) (when the listed values are exceeded the gold plating is destroyed, then will take on the properties of an output type)
Max. power rating (voltage dependent)	1500 VA/120 W

OPTO-COUPLER MODULES

Terminal opto-coupler

– with enhanced features

MIRO 6,2

Transistor 1 A



MIRO 6,2

Transistor 2 A

MIRO 6,2

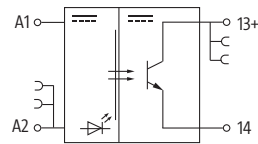
Transistor 6 A

MIRO 6,2

Transistor 10 A

Circuit diagram

Common connection up to
max. 50 V AC/DC



Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.
Connection voltage	spring clamp/screw terminals	spring clamp/screw terminals	spring clamp/screw terminals	spring clamp/screw terminals
5 V DC		UL + CSA 6652502		
24 V DC	6652515	UL + CSA 6652501	UL 6652519	UL 6652520
48 V AC/DC		UL + CSA 6652505		UL 6652521
Technical data				
Switching voltage	5...48 V DC			
Switching current	0,5 mA...1 A	1 mA...2 A	1 mA...6 A	1 mA...10 A

Fast transistor output

MIRO 6,2

Transistor 0,5 A
Control current 0,1 mA
max. switching frequency 20 kHz



MIRO 6,2

Transistor 2 A
short-circuit protected
max. switching frequency 1 kHz

MIRO 6,2

Transistor 2 A
max. switching frequency 30 kHz

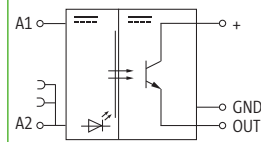
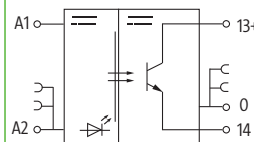
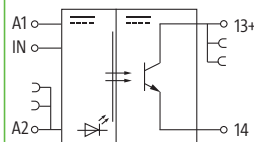


MIRO 6,2

Transistor 0,1 A
max. switching frequency 500 kHz

Circuit diagram

Common connection up to max. 50 V DC



Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.
Input voltage	spring clamp/screw terminals	spring clamp/screw terminals	spring clamp	spring clamp
24 V DC	UL + CSA 6652511	6652503	UL 526071	UL 526100
Technical data				
Switching voltage	5...48 V DC			
Switching current	0,1 mA...0,5 A	1 mA...2 A short-circuit protected	1 mA...2 A	0...0,1 A

OPTO-COUPLER MODULES

Transistor output

MIRO 6.2 pluggable

Transistor 2 A
Complete module



MIRO 6.2 plug module

Transistor 2 A
Replacement module



MIRO 6.2 pluggable

Transistor 4 A
Complete module

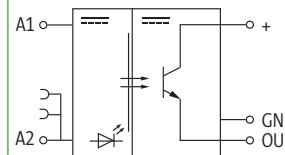
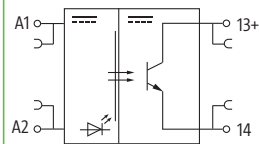


MIRO 6.2 plug module

Transistor 4 A
Replacement module



Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.
Control voltage input	spring clamp terminals		spring clamp terminals	
24 V DC	cUL 3000-32512-2100010	¹⁾ 3000-32522-2100010	3000-32512-2100020	²⁾ 3000-69012-2100050
Technical data				
Switching voltage	5...48 V DC		5...30 V DC	
Switching current	1 mA...2 A		1 mA...4 A short-circuit protected	

SOLID STATE RELAYS

Triac output

Zero voltage switch

MIRO 6,2 pluggable

Triac 0,5 A
Complete module



MIRO 6,2 plug module

Triac 0,5 A
Replacement module



MIRO 6,2

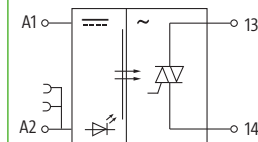
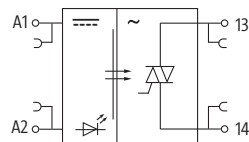
Triac 0,5 A



MIRO 6,2

Triac 1 A

Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.
Connection voltage	spring clamp terminals		spring clamp/screw terminals	spring clamp/screw terminals
5 V DC			UL 6652551	
24 V DC	3000-34013-2100010	¹⁾ 3000-69011-2100060	UL 6652550	6652571
115 V AC			UL 6652556	
230 V AC			UL 6652557	
Technical data				
Switching voltage	12...250 V AC		24...250 V AC	12...280 V AC
Switching current	0.01 mA...0.5 A		0.1 mA...0.5 A	10 mA...1.0 A

