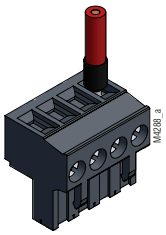
SAFEMASTER PRO Configurable Safety System
Output Modules Relay
UG 6912.14, UG 6912.28

0266151

UG 6912.14

UG 6912.28

Pluggable Terminal Block



Terminal block
with screw terminals
(PS / plug in screw)

Advantages of SAFEMASTER PRO

- For safety applications up to PLe, Cat. 4 and SIL 3
- Less wiring because of configuration software SAFEMASTER PRO Designer
- Easy planning because of Drag & Drop via graphic configuration software
- Time and cost saving installation
- Reduced wiring and space saving in cabinets
- Flexible extension with safety input and output modules
- Easy extendable via BUS-Rail
- Comprehensive fault localisation and diagnostic
- Memory card as option for simple maintenance
- Compact design: Base- and extension modules with only 22.5 mm width

Features

- Relay contact extension of the OSSDs of SAFEMASTER PRO
- UG 6912.14: 1 relay output with 2 NO safety contacts and 1 NC monitoring contact
  UG 6912.28: 2 relay output with 2 NO safety contacts each and 1 NC monitoring contact
- Status LEDs for power and output
- With pluggable terminal block for easy exchange of devices

More system components for SAFEMASTER PRO

- Control unit UG 6911
- Input / Output module UG 6916.10
- Input module UG 6913.08, UG 6913.12 and UG 6913.16
- Output module OSSD UG 6912.02 and UG 6912.04
- Bus Extender UG 6918
- Field bus modules for diagnostic-connetcion on field bus systems UG 6952 (PROFIBUS DP), UG 6951 (CANopen), UG 6954 (PROFINET)

Approvals and Marking

CE TÜV SÜD c UL us LISTED Canada / USA

Additional Information about this topic

- A short description of SAFEMASTER PRO can be found in system overview SAFEMASTER PRO.
- Information about the single modules of SAFEMASTER PRO can be found in the separate data sheets.

Applications

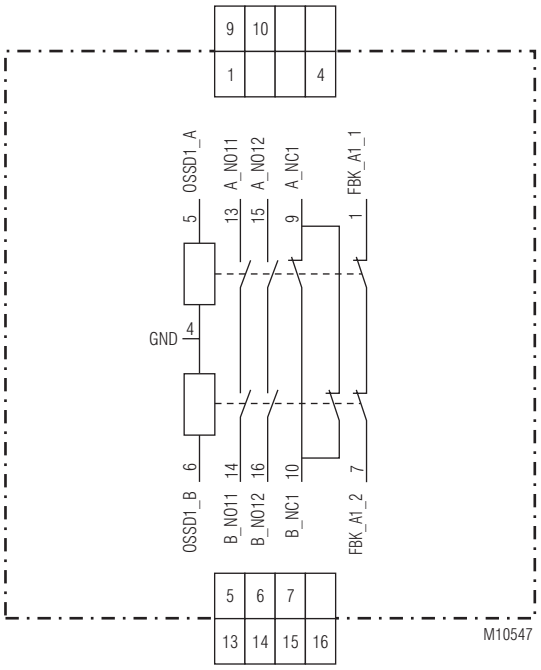
The output modules relay UG 6912.14 and UG 6910.28 are used to extend the OSSDs of SAFEMASTER PRO with relay contacts.

Function

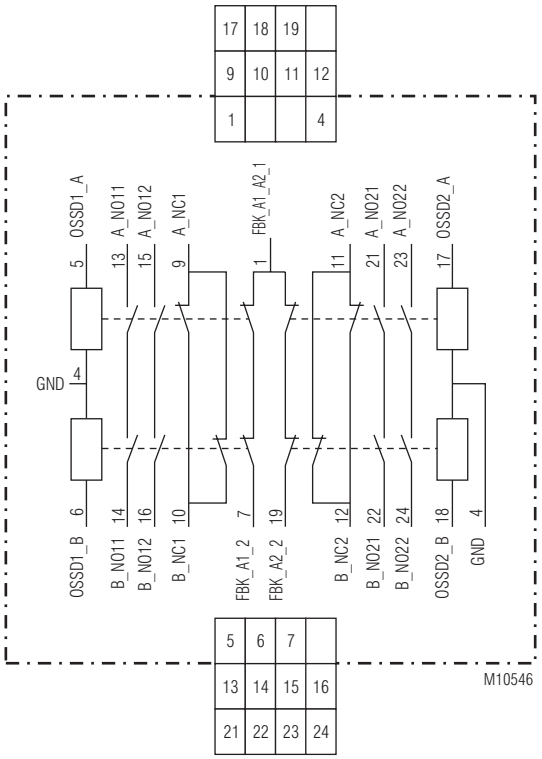
The output modules relay UG 6912.14 has a safety relay output with 2 forcibly guided NO contacts and a NC monitoring contact. An additional NC contact provides the feedback circuit to SAFEMASTER PRO.

The output modules relay UG 6912.28 includes 2 UG 6914 but with common power supply, so it provides the double number of safety and monitoring contacts.

