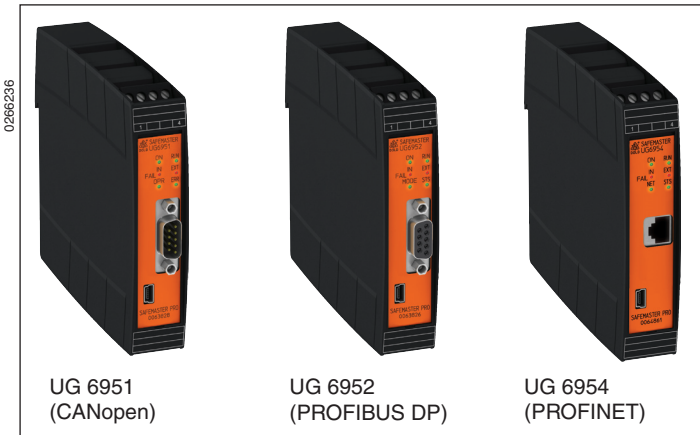


## SAFEMASTER PRO Configurable Safety System Fieldbus Modules UG 6951, UG 6952, UG 6954

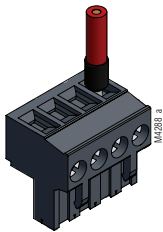


UG 6951  
(CANopen)

UG 6952  
(PROFIBUS DP)

UG 6954  
(PROFINET)

### 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

- Field bus modules for diagnostic-connection on field bus systems UG 6952 (PROFIBUS DP), UG 6951 (CANopen), UG 6954 (PROFINET)
- Easy connection on SAFEMASTER PRO system via rail (IN-Rail Bus)
- Status LEDs for comprehensive diagnostic
- No influence of the safety functions of SAFEMASTER PRO
- 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
- Output module Relay with 1 e.g. 2 safety relay outputs for volt free contact multiplication of the OSSDs UG 6912.14 and UG 6912.28
- Bus Extender UG 6918

### Approvals and Marking



\*) only for UG 6951 and UG 6952

### 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

Field bus modules for diagnostic-connection on field bus systems UG 6952 (PROFIBUS DP), UG 6951 (CANopen), UG 6954 (PROFINET)

### Function

The fieldbus module exports the system status and the status and diagnostics elements of all I/Os configured on the SAFEMASTER PRO system.

Each set of information:

- input status,
- input diagnostics,
- output OUT\_TEST diagnostics,
- safety output status,
- safety output diagnostics

### Connections

- Each module is provided with four connectors:
- proprietary 5-pole bus (IN-RAIL-BUS) connector to the system SAFEMASTER PRO
  - micro USB connector for connection on PC for SWprogramming
  - BUS connector to the fieldbus
  - Terminal block for power supply

## Connection Terminals

Terminal	SIGNAL	TYPE	DESCRIPTION	OPERATION
1	24VDC ± 20%	-	24V DC power supply	-
2				
3				
4	GND	-	0V DC power supply	-

## Diagnostic Codes

Each input and safety output is associated with a relative diagnostic code.

When the I/O is connected correctly the diagnostic code is OK and is not exported to the fieldbus;

if there is a problem on the I/O, the system exports 2 bytes to the fieldbus with:

- the index of the I/O in question
- the related diagnostic code

### 1. Byte: "I/O index"

This field indicates the number used to identify the I/O with a diagnostic code other than OK. Possible values for this field are shown in this table:

Signal	Number
Input	1 - 128
Output	192 - 255

### 2. Byte: "Diagnostic code"

The "Diagnostic code" field indicates the diagnostics for the I/O. Possible values for this field are shown in the following tables.

Input Diagnostic		
128 (0x80)	Input diagnostics OK	
1	Not in initial position	Both switches have to go to rest condition
2	Concurrent failed	Both switches have to change state simultaneously
3	Concurrent failed hand1	Wrong connection on one side of a two-hands switch
4	Concurrent failed hand2	Wrong connection on one side of a two-hands switch
7	Invalid switch position	The MOD-SEL selector can't have more than one input set
8	Switch not connected	The MOD-SEL selector can't have any input set
10 (0x0A)	OUT_TEST error	OUT_TEST failure on this input
11	Second input defective	Redundancy check failed on input
12	OUT_TEST diagnostics OK	
13	Output connected to other inputs	Test output not connected to the right input
14	Output OK but input connected to 24 VDC	Stucked input
15	Short circuit between photocell test and photocell input	Photocell response time too low
16	No response from photocell	The test signal on the photocell emitter is not seen on the receiver
17	Short circuit between photocells	The test signal is present on two different photocells
18	MAT disconnected	Wrong mat connection
19	Output inconsistent with feedback	The test signal on input is present on more than one OUT_TEST
20	Connection incorrect	The test signal is present on more than one input
21	Output stuck	The test signal on the input is not present on the OUT_TEST
22 (0x16)	Second OUT_TEST KO	Redundancy check failed on OUT_TEST
133 (0x85)*	TWO-HAND concurrent failed	Two-hands switch has to change state simultaneously
134 (0x86)*	Not started	Start test failed
137 (0x89)*	Waiting for restart	The input has manual reset and has not been restarted

\* The diagnostic 133, 134 and 137 do not provide visual error message on the LED from SAFEMASTER PRO.