SOLID STATE RELAYS

Triac output

Zero voltage switch

AMMDS triac

Triac 2 A



MIRO triac

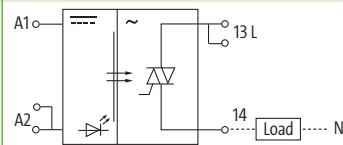
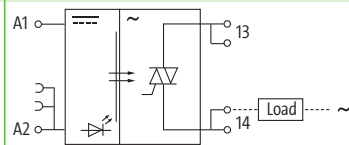
Triac 5 A



MIRO triac

Triac 10 A

Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.
Control voltage input	screw terminals	screw-plug terminals	screw-plug terminals
24 V DC	UL 50092	3000-36001-2000020	3000-36001-2000025
115 V AC		3000-36001-2000022	3000-36001-2000027
230 V AC		3000-36001-3000023	3000-36001-3000028
Technical data			
Switching voltage	24...280 V AC	12...400 V AC	
Switching current	1 mA...2 A	10 mA...5 A	100 mA...10 A
Surge current	70 A		

Triac output

Zero voltage switch

MIRO triac

Triac 30 A

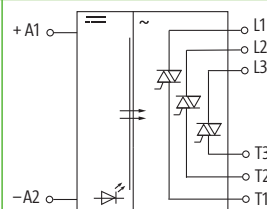
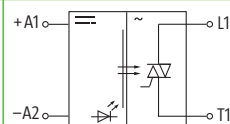


MIRO triac

Triac 3 x 20 A



Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.
Control voltage input	screw terminals	screw terminals	screw terminals
24 V DC	UL/cUL 3000-36001-2000040	UL/cUL 3000-36001-2000050	UL/cUL 3000-36001-2000060
Technical data			
Switching voltage	42 V...660 V AC		
Switching current	30 A	2 x 25 A	3 x 20 A
Surge current	400 A	600 A	

ACTIVE INTERFACE TECHNOLOGY

Analog converters

MU..W 6,2

INPUT 0...10 V DC

MI..W 6,2

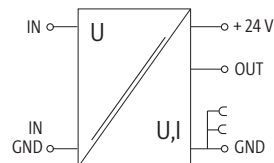
INPUT 0...20 mA

MI..W 6,2

INPUT 4...20 mA



Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.
OUTPUT	spring clamp/screw terminals	spring clamp/screw terminals	spring clamp/screw terminals
0...10 V DC/20 mA	6644205	6644212	6644213
0...20 mA	6644232	6644226	
4...20 mA	6644233	6644228	
Technical data			
Supply voltage	24 V DC		
Input resistance; input voltage/current	approx. 200 kOhm; approx. 250 Ohm		
Output load	$R_L \geq 500 \text{ Ohm}$ at output voltage; $R_L \leq 500 \text{ Ohm}$ at output current		

Comparator modules

Potentiometer converter

MAK

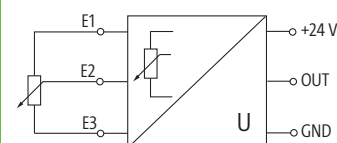
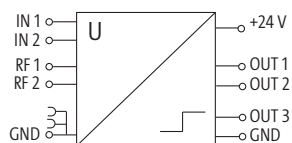
Input signal, voltage DC

MIRO 12,4

Potentiometer



Circuit diagram



Ordering data	Art.-No.	Art.-No.
Input signal, voltage DC	spring clamp/screw terminals	screw terminals
Potentiometer	6644110	3000-62004-8200010
Technical data		
Supply voltage	24 V DC	24 V DC
Input resistance	100 kOhm	> 2.5 MOhm
Input range	–	470 Ohm ...10 kOhm
Output	3 transistor outputs	0...10 V
Description		
	The DC- or AC-voltage comparator for analog voltage, which, i. e. will generate from pressure, temperature, or other sensors. The analog input values are compared to internal or external reference voltages to over or underflow.	The potentiometer converter is be used to convert resistive load into a voltage signal. A higher linearity will be achieved due a lower loop stream. The sensor cables are monitored for line breaks and short-circuits.