To implement the contact extension output modules relay into the SAFEMASTER PRO system the inputs are connected directly to the semiconductor outputs of the OSSD output modules. In addition the designated NC contact has to be connected to the feedback circuit



UG 6912.14



UG 6912.28

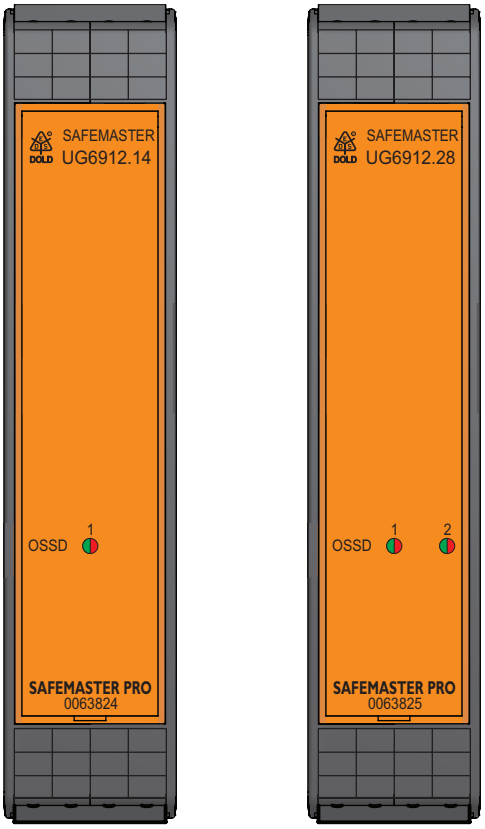
Connection Terminals Output Module Relay UG 6912.14

Terminal	SIGNAL	TYPE	DESCRIPTION	OPERATION
1	FBK_A1_1	Input	Feedback ZONE 1	N.C
4	GND	-	0V DC power supply	-
5	OSSD1_A	Input	Control ZONE 1	PNP active high
6	OSSD1_B	Input		PNP active high
7	FBK_A1_2	Output	Feedback ZONE 1	N.C
9	A_NC1	Output	NC contact ZONE 1	
10	B_NC1	Output		
13	A_NO11	Output	NO1 contact ZONE 1	
14	B_NO11	Output		
15	A_NO12	Output	NO2 contact ZONE 1	
16	B_NO12	Output		

Connection Terminals Output Module Relay UG 6912.28

Terminal	SIGNAL	TYPE	DESCRIPTION	OPERATION
1	FBK_A1_A2_1	Input	Feedback common for ZONE 1 and ZONE 2	N.C
4	GND	-	0V DC power supply	-
5	OSSD1_A	Input	Control ZONE 1	PNP active high
6	OSSD1_B	Input		PNP active high
7	FBK_A1_2	Output	Feedback ZONE 1	N.C
9	A_NC1	Output	NC contact ZONE 1	
10	B_NC1	Output		
13	A_NO11	Output	NO1 contact ZONE 1	
14	B_NO11	Output		
15	A_NO12	Output	NO2 contact ZONE 1	
16	B_NO12	Output		
11	A_NC2	Output	NC contact ZONE 2	
12	B_NC2	Output		
17	OSSD2_A	Input	Control ZONE 2	PNP active high
18	OSSD2_B	Input		PNP active high
19	FBK_A2_2	Output	Feedback ZONE 2	N.C
21	A_NO21	Output	NO1 contact ZONE 2	
22	B_NO21	Output		
23	A_NO22	Output	NO2 contact ZONE 2	
24	B_NO22	Output		

Indication



DESCRIPTION	LED OSSD1/2 RED/GREEN
Power ON - initial TEST	Red

Indication at start-up and test mode

DESCRIPTION	LED OSSD1/2 RED/GREEN
Normal operation	**RED** with output OFF **GREEN** with output ON

Indication during normal operation

Technical Data

Nominal voltage:	DC 24V ± 20%
Nominal consumption:	max. 3 W
Inputs	
OSSD1_A, OSSD1_B,	
OSSD2_A, OSSD2_B:	I_N: max. 30 mA at DC 24 V
Switching voltage:	AC 240 V
Min. switching voltage:	DC 10 V
Switching current:	max. 6 A
Min. switching current:	20 mA

General Data

Contacts:		
UG 6912.14:	2 NO contacts + 1 NC contact	
UG 6912.28:	2 x 2 NO contacts + 2 x 1 NC contacts	
Feedback contacts:		
UG 6912.14:	1	
UG 6912.28:	2	
Reaction time:	12 ms	
Mechanical life:	> 20 x 10^6 switching cycles	
Connection to output module via terminals:	no connection via DOLD IN-RAIL-BUS	
Nominal operating mode:	continuous operation	
Temperature range		
Operation temperature:	-10 ... + 55 °C	
Storange temperature:	-20 ... + 85 °C	
Relative humidit:	10 % ... 95 %	
Degree of protection:		
Housing:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529
Plug in with screw terminals		
max. cross section for connection:	1 x 0,25 ... 2,5 mm^2 solid or stranded ferruled (isolated) or 2 x 0,25 ... 1,0 mm^2 solid or stranded ferruled (isolated)	
Insulation of wires or sleeve length:	7 mm	
Wire fixing:	captive slotted screw M3	
Tightening torque:	0.5 ... 0.6 Nm	
Max. cable lengh:	100 m	
Mounting:	DIN-Rail	IEC/EN 60 715
Weight:		
UG 6912.14:	approx. 190 g	
Ug 6912.28	approx. 190 g	

