# G2DO4 SP24VDC

- 4 separate switchable PNP semiconductor outputs / high 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

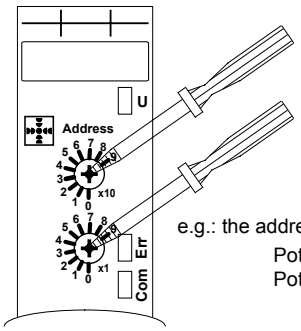
## Technical data

### 1. Funktionen

WatchDog pro module with 4 separate switchable PNP 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<br>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<br>1.5kV between output circuits among each other |

### 8. Output circuit

4 PNP 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<br>* load voltage (auxiliary voltage) ≤ 24V |
| Lamp load: | max. 5W |
| OFF-state leakage current: | max. 250µA<br>0.1µA typ. |
| ON-state voltage drop: | (steady state) at 2A<br>max. 200mV / 105mV typ. |
| Operating category: | DC-13 (in accordance with IEC 60947-5-1: 2003) |
| Operating cycles: | max. 100Hz with resistive load<br>max. 20Hz with lamp load<br>max. 0.2Hz with inductive load up to 2A |
| Short circuit off-state duration: | 120ms typ. |
| Short circuit triggering level: | >2.5A (electronically cyclic)<br>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".

Subject to alterations and errors

# 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: < 200$mV_{PP}$
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 |

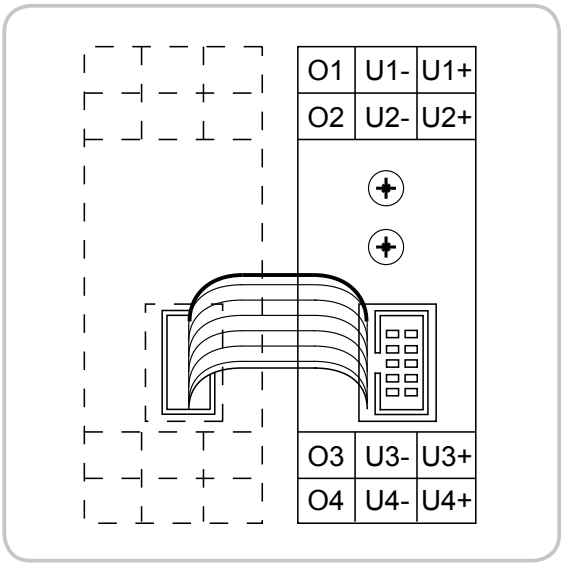
Digital semiconductor output: **G2DO4 SP24VDC** - Definition of circuits:

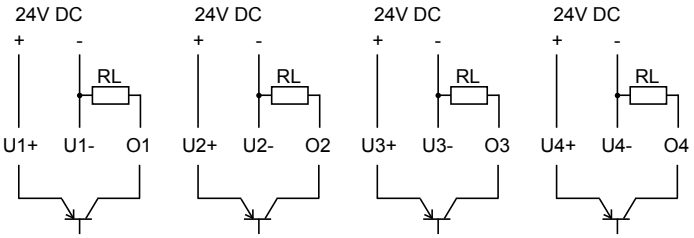
| Name | Type | Nr. | Terminals related to the Circuit |
|---|---|---|---|
| Semiconductor output 1 | D | 6 | O1 |
| Semiconductor output 2 | D | 6 | O2 |
| Semiconductor output 3 | D | 6 | O3 |
| Semiconductor output 4 | D | 6 | O4 |
| Auxiliary supply input 1 | K | 11 | U1-, U1+ |
| Auxiliary supply 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 |

Subject to alterations and errors

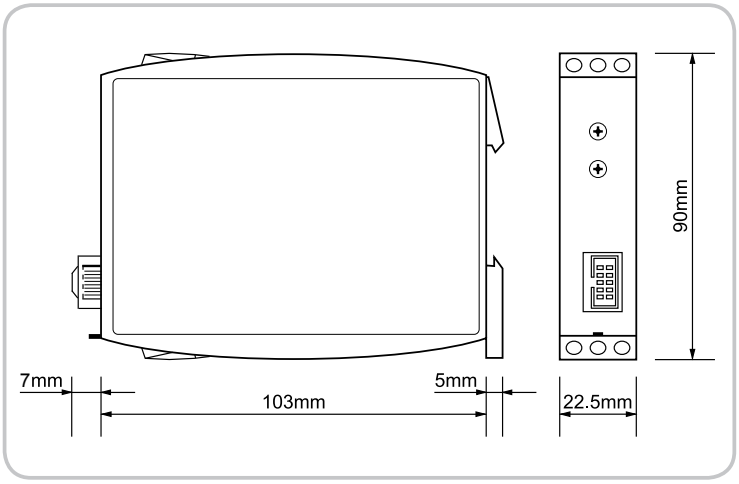
## Connections

**G2DO4 SP24VDC**




## Dimensions




## Ordering information

| Type | Address range | LEDs | Part No. (PQ 1) |
|---|---|---|---|
| G2DO4 SP24VDC | 1 to 99 | U, Err, Com, O1, O2, O3, O4 | 2500201 |

Subject to alterations and errors