ACTIVE INTERFACE TECHNOLOGY

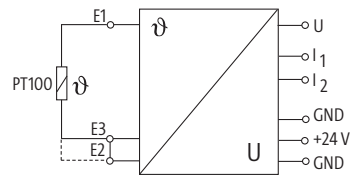
Temperature converters for PT100 sensors

MTW 12,4

2-/3-wire



Circuit diagram



Ordering data

		Art.-No.
INPUT	spring clamp/screw terminals	
- 50 ...+50 °C		6644330
- 50 ...+150 °C		6644331
0 ...100 °C		6644332
0 ...200 °C		6644334
0 ...600 °C		6644336

Technical data

Supply voltage	24 V DC
Cable resistance (without PT100)	at 3-wire technology max. 100 Ohm
Output signals	at 0...10 V DC max. 25 mA, overload protected at 4...20 mA max. 500 Ohm R _i
Tolerance	± 1 % from end value

Motor protection relays

MIRO 12,4

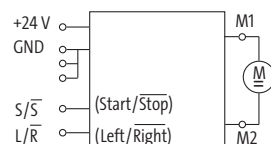
Pole-changing switches for DC motors



Circuit diagram

Exchange timer for:

¹⁾ Art.-No. 3000-18522-8100000



Ordering data

	Art.-No.	Art.-No.	Art.-No.
Input voltage	spring clamp/screw terminal	spring clamp terminal	
24 V DC	6650140	3000-18522-8100000	¹⁾ 3000-69012-6100061

Technical data

Switched voltage	24 V DC	24 V DC
Switched current	3 A	max. 20 mA
Release temperature		PTC dependend

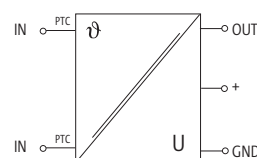
MIRO 6,2 pluggable

Motor Guard
Complete module



MIRO 6,2 Plug module

Motor Guard
Replacement module



ACTIVE INTERFACE TECHNOLOGY

Timer

Relay output

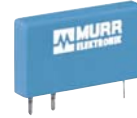
MIRO 6,2 pluggable

Impulse expansion
Complete module

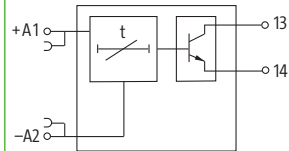


MIRO 6,2 plug module

Impulse expansion
Replacement module



Circuit diagram



Ordering data

Input voltage	Art.-No.	Art.-No.
24 V DC	3000-18512-0100010	3000-69012-2100020

Technical data

Switching voltage	24 V DC
Switching current	0,1 mA...100 mA
Time range	Set on 40ms

Timer

MIB 6,2 mm

Transistor output
One shot



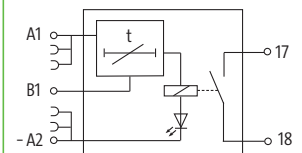
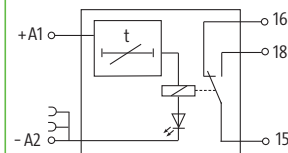
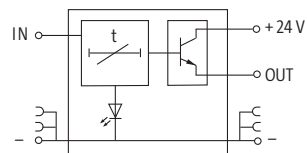
MIRO 6,2 Timer

Relay output
Switch on delay

MIRO 6,2 Timer

Relay output
Switch off delay

Circuit diagram



Ordering data

Input voltage	Art.-No.	Art.-No.	Art.-No.
24 V DC	6652320	6652300	6652310

Technische Daten

Switching voltage	12...250 V AC/DC		
Switching current	1 mA...100 mA		10 mA...6 A
Time range	100 ms...10 sek	10 ms...10 sek	100 ms...100 sek

ACTIVE INTERFACE TECHNOLOGY

Timer

- One shot
- Switch on delay
- Switch off delay
- Modulation

MIRO 6,2 Timer

Transistor output



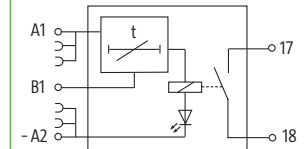
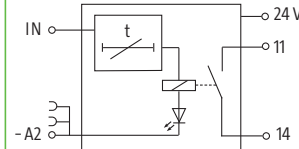
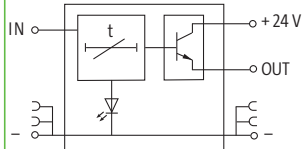
MIRO 6,2 Timer

Relay output

MIRO 6,2 Timer

Relay output
with modulation

Circuit diagram



Ordering data	Art.-No.	Art.-No.	Art.-No.
Supply voltage	spring clamp /screw terminals	spring clamp/screw terminals	spring clamp/screw terminals
24 V DC	3000-18512-0200010	3000-18513-0200013	UL + CSA 6652350
24 V DC	3000-18502-0200010	3000-18503-0200012	
Technical data			
Switching voltage	24 V DC	12...250 V AC/DC	
Switching current	1 mA...100 mA	10 mA...6 A	
Time range	10 ms...10 sek	100 ms...100 sek	100 ms...300 sek