Dimensions

Width x height x depth:	22.5 x 109 x 120.3 mm

Technical Data

Safety Related Data
(only in comination with SAFEMASTER PRO)

Values according to EN ISO 13849-1:

Category:	4	
PL:	e	
$MTTF_d$:	30 ... 100	a
DC_{avg}:	high	

Values according to IEC EN 62061 / IEC EN 61508:

SIL CL:	3	IEC EN 62061
SIL	3	IEC EN 61508
DC_{avg}:	high	
PFH_D:	*)	

Info The evalutation of the max. possible values is made according to the system configuration by the SAFEMASTER PRO DESIGNER software.

The safety relevant data of the complete system has to be determined by the manufacturer of the system.

*)
PFH_d computation has been done under the following assumptions:

h_{op} in hours per day:	16
d_{op} in days per year:	220
t_{cycle1}:	300 s (one commutation every 5 minutes)
t_{cycle2}:	3600 s (one commutation every hour)
t_{cycle3}:	24 Std. (one commutation every day)

Taking in account that the Relay feedback contact connection has been done as described in the User Manual section EXAMPLE OF CONNECTION TO THE MACHINE CONTROL SYSTEM, every double channel connected to SAFEMASTER PRO module has the following safety values (PFH_d, SFF according to IEC 61508, $MTTF_d$ and DC_{avg} according to ISO13849-1):

PFH_d	SFF	$MTTF_d$	DC_{avg}		
3,09 e^{-10}	99,6%	2335,94	98,9%	t_{cycle1}	DC13 (1A)
8,53 e^{-11}	99,7%	24453,47	97,7%	t_{cycle2}	
6,63 e^{-11}	99,8%	126678,49	92,5%	t_{cycle3}	
8,23 e^{-09}	99,5%	70,99	99,0%	t_{cycle1}	AC15 (2A)
7,42 e^{-10}	99,5%	848,16	99,0%	t_{cycle2}	
1,07 e^{-10}	99,7%	12653,85	98,4%	t_{cycle3}	
3,32 e-09	99,5%	177,38	99,0%	t_{cycle1}	AC15 (3A)
3,36 e-10	99,6%	2105,14	98,9%	t_{cycle2}	
8,19 e-11	99,7%	28549,13	97,5%	t_{cycle3}	

UL-Data

The safety functions were not evaluated by UL. Listing is accomplished according to requirements of Standard UL 508, "general use applications"

Nominal voltage U_N: DC 24 V
± 20 % / current supply class II or voltage and current limits.

Nominal consumption: max. 3 W

Switching capacity:
OSSD relay output: 6A 250Vac, resistive

Wire connection: 60°C / 75°C copper conductors only
AWG 30 - 12 Sol/Str Torque 5-7 lb-in

Note: For use in pollution degree 2
overvoltage category II environment only

Info **Technical data that is not stated in the UL-Data, can be found in the technical data section.**

Standard Types

UG 6912.14 DC 24 V
Article number: 0063824
- 1 safety relay output
- Nominal voltage: DC 24 V
- Width: 22.5 mm

UG 6912.28 DC 24 V
Article number: 0063825
- 2 safety relay outputs
- Nominal voltage: DC 24 V
- Width: 22.5 mm

System Components for SAFEMASTER PRO and Accessories

TYPE	DESCRIPTION	Article number
UG 6911.10	Control unit (8 inputs / 2 dual-channel OSSDs with SAFEMASTER PRO DESIGNER Software	0063818
UG 6916.10	Input / Output module (8 inputs / 2 dual-channel OSSDs)	0063819
UG 6913.08	Input module (8 inputs)	0063820
UG 6913.12	Input module (12 inputs)	0064865
UG 6913.16	Input module (16 inputs)	0063821
UG 6912.02	Output module OSSD (2 dual-channel OSSD)	0063822
UG 6912.04	Output module OSSD (4 dual-channel OSSD)	0063823
UG 6912.14	Output module Relay (1 safety relay output)	0063824
UG 6912.28	Output module Relay (2 safety relay outputs)	0063825
UG 6918	Bus Extender	0064866
UG 6951	Fieldbus module (CANopen)	0063828
UG 6952	Fieldbus module (Profibus DP)	0063826
UG 6954	Fieldbus module (PROFINET)	0064861
OA 6911	Memory chip (external memory)	0063829
OA 6920	USB-cable for PC connection	0064160
BU 6921	Mounting kit IN-RAIL-Bus 250 mm for DIN-rail 7.5 mm	0064244
BU 6922	Mounting kit IN-RAIL-Bus 250 mm for DIN-rail 15 mm	0064245