G2DO4 SN24VDC

- 4 separate switchable NPN semiconductor outputs / low side switches
- Reinforced isolation between the outputs and the local interface
- Functional islolation between the outputs
- Short circuit protection of the outputs with error indicators
- Resistive load / inductive load / lamp load
- Output state transmitting via standard bus
- Modular monitoring system
- Width 22.5mm
- Industrial design

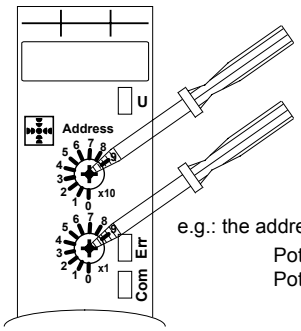
Technical data

1. Funktionen

WatchDog pro module with 4 separate switchable NPN semiconductor outputs.

2. Address adjustment

Address range: 1-99
Deactivation (Off): address 0



Potentiometer 1:
To adjust the **DECADES**

Potentiometer 2:
To adjust the **UNITS**

e.g.: the address **43** will be adjusted as follows:
Potentiometer 1 on position **4**
Potentiometer 2 on position **3**

3. Anzeigen

Green LED U ON:	module is supplied via local interface
Yellow LED Com ON / flashes:	data exchange over standard bus is in progress
Red LED Err ON:	indication of failure
2-coloured LED O1...O4 yellow ON*:	output is switched on
2-coloured LED O1...O4 red ON*:	output is switched off because of overload / electronically cyclic

* Output circuit supplied by corresponding auxiliary supply!

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP20
Mounted on DIN-rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
- 1 x 0.5 to 2.5mm² with/without multicore cable end
- 1 x 4mm² without multicore cable end
- 2 x 0.5 to 1.5mm² with/without multicore cable end
- 2 x 2.5mm² flexible without multicore cable end

5. Supply

Rated voltage:	24V DC from local interface
Tolerance:	-17.5% to +16.5%
Rated consumption:	0.22W
Rated current:	9.2mA
Max. supply current:	20mA
Ripple and noise:	< 150mV$_{PP}$
Duty cycle:	100%
Start-up time:	2.2s typ.
Drop-out voltage:	> 60% of supply voltage

6. Businterface

Standard bus:

Data link:	RS485; yellow LED Com ON
Interface parameter:	115.2kBd, 9 bits data
Number of extension modules:	
Local interface:	24* (width 22.5mm)

* dependent on the max. permissible current through local interface of the Central Unit (CU)
(additional extension is possible by the remote bus!)

7. Isolation

Rated insulation voltage:	100V AC/DC (related to earth) - safe insolation between outputs and local interface 100V AC/DC functional insulation, no safe isolation, between output circuits
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	2.5kV between output circuits and local interface 1.5kV between output circuits among each other

8. Output circuit

4 NPN semiconductor outputs (normally open contact)

Please note:
The output load and the corresponding auxiliary supply input has to be connected to the same supply circuit. The auxiliary supply is required for all outputs which are in use.

Rated operational voltage:	24V DC
Voltage tolerance:	-20% to +15%
Rated operational current:	1A / 24V DC
If the distance between the devices is less than 5mm!	
Rated operational current:	2A / 24V DC
If the distance between the devices is greater than 5mm!	
Load resistance range:	14Ω(12Ω*) to 5kΩ * load voltage (auxiliary voltage) ≤ 24V
Lamp load:	max. 5W
OFF-state leakage current:	max. 250µA 0.1µA typ.
ON-state voltage drop:	(steady state) at 2A max. 200mV / 105mV typ.
Operating category:	DC-13 (in accordance with IEC 60947-5-1: 2003)
Operating cycles:	max. 100Hz with resistive load max. 20Hz with lamp load max. 0.2Hz with inductive load up to 2A
Short circuit off-state duration:	120ms typ.
Short circuit triggering level:	>2.5A (electronically cyclic) 4.2A typ.

As soon as the triggering level is exceeded the output will be switched off for the length of time "short circuit off-state duration".

Technical data

In case that the output is still active towards lapse of time, it will be switched on (and the short circuit protection is possibly activated again).

Reverse polarity protection: In case of reversed polarity of auxiliary supply an internal "transil diode" causes a short circuit.

Output delay with resistive load:
- Switch ON-delay: ≤ 1ms (additionally to cycle time)
- Switch OFF-delay: ≤ 1ms (additionally to cycle time)

Connection of two outputs in parallel because of redundant load control is permitted. Connection of two outputs in parallel to increase the switching current capability is inadmissible.

9. Auxiliary supply input

Rated voltage: 24V DC
Terminals: U1-, U1+, U2-, U2+, U3-, U3+, U4-, U4+
Tolerance: -20% to +15%
Ripple and noise: < 200mV_{PP}
Auxiliary supply input, consumption of current: 5.8mA typ., max. 12.0mA
Hold-up time: 25ms
Reverse polarity protection: In case of reversed polarity of auxiliary supply an internal "transil diode" causes a short circuit.