Switches

Unmanaged

TREE 4TX

4 Ports

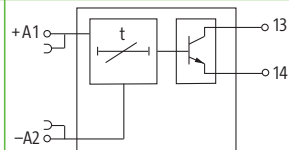


TREE 8TX

8 Ports



Circuit diagram



Ordering data	Art.-No.	Art.-No.
spring clamp plug-in terminals		
	58154	58158
Connections		
Fieldbus	4 x RJ45	
Supply voltage	Spring clamp terminal 0,2...2,5 mm ²	
Technical data		
Supply voltage	2 x 12...32 V DC, Redundanz	
Transfer rate	10/100 MBit/s Full Duplex	
Modes	Autocrossing, Autonegotiation	

SAFETY RELAYS

Emergency-stop and guard-door applications

– Relays positively driven

Approvals:  

MIRO SAFE Switch HCS

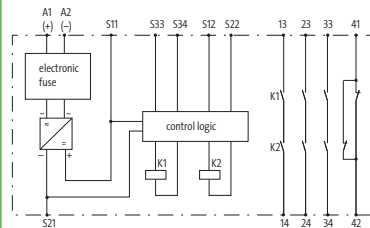
With start button monitoring
3 N/O / 1 N/C



MIRO SAFE Switch HA

Without start button monitoring
3 N/O / 1 N/C

Circuit diagram



Ordering data	Art.-No.	Art.-No.
Input voltage	spring clamp plug-in terminals	spring clamp plug-in terminals
24 V AC/DC	3000-33013-3020010	3000-33013-3020015
230 V AC	3000-33013-1020010	3000-33013-1020015
Technical data		
Input voltage/-current	24 V AC/DC $\pm 10\%$ / approx. 200 mA	
	230 V AC $\pm 10\%$ / approx. 16 mA	
Max. switching voltage	250 V AC	
Max. current	5 A	
Achievable safety class	up to 4 (EN 954-1)	

Emergency-stop and guard-door applications

– Relays positively driven

Approvals:  

MIRO SAFE Switch BCS

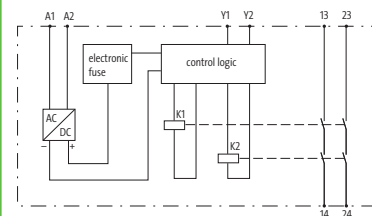
With start button monitoring
2 N/O



MIRO Switch BA

Without start button monitoring
2 N/O

Circuit diagram



Ordering data	Art.-No.	Art.-No.
Input voltage	spring clamp plug-in terminals	spring clamp plug-in terminals
24 V AC/DC	3000-33013-3020020	3000-33013-3020025
Technical data		
Input voltage/-current	24 V AC/DC $\pm 10\%$ / approx. 70 mA	
Max. switching voltage	250 V AC	
Max. current	6 A	
Achievable safety class	up to 3 (EN 954-1)	

SAFETY RELAYS

Two-hand switching operations

– Relays positively driven

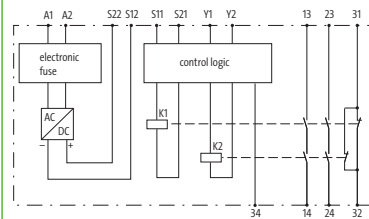
Approvals:  

MIRO SAFE Hand

2 N/O/1 N/C



Circuit diagram



Ordering data

Input voltage	spring clamp plug-in terminals	Art.-No.
24 V AC/DC		3000-33013-3020030
230 V AC		3000-33013-1020030

Technical data

Input voltage/-current	24 V AC/DC ± 10 %/approx. 85 mA 230 V AC ± 10 %/approx. 10 mA
Max. switching voltage	250 V AC
Max. current	6 A
Achievable safety class	up to type IIIc (EN 574-1), up to 4 (EN 954-1)

Safety mats or light barrier monitoring

– Relays positively driven

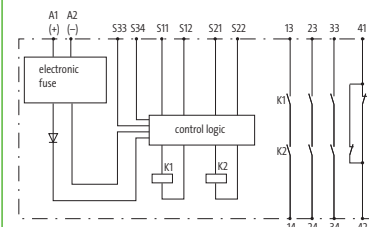
Approvals:  

MIRO SAFE Step

for safety mats
3 N/O / 1 N/C



Circuit diagram



Ordering data

Input voltage	spring clamp plug-in terminals	Art.-No.
24 V AC/DC		3000-33013-3020050

Technical data

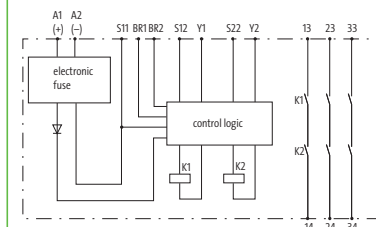
Input voltage/-current	24 V AC/DC ± 10 %/approx. 200 mA
Max. switching voltage	250 V AC
Max. current	5 A
Achievable safety class	up to 3 (EN 954-1)

Accessories

	Art.-No.
Double spring clamp terminals	3000-33010-0000000
Label plate	3000-33030-0000000

MIRO SAFE Light

Light barrier monitoring
3 N/O



Art.-No.

