

# Binary output 520BOD01

## Data sheet

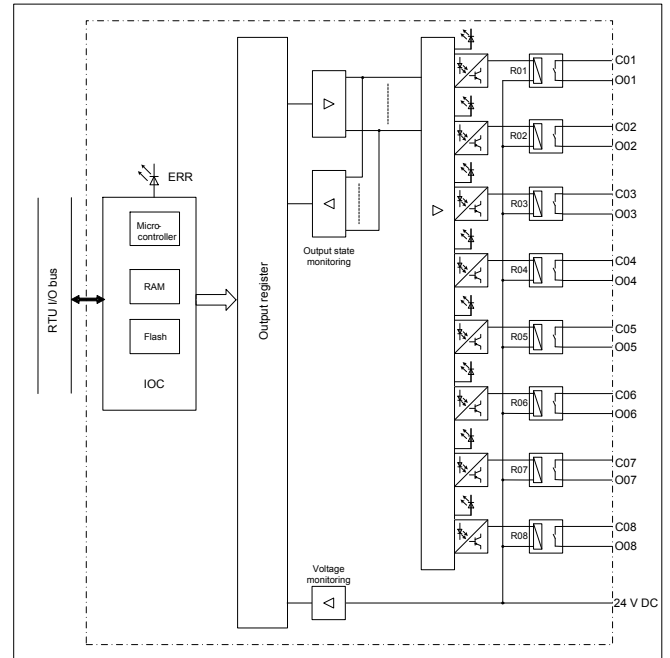


Figure 1: Block diagram 520BOD01

## Application

The binary output module 520BOD01 can be used for the control of 8 binary process signals using relay contacts. The allocation of an output signal to the processing functions can be done according to the rules of configuration.

The module 520BOD01 is able to process the following types of signals:

- Single or double commands (SCO or DCO) with 1 or 2 pole output without (1 out of n) check
- Single or double commands (SCO or DCO) with 1.5 or 2 pole output with (1 out of n) check
- Regulation step command (RCO), 1 or 2 pole
- Digital setpoints commands, 8 Bit without strobe (DSO8)
- Digital setpoint commands, 8 Bit with strobe (DSO8)
- Bitstring output, 1 or 8 Bit (BSO1 or BSO8)

The module allows switching voltages up to 150 V DC or max. 8 A continuous current.

## Characteristics

### Binary outputs

Relay contacts are used for the binary outputs.

The 8 outputs are isolated from one another. In addition isolation against the internal electronic is done by optical coupler. All 8 relay contacts have a separated outputs and without common return.

The command output to the process equipment can be effected either directly or in conjunction with a command output supervision module. The command output supervision module covers the (1 out of n) check of the output circuits. More details can be found in the data sheet of the command output monitoring module.

Following modules with command output supervision function are supported:

- 560CIG10
- 560CID11

The 1.5 pole command output is only possible in combination with a command output supervision module. With the 1.5 pole command output, one output relay of the 520BOD01 switches the command to the interposing relay. The process voltage for the interposing relay is switched by the command output supervision module.

Two output relays are required for each command in case of 2 pole commands.

Before and during command output the module 520BOD01 carries out several command monitoring functions. These tests ensure correct output. With a command out monitoring module these tests can be further improved.

If the command monitoring detects fault the command will be canceled.

### Power supply input

The required power for the module is supplied via the RTU520 I/O bus connector. In addition 24 V DC ( $U_E$ ) is required (e. g. from 560PSU40/41). This voltage  $U_E$  has to be supplied from external and wired to the  $U_E$  connector.

### I/O controller (IOC)

The micro-controller on the module processes all time critical tasks of the parameterized processing functions. Moreover it carries out the interactive communication with the RTU I/O bus. All configuration data and processing parameters are loaded by the communication unit via the RTU I/O bus.

In connection with an I/O adapter (e. g. 520ADD01) or the RTU520 communication unit the module is interfaced to the RTU520 I/O bus.

The binary output unit can execute the following processing functions on the individual signal types:

- Control of the command output duration

Command monitoring functions:

- (m out of 16) check of the output relays on the module
- monitoring of the output bit patterns by reading back the output state
- switching voltage monitoring (24 V DC coil voltage) before and during output only together with (1 out of n) control module
- command output duration monitoring

During initialization and operation the module carries out a number of tests. If a fault occurs it is reported to the communication unit. All fault conditions impairing the function of the module are displayed as common fault signal by a red LED. A failure of the module is detected by the communication unit.

