RTU560 product line

Binary output 560BOR01
Data sheet

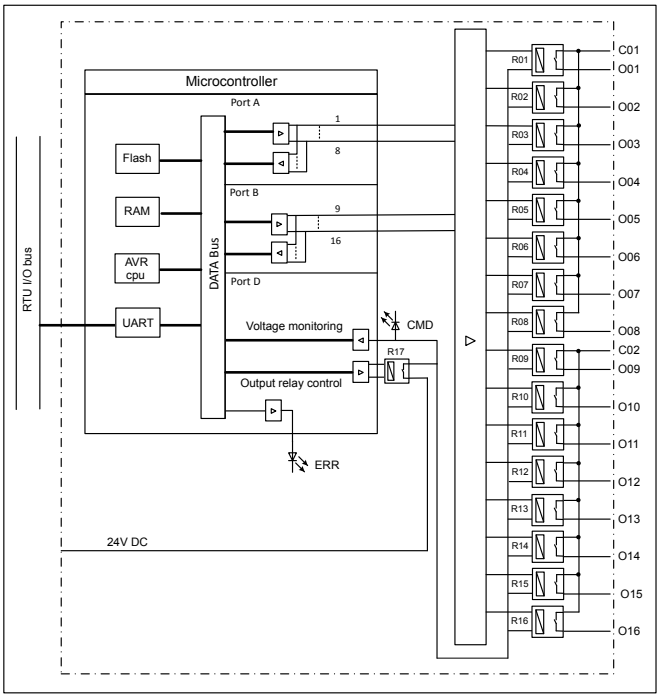

Figure 1: Block diagram 560BOR01

Application

The module 560BOR01 can be used for the control of 16 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 560BOR01 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 or 16 Bit without strobe (DSO8 or DSO16)
- Digital setpoint commands, 8 or 16 Bit with strobe (DSO8 or DSO16)
- Bitstring output, 1, 2, 8 or 16 Bit (BSO1, BSO2, BSO8 or BSO16)

The module allows switching voltages up to 150 V DC or max. 2 A continious current.

Characteristics

Binary outputs

Relay contacts are used for the binary outputs.

The 16 outputs are combined into two groups. Each 8 outputs have a common return. The groups are isolated from one another as well as from the internal electronic.

The supply voltage for the coils of the relays (24 V DC) is switched by an internal relay (R17).

The supply voltage for the coils of the relays (24 V DC) is monitored internally before and during the command output.

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:
– 23BA23 (max. 60 VDC)

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 560BOR01 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.

Another possibility for direct switching of process relays on electrical apparatus (disconnectors, circuit-breakers) with high switching capacity is given by using an additional booster relay connected to the command output monitoring module 23BA23 (see 23BA23 Data sheet).

Before and during command output the module 560BOR01 carries out several command monitoring functions. These tests ensure correct output. With a command output monitoring module these tests can be further improved.

If the command monitoring detects fault the command will be canceled. The switching through of the output relays by the release relay R17 occurs only after a successful test. A defective driver or a fault in the release relay R17 leads to complete inhibition of the command output module.

Power supply input

The required power for the module is supplied via the RTU560 backplane.

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.

The module is equipped with a serial interface to the RTU560 I/O bus on the backplane.

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
– 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:

Binary output characteristics	
Outputs	16 Relay contacts, single pole, normal open, 2 groups of 8 outputs with common return
Max. switching voltage	150 V DC
Continuous current	2 A total current for one group with the same common return
Max breaking current (resistive load)	2 A ≤ 55 V DC 2 A @ 60 V DC
Max. breaking capacity (inductive load)	50 VA (L/R= 40 ms)

Current consumption for power supplied via RTU560 backplane	
5 V DC	120 mA
24 V DC	10 mA per active relay

Signaling by LEDs	
ERR (red)	Common fault information for the module
CMD	Command output, displayed during active output time of any output relay

Mechanical layout	
Dimensions	160 mm x 100 mm, 3HE euro card format 4R (20 mm) front panel
Housing type	Printed circuit board
Mounting	for mounting in RTU560 racks
Weight	0.3 kg

Connection type	
RTU560 backplane connector	48 pole type F DIN 41612

Insulation tests	
AC test voltage IEC 61000-4-16 IEC 60870-2-1 (class VW3)	2.5 kV, 50 Hz Test duration: 1 min
Impulse voltage withstand test IEC 60255-5 IEC 60870-2-1 (class VW 3)	5 kV (1.2 / 50 µs)
Insulation resistance IEC 60255-5	> 100 MΩ at 500 V DC

Immunity test	
Electrostatic discharge IEC 61000-4-2	8 kV air / 6 kV contact (level 3) Performance criteria A
Radiated Radio-Frequency Electromagnetic Field IEC 61000-4-3	10 V/m (level 3) Performance criteria A
Electrical Fast Transient / Burst IEC 61000-4-4	2 kV (level 3) Performance criteria A
Surge IEC 61000-4-5	2 kV (level 3) Performance criteria A
Conducted Disturbances, induced by Radio-Frequency Fields IEC 61000-4-6	10 V (level 3) Performance criteria A

Environmental conditions	
Nominal operating temperature range: Start up: Max. operating temperature, max. 96h: EN 60068-2-1, -2-2, -2-14	-25°C... 70°C -40 °C +85 °C
Relative humidity EN 60068-2-30	5 ... 95 % (non condensing)

Ordering information	
560BOR01 R0002	1KGT036800R0002

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www.abb.com/remote-terminal-units

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