Input voltage	spring clamp plug-in terminals	Art.-No.
24 V AC/DC		3000-33013-3020040

24 V AC/DC ± 10 %/approx. 100 mA

250 V AC

6 A

up to 4 (EN 954-1)

Art.-No.

SAFETY RELAYS

Emergency-stop/guard-door applications

– with delay time
0,05...600 s

– Relays positively driven

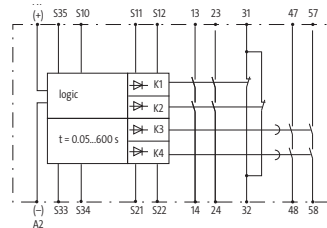
Approvals:  

MIRO SAFE T

2 N/O contacts (with switch-off delay) 1N/C contact



Circuit diagram



Ordering data

Input voltage	Spring clamp plug-in terminals	Art.-No.
24 V AC/DC		3000-33013-3020060

Technical data

Input voltage/-current	24 V AC/DC -20/+25 %/ca. 200 mA
Max. switching voltage	250 V AC
Max. power rating	6 A
Achievable safety class	up to 4/PLe (EN ISO 13849-1)/ SIL3 (EN 61508)

Emergency-stop/guard-door applications

– 4 safe solid state output

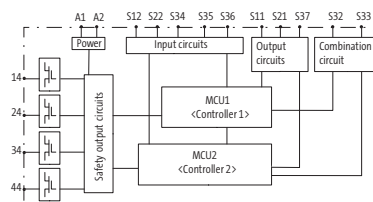
Approvals: 

MIRO SAFE SSO

Emergency-stop/guard-door applications
with 4 safe solid state outputs



Circuit diagram



Ordering data

Input voltage	Spring clamp plug-in terminals	Art.-No.
24 V DC		3000-33013-3020080

Technical data

Input voltage/-current	24 V DC -20/+25 %/ca. 10 mA
Max. switching voltage	24 V AC
Max. current	–
Total current	max 2,7 A
Achievable safety class	up to 4/PLe (EN ISO 13849-1)/ SIL3 (EN 61508)

SAFETY RELAYS

Emergency-stop/guard-door applications/two-hand control light barriers/light curtains

– Relay positively driven

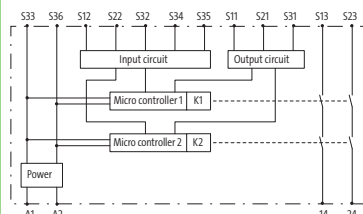
Approvals: 

MIRO SAFE Flex

Emergency-stop/guard-door applications/two-hand control
Light barriers/light curtains; 2 N/O contacts, 1 auxiliary output



Circuit diagram



Ordering data

Input voltage	Spring clamp plug-in terminals	Art.-No.
24 V DC		3000-33013-3020090

Technical data

Input voltage/-current	24 V DC -20/+25 %/ca. 8 mA
Max. switching voltage	24 V AC
Max. power rating	6 A
Achievable safety class	up to 4/PLe (EN ISO 13849-1)/ SIL3 (EN 62061)/(EN 574-1)

Expansion modules

MIRO SAFE EQ

4 N/O contacts 1 feedback loop
Cross-link safe

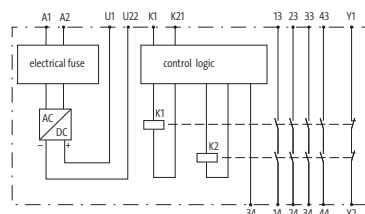


MIRO SAFE E

4 N/O contacts 1 feedback loop

Approvals:  

Circuit diagram



Ordering data

Connection voltage	Spring clamp plug-in terminals	Art.-No.	Art.-No.
24 V AC/DC		3000-33013-3020070	3000-33013-3020075

Technical data

Input voltage/-current	24 V AC/DC -15/+10 %/ca. 200 mA
Max. switching voltage	250 V AC
Max. current	6 A
Achievable safety class	up to 4/PLe (EN ISO 13849-1)



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