## OSSD Diagnose

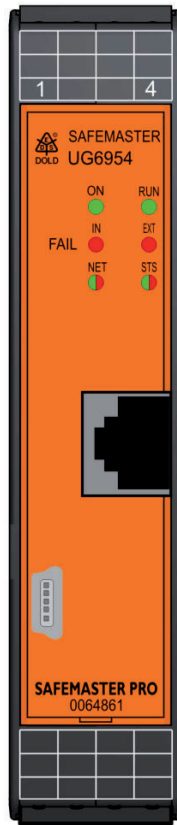
0	OSSD diagnostic OK	
1	Enable missing	
2	Waiting for RESTART OSSD	
3	FEEDBACK K1/K2 missing	
4	Waiting for ohter Micro	Redundancy check failed on OSSD



CANopen



PROFIBUS DP



PROFINET

Normal operation						
DESCRIPTION	LED					
	ON GREEN	RUN GREEN	IN FAIL RED	EXT FAIL RED	LED 1 RED/GREEN	LED 2 RED/GREEN
Power ON - initial TEST	ON	ON	ON	ON	ON	ON
Waiting for configuration	ON	flashes	OFF	OFF	OFF	OFF
Configuration received	ON	ON	OFF	OFF	see tables Fault Diagnostics	

Fault state						
DESCRIPTION	LED					
	ON GREEN	RUN GREEN	IN FAIL RED	EXT FAIL RED	LED 1 RED/GREEN	LED 2 RED/GREEN
Internal fault microcontroller	ON	OFF	2 x flashing*)	OFF	see tables Fault Diagnostics	
Internal failure	ON	OFF	3 x flashing*)	OFF		
Configuration error	ON	OFF	5 x flashing*)	OFF		
BUS communication error	ON	OFF	5 x flashing*)	OFF		
BUS communication interruption	ON	OFF	ON	OFF		
Identical module detected	ON	OFF	5 x flashing*)	5 x flashing*)		

\*) The LED frequency of flashing is: ON for 300ms and OFF for 400ms, with a interval between two sequences of 1s.

**UG 6951 (CANopen)**

LED OPR			LED ERR		
STATUS	INDICATION	DESCRIPTION	STATUS	INDICATION	DESCRIPTION
GREEN	OPERATIONAL	Status OPERATIONAL	OFF	-	Normal operation
GREEN flashing slow	PRE-OPERATIONAL	Status PRE-OPERATIONAL	RED 1 x flashing	Warning level	A bus error counter has reached the warning level
GREEN 1 x flashing	STOPPED	STOP Status	RED flashing fast	LSS	LSS service operative
GREEN flashing fast	Autobaud	Baudrate detection	RED 2 x flashing	Event Control	Detected NodeGuarding (NMT master or slave) or Heartbeat (Consumer)
RED	EXCEPTION	EXCEPTION status	RED	Missing BUS	BUS not working

**UG 6952 (PROFIBUS DP V1)**

LED MODE			LED STS		
STATUS	INDICATION	DESCRIPTION	STATUS	INDICATION	DESCRIPTION
GREEN	ON-line	Data exchange	OFF	UG 6952 not initialized	STATUS SETUP or NW_INIT
GREEN blinkt	ON-line	CLEAR	GREEN	Initialized	End of initialization NW_INIT
RED 1 x flashing	Parameterization error	See IEC 61158-6	GREEN flashing	Initialized with diagnostic active	EXTENDED DIAGNOSTIC bit set
RED 2 x flashing	PROFIBUS configuration error	Configuration of SAFEMASTER PRO System or UG 6952 wrong	RED	Exception error	EXCEPTION STATUS

**UG 6954 (PROFINET)**

LED NET			LED STS		
STATUS	INDICATION	DESCRIPTION	STATUS	INDICATION	DESCRIPTION
GREEN	ON-line connected	1 or more connections established	GREEN	-	Normal operation
GREEN flashing (1Hz)	No ON-line connection	No connection established	GREEN flashing (1Hz)	Waiting	Configuration incomplete, UG 6953 waiting for activation
RED	Critical connection error	UG 6954 unable to communicate	RED	Fatal error	One or more unrecoverable errors detected
RED flashing (1Hz)	Time-out of 1 or more connections	One or more VO device in time-out	RED flashing (1Hz)	Error	One or more recoverable errors detected
GREEN/RED alternate	TEST	UG 6954 in Test	GREEN/RED alternate	TEST	UG 6953 in Test

**Technical Data**

**Nominal voltage:** DC 24V ± 20%  
**Nominal consumption:** max. 3 W

**General Data**

**Connection to extension modules:** proprietary 5-pole bus (DOLD IN-RAIL-BUS)  
**PC connection:** USB 2.0 (Hi Speed)  
 Max. cable length: 3m  
**Connection on field bus:** with 2. front plug  
**Nominal operating mode:** continuous operation  
**Temperature range**  
 Operation temperature: -10 ... + 55 °C  
 Storage 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<sup>2</sup> solid or stranded ferruled (isolated) or 2 x 0,25 ... 1,0 mm<sup>2</sup> 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 length: 100 m  
**Mounting:** DIN-Rail IEC/EN 60 715  
**Weight:** approx. 150 g

**Dimension**

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

**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<sub>N</sub>:** DC 24 V  
 ± 20 % / current supply class II or voltage and current limits.

**Nominal consumption:** max. 3 W

**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



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

**Standard Types**

UG 6951 DC 24 V  
 Article number: 0063828  
 • Nominal voltage: DC 24 V  
 • Width: 22.5 mm

UG 6952 DC 24 V  
 Article number: 0063826  
 • Nominal voltage: DC 24 V  
 • Width: 22.5 mm

UG 6953 DC 24 V  
 Article number: 0063827  
 • 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

