S2000-AR8
Addressable Eight-Input Module

INSTRUCTION MANUAL

GENERAL

The S2000-AR8 Addressable Eight-Input Module (hereinafter referred to as the S2000-AR8 or the module) is designed to connect up to eight monitored circuits with included fire or intrusion detectors (with normally-open or normally-closed contacts) into the multiplex addressable Polling Loop (PL) of a S2000-KDL controller. The S2000-AR8 receives control signals from interfaced detectors and transmits alarm conditions to the S2000-KDL. The S2000-AR8 detects trouble conditions in detector connecting wires such as open circuit failure or short circuit failures transmitting them to the S2000-KDL too.

The S2000-AR8 module is supplied with power and communicates data with the S2000-KDL over the polling loop.

The module can respond with the conditions of its built-in tamper switch (is it opened or closed).

The S2000-AR8 is equipped with a green LED on its faceplate. The LED:

➢ Lit steady if the module power is turned on but there is no communications between the S2000-AR8 and S2000-KDL

➢ Flashes once per four seconds if all monitored circuits are in Norm conditions (see Table 1)

➢ Double flashes once per four seconds if at least one monitored circuit is out of norm (see Table 1)

The version of S2000-AR8 software is 1.10.

The S2000-AR8 is designed for round-the-clock operating. The module is not suitable for operation in corrosive and dusty environments as well as in fire-hazardous and explosive areas.
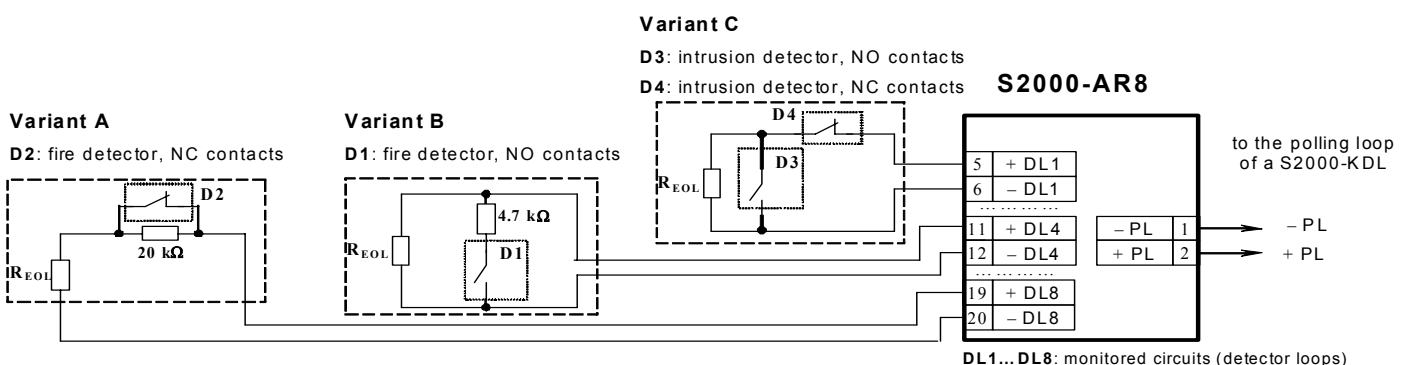
SPECIFICATIONS

Input Voltage (over the polling loop of a S2000-KDL)	8 ÷ 10 VDC
Current Consumption (over the polling loop of the S2000-KDL)	4 mA max
Pre-operation Time	15 s max
Operating Temperatures	−30 to +50°C
Humidity	93% at 40°C, non-condensing
Overall Dimensions	156×107×36 mm max
Weight	0.3 kg max
Average Lifetime	at least 10 years

STANDARD DELIVERY

Find the following unpacking the S2000-AR8 module:

➢ The S2000-AR8 Module
➢ This Instruction Manual
➢ 10 EOL Resistors 10 kΩ
➢ DIN 7982 Flat Head Tapping Screw 2.2×6.5
➢ 3 Woodscrews
➢ 3 Wallplugs

STANDARD WIRING DIAGRAM

Variant C
D3: intrusion detector, NO contacts
D4: intrusion detector, NC contacts

S2000-AR8

Variant A
D2: fire detector, NC contacts

Variant B
D1: fire detector, NO contacts

to the polling loop of a S2000-KDL

DL1…DL8: monitored circuits (detector loops)

The above diagram shows wiring the S2000-AR8 to the polling loop of the S2000-KDL as well as standard variants for wiring non-addressable detectors to the S2000-AR8 monitored circuit (detector loop) contacts DL1 to DL8).

Variant A is for wiring fire detectors with normally closed contacts, Variant B is for wiring fire detectors with normally open contacts, and Variant C is used for wiring intrusion detectors with both normally open and normally closed contacts. You can wire several conventional dry contact detectors into a single monitored circuit. The number of the detectors to be included is defined by the requirement that resistance of a monitored circuit wired in accordance with Variants A − C must match its physical conditions as shown in Table 1 (see below).

Variants A and B provide connecting fire detectors and recognizing such conditions of a monitored circuit as Norm, Fire Alarm, Open Failure, and Short Failure provided that the monitored circuit is programmed in S2000-KDL configuration as the Combined Fire Alarm Loop (see below).

If intrusion detectors are interfaced to the polling loop of the S2000-KDL in accordance with Variant C, the relevant monitored circuit (detector loop) must be configured as the Intrusion Alarm Loop (Type 4) or the Intrusion Alarm Loop with Tamper Monitoring (Type 5). In such a case the S2000-KDL recognizes such circuit conditions as Norm and Intrusion Alarm. If a S2000-AR8 zone is programmed with the type 5, the S2000-KDL can also receive Tamper Alarm / Tamper Restored messages from the S2000-AR8 itself through such zone. If several S2000-AR8 zones are programmed with Zone Type of 5, the S2000-KDL will receive tamper conditions from all these zones.