## Technical data

In addition to the RTU500 series general technical data, the following applies:

| Output characteristics  |   |
|---|---|
| Outputs   | 8 Relay contacts,<br>single pole, normal open   |
| Max. switching voltage  | 150 V DC  |
| Continuous current  | 8 A   |
| Max breaking current (resistive load)                             | 8 A $\leq$ 55 V DC<br>6 A @ 60 V DC<br>0.9 A @ 110 V DC   |
| Max. breaking capacity (inductive load)                           | 50 VA (L/R= 40 ms)  |
| Pulsed output current, max. 30 seconds pulses with 50% Duty Cycle | 10 A @ 30 VDC   |
| Supply voltage input 24 V DC (U <sub>E</sub> )                    |   |
| Input voltage range   | 24 V DC (+/- 20%)   |
| Current consumption   | 20 mA per active relay  |
| Current consumption for power supplied via WRB bus                |   |
| 5 V DC  | 70 mA   |
| 15 V DC   | --  |
| 18 V DC   | --  |
| 24 V DC   | --  |
| Signaling by LEDs   |   |
| ERR (red)   | Common fault information for the module   |
| CH1... CH8  | LED displays the active output relays   |
| Mechanical layout   |   |
| Dimensions  | 47 mm x 98 mm x 117 mm (Width x Height x Depth)   |
| Housing type  | Plastic housing (V-0), IP20, RAL 7035 light gray  |
| Mounting  | DIN rail mounting<br>EN 50022 TS35: 35 mm x 15 mm or 35 mm x 7.5 mm   |
| Weight  | 0.3 kg  |
| Connection type   |   |
| Process connector   | 2 x 8 pole 5.08 mm pluggable screw terminals (included in delivery)<br>0.2... 2.5 mm <sup>2</sup> / AWG 24 - AWG 12 |

| Connection type   |   |
|---|---|
| Power supply input  | 1 x 3 pole 5.08 mm pluggable screw terminals (included in delivery)<br>0.2... 2.5 mm <sup>2</sup> / AWG 24 - AWG 12 |
| Insulation tests  |   |
| AC test voltage<br>IEC 61000-4-16<br>IEC 60870-2-1 (class VW3)  | 2.5 kV, 50 Hz<br>Test duration: 1 min   |
| Impulse voltage withstand test<br>IEC 60255-5<br>IEC 60870-2-1 (class VW 3)   | 5 kV (1.2 / 50 $\mu$ s)   |
| Insulation resistance<br>IEC 60255-5  | > 100 M $\Omega$ at 500 V DC  |
| Immunity test   |   |
| Electrostatic discharge<br>IEC 61000-4-2  | 8 kV air / 6 kV contact (level 3)<br>Performance criteria A   |
| Radiated Radio-Frequency Electromagnetic Field<br>IEC 61000-4-3   | 10 V/m (level 3)<br>Performance criteria A  |
| Electrical Fast Transient / Burst<br>IEC 61000-4-4  | 4 kV (level X)<br>Performance criteria A  |
| Surge<br>IEC 61000-4-5  | 4 kV (level 4)<br>Performance criteria A  |
| Conducted Disturbances, induced by Radio-Frequency Fields<br>IEC 61000-4-6  | 10 V (level 3)<br>Performance criteria A  |
| Damped oscillatory wave<br>IEC 61000-4-18   | 2.5 / 1 kV (level 3)<br>Performance criteria A  |
| Environmental conditions  |   |
| Nominal operating temperature range:<br>Start up:<br>Max. operating temperature, max. 96h:<br>EN 60068-2-1, -2-2, -2-14 | -25 ... +70 °C<br>-40 °C<br>+85 °C  |
| Relative humidity<br>EN 60068-2-30  | 5 ... 95 %<br>(non condensing)  |
| Ordering information  |   |
| 520BOD01 R0002  | 1KGT033300R0002   |



**Note:**

The specifications, data, design or other information contained in this document (the "Brochure") - together: the "Information" - shall only be for information purposes and shall in no respect be binding. The Brochure does not claim to be exhaustive. Technical data in the Information are only approximate figures. We reserve the right at any time to make technical changes or modify the contents of this document without prior notice. The user shall be solely responsible for the use of any application example or information described within this document. The described examples and solutions are examples only and do not represent any comprehensive or complete solution. The user shall determine at its sole discretion, or as the case may be, customize, program or add value to the ABB products including software by creating solutions for the end customer and to assess whether and to what extent the products are suitable and need to be adjusted or customized.

This product is designed to be connected to and to communicate information and data via a network interface. It is the users sole responsibility to provide and continuously ensure a secure connection between the product and users or end customers network or any other network (as the case may be). The user shall establish and maintain any appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of anti-virus programs, etc) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ABB AG is not liable for any damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.

ABB AG shall be under no warranty whatsoever whether express or implied and assumes no responsibility for the information contained in this document or for any errors that may appear in this document. ABB AG's liability under or in connection with this Brochure or the files included within the Brochure, irrespective of the legal ground towards any person or entity, to which the Brochure has been made available, in view of any damages including costs or losses shall be excluded. In particular ABB AG shall in no event be liable for any indirect, consequential or special damages, such as – but not limited to – loss of profit, loss of production, loss of revenue, loss of data, loss of use, loss of earnings, cost of capital or cost connected with an interruption of business or operation, third party claims. The exclusion of liability shall not apply in the case of intention or gross negligence. The present declaration shall be governed by and construed in accordance with the laws of Switzerland under exclusion of its conflict of laws rules and of the Vienna Convention on the International Sale of Goods (CISG).

ABB AG reserves all rights in particular copyrights and other intellectual property rights. Any reproduction, disclosure to third parties or utilization of its contents - in whole or in part - is not permitted without the prior written consent of ABB AG.

© Copyright ABB 2014

All rights reserved