10. Ambient conditions

Ambient temperature: -25 to +55°C (in accordance with IEC 60068-1), -25 to +40°C (in accordance with UL 508)
Storage temperature: -25 to +70°C
Transport temperature: -25 to +70°C
Relative humidity: 15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Absolute humidity: 1g to 25g H_2O/m^3 (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree: 2 (in accordance with IEC 60664-1)
Vibration resistance: 10 to 55Hz 0.35mm (in accordance with IEC 60068-2-6)
Shock resistance: 15g 11ms (in accordance with IEC 60068-2-27)

Operator accessibility of clamps and connectors

The table shows which terminals and connectors can be touched by the operator during normal operation.

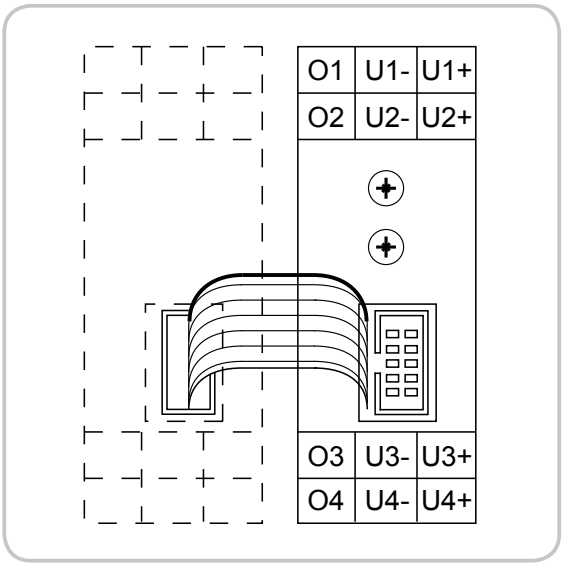
Nr.	Type	Terminal	Touchable
1	AI	Communication interface for local input-/output-extension device	YES
2	Ar	Communication interface for remote input-/output unit	YES
3	Be	Open communication interface, open to external devices as well	YES
4	Bi	Internal communication interface for peripheral modules	NO
5	C	Interface for digital and analog input signals	NO
6	D	Interface for digital and analog output signals	NO
7	E	Serial or parallel communication interface for data communication with external devices	YES
8	F	Terminal for line power supply	NO
9	H	Functional Earth terminal	YES
10	J	Input-/output interface for power supply of sensors and actuators	NO
11	K	Interface for auxiliary supply output and auxiliary supply input	NO

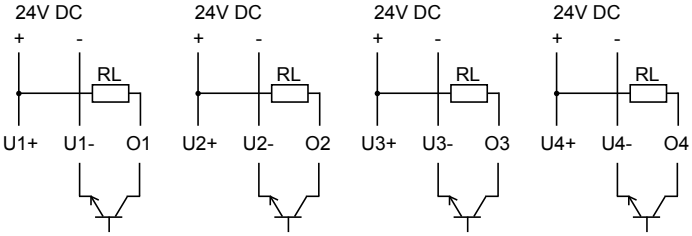
Digital semiconductor output: **G2DO4 SN24VDC** - Definition of circuits:

Name	Type	Nr.	Terminals related to the Circuit
Semiconductor output 1	D	6	O1
Semiconductor output 2	D	6	O2
Semiconductor output 3	D	6	O3
Semiconductor output 4	D	6	O4
Auxiliary supply input 1	K	11	U1-, U1+
Auxiliary supply input 2	K	11	U2-, U2+
Auxiliary supply input 3	K	11	U3-, U3+
Auxiliary supply input 4	K	11	U4-, U4+
Locale interface	AI	1	LI Box header; LI plug connector with ribbon cable

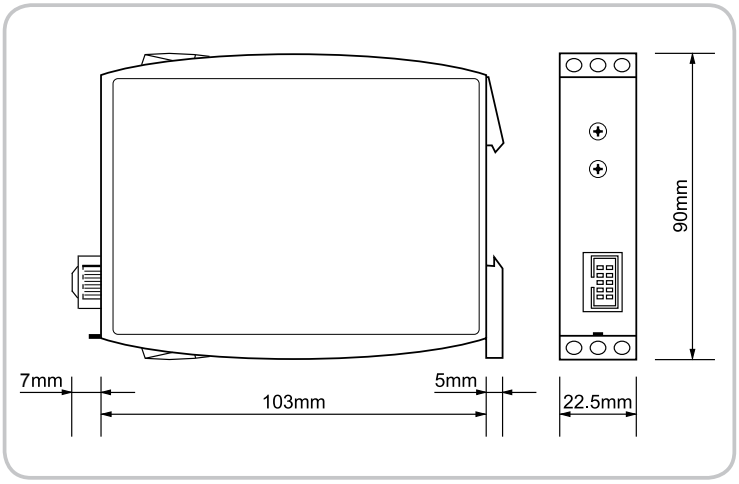
Connections

G2DO4 SN24VDC





Dimensions



Ordering information

Type	Address range	LEDs	Part No. (PQ 1)
G2DO4 SN24VDC	1 to 99	U, Err, Com, O1, O2, O3, O4	2500203