MOUNTING

Hang the S2000-AR8 on a wall by means woodscrews provided or on a DIN rail keeping in mind that the resistance of each monitored circuit, without regard to EOL resistor, must NOT exceed 100 Ω. Connect monitored circuits to the NO or NC contacts of the relevant detectors. Bring EOL resistors and (if necessary) additional resistors into monitored circuits in accordance with the selected wiring schemes.

PROGRAMMING

In order the S2000-AR8 operates properly within two-wire multiplex addressable polling loop of the S2000-KDL controller, the module must be assigned to a unique number from 1 to 120 within the polling loop, or the loop address which is stored in the module non-volatile memory. The default factory value of the loop address is 120. This address is matched with the first monitored circuit of the module (contacts 5 and 6 on the module PCB), other monitored circuits being assigned automatically to the successively increasing loop addresses. For example, if the S2000-AR8 has the address of 120, its first circuit also has the address 120, its second circuit has the address 121, its third circuit has the address 122, and so on, and finally its eighth circuit has the address 127.

Moreover, a monitoring strategy must be defined which will be used by the S2000-KDL controller while processing signals received from the S2000-AR8.

Programming the S2000-AR8 Address within the S2000-KDL Polling Loop

An S2000-AR8 module is supplied with the default loop address of 120. This address value can be changed using either S2000(M) console tools or the UProg Configuration Tool.

In order to program the unique S2000-AR8 loop address, connect the module to a S2000-KDL controller which is in turns connected to a network controller (a S2000(M) console or PC under UProg software). Then send one of the following commands to the S2000-KDL controller (for getting more information see the relevant User's Manual):

Change the Device Address	Use the *Change Device Address* command specifying the old module address and the new module address as the parameters (see more information in the referred Manuals). The network controller will display the messages about disconnecting the device with the old address and then detecting the device with newly programmed address
Program the Device Address	If the device address is unknown or two devices have the same address then use the *Program Device Address* command specifying a required address as the parameter. Then open the module enclosure and press the tamper switch three times long (more than 1 s each) and then one time short (less than half second). The message about detecting the device with the newly assigned address shall be displayed by a network controller (S2000(M) or UProg Configuration Tool).

Programming the S2000-KDL to Operate the S2000-AR8

To handle signals from a S2000-AR8 correctly, the S2000-KDL controller the module is connected to must be programmed with the proper *Zone Type* parameters for this S2000-AR8.

To program the S2000-KDL, connect it to a PC under UProg Configuration Tool and follow the relevant programming instructions in accordance with the S2000-KDL User's Manual. Set Zone Type parameter to the value 2 (*Combined Fire Alarm Loop*) for fire detectors and to the value 4 (*Intrusion Alarm Loop*) or 5 (*Intrusion Alarm Loop with Tamper Monitoring*) for intrusion detectors. Select the type 5 for at least one S2000-AR8 zone if you need the module to respond with its tamper conditions.

S2000-AR8 ROUTINE TESTING

To test the S2000-AR8 module, arm its monitored circuits with brought detectors by means of a network controller (either S2000/S2000M console or Orion PC).

Then simulate the detector response for the first monitored circuit and ensure the network controller indicates the Fire Alarm or Intrusion Alarm message for this monitored circuit. Next, recover normal conditions and reset the alarm by means of the network controller.

Repeat all actions said above for other monitored circuits of the S2000-AR8 module.

If a monitored circuit of the S2000-AR8 is programmed in the S2000-KDL configuration as Intrusion Alarm Loop with Tamper Monitoring (Type 5), check additionally tamper switch operability. To do this, open the S2000-AR8 enclosure, and then close it. The network controller shall indicate the Tamper Alarm message followed by the Tamper Restored message for all the monitored circuits of this S2000-AR8 which are configured with the Type 5.

If the network controller has displayed no intrusion or fire condition messages said above then the module is defective and must be replaced.

You can additionally inspect the parameters of the monitored circuits having measured their ADC values which correlate with resistance values of the monitored circuits (see Table 1 below).

Table 1. *Match between monitored circuit resistances (or ADC value) and statuses of the monitored circuits*

	Short circuit or D3 response (Variant C)	D1 response (Variant B)	Norm	D2 response (Variant A)	Open failure or D4 response (Variant C)
Resistance, kΩ	0 to 2.1	2.4 to 6.2	6.6 to 15	16 to 40	50 and above
ADC value	220 to 205	200 to 180	177 to 140	137 to 85	80 to 0

MAINTENANCE

Please inspect the module annually by doing the following:

1. Check the S2000-AR8 visually for contaminations and mechanical damage
2. Test the S2000-AR8 operability as said above
3. Verify the S2000-AR8 for secure mounting and wire connection conditions

BOLID ONE YEAR LIMITED WARRANTY

Bolid Company and its divisions and subsidiaries («Seller»), 4 Pionerskaya Str., Korolev 141070, Moscow Region, Russia warrants its security equipment (the «product») to be free from defects in materials and workmanship for one year from date of original purchase, under normal use and service. Seller's obligation is limited to repairing or replacing, at its option, free of charge for parts or labor, any product proven to be defective in materials or workmanship under normal use and service. Seller is not responsible for results where the product is used improperly, where it is used for any application it is not intended for, used under unacceptable environmental conditions and mishandled or stored under improperly. Seller shall have no obligation under this warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other than the Seller. In case of defect, contact the security professional who installed and maintains your security equipment or the Seller for product repair.

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