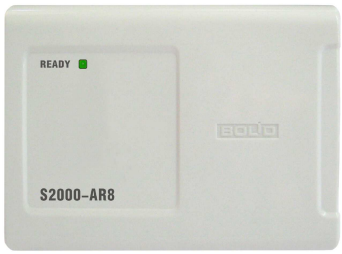
S2000-AR8

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 an S2000-KDL or S2000-KDL-2I controller. The S2000-AR8 receives control signals from interfaced detectors and transmits alarm conditions to the S2000-KDL / S2000-KDL-2I. The S2000-AR8 detects trouble conditions in detector connecting wires such as open circuit failures or short circuit failures transmitting them to the controller too.

The S2000-AR8 module is supplied with power by and communicates data with the S2000-KDL / S2000-KDL-2I over the polling loop.

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

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

- Shows solid light if the module power is turned on but there is no communications between the S2000-AR8 and the controller
- 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

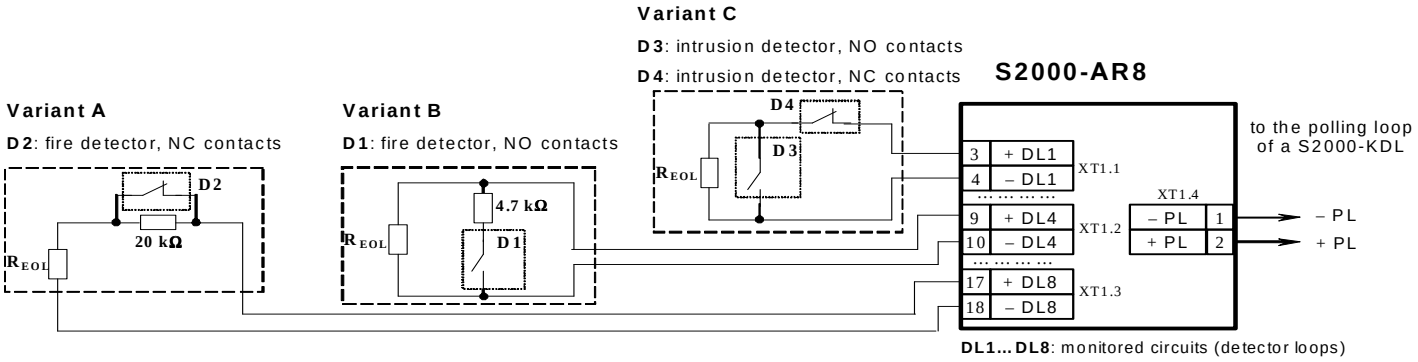
Input Voltage (over the polling loop of a S2000-KDL)	8 ÷ 11 VDC
Current Consumption (over the polling loop of the S2000-KDL)	4 mA max
Pre-operation Time	15 s max
Operating Temperatures	–30℃ to +50℃
Humidity	93% at 40℃, non-condensing
Overall Dimensions	156 mm × 107 mm × 39 mm max
Weight	0.3 kg max
Ingress Protection Rating	IP30

STANDARD DELIVERY

Find the following unpacking the S2000-AR8 module:

- The S2000-AR8 Module
- This Instruction Manual
- Eight 10 kΩ EOL Resistors
- DIN 7982 Flat Head Tapping Screw 2.2×6.5
- Three Woodscrews
- Three Wall Plugs

STANDARD WIRING DIAGRAM



The above diagram shows wiring the S2000-AR8 to the polling loop of an S2000-KDL / S2000-KDL-2I 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 / S2000-KDL-2I configuration as the Combined Fire Alarm Loop (see below).

If intrusion detectors are interfaced to the polling loop of the S2000-KDL / S2000-KDL-2I 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), or the Entrance Alarm Loop (Type 7), or the Panic Alarm Loop (Type 11). In such case the S2000-KDL / S2000-KDL-2I recognizes such circuit conditions as Norm and Intrusion Alarm. If an S2000-AR8 input is programmed with one of the types 5, 7, or 11 then the S2000-KDL / S2000-KDL-2I can also receive Tamper Alarm / Tamper Restored messages of the S2000-AR8 itself through such input. If several S2000-AR8 inputs are programmed with Input Type of 5, 7, or 11 the S2000-KDL will receive tamper conditions from all these inputs. To get more information about Input Types and programming the inputs please refer to user's manual of the controllers.

MOUNTING

Hang the S2000-AR8 on a wall or within a cabinet at a convenient place by means of the woodscrews provided or on a DIN rail. The place the S2000-AR8 is to be attached to must be protected against atmospheric fallouts, mechanical damage, and unauthorized access. If the S2000-AR8 is installed at unprotected premises, it must be attached at a height at least 2.2 meters above the floor.

Please keep in mind that the resistance of each monitored circuit, without regard to EOL resistor, must NOT exceed 100 Ω. Connect monitored circuits to the alarm contacts of the relevant detectors. Bring 10 kΩ 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 an S2000-KDL / S2000-KDL-2I 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 3 and 4 on the module's 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 / S2000-KDL-2I 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 UProg Configuration Tool.

In order to program a unique S2000-AR8 loop address, connect the module to an S2000-KDL / S2000-KDL-2I 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 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 (for 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 Controller to Operate the S2000-AR8

To handle signals from a S2000-AR8 correctly, the S2000-KDL / S2000-KDL-2I controller the module is connected to must be programmed with the proper *Input Type* parameters for this S2000-AR8.

To program the S2000-KDL / S2000-KDL-2I, connect it to a PC under UProg Configuration Tool and follow the relevant programming instructions in accordance with the S2000-KDL / S2000-KDL-2I User's Manual. Set Input 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*), or 7 (*Entrance Alarm Loop*), or 11 (*Panic Alarm Loop*) for intrusion detectors. Select one of the types 5, 7, 11 for at least one S2000-AR8 input 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 assigned with the selected group of addresses by means of a network controller (either S2000M console or Orion Pro).

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 with Type 5, Type 7, or Type 11 then check additionally tamper switch operability. To do this, send a command to disable inputs used by the S2000-AR8 and open the S2000-AR8 enclosure. Then close the S2000-AR8 enclosure. The network controller shall indicate Tamper Alarm messages followed by Tamper Restored messages for all the relevant addresses.

If no intrusion alarm, or fire alarm, or tamper alarm message said above has displayed by the network controller then the module is defective and must be replaced.

You can additionally inspect the parameters of the monitored circuits by 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 values) and states 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

ZAO NVP Bolid, 4 Pionerskaya Str., Korolev 141070, Moscow Region, Russia
Phone/fax: +7 495 775-7155
Email: info@bolid.ru
Technical Support: support@bolid.ru
http://bolid.ru

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.

This one year Limited Warranty is in lieu of all other express warranties, obligations or liabilities. There are no express warranties, which extend beyond the face hereof. Any implied warranties, obligations or liabilities made by seller in connection with this product, including any implied warranty of merchantability, or fitness for a particular purpose or otherwise, are limited in duration to a period of one year from the date of original purchase. Any action for breach of any warranty, including but not limited to any implied warranty of merchantability, must be brought within 12 months from date of original purchase. In no case shall seller be liable to anyone for any consequential or incidental damages for breach of this or any other warranty, express or implied, or upon any other basis of liability whatsoever, even if the loss or damage is caused by the seller's own negligence or fault. Some countries do not allow limitation on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Seller does not represent that the product may not be compromised or circumvented; that the product will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the product will in all cases provide adequate warning or protection. Buyer understands that a properly installed and maintained alarm may only reduce the risk of a burglary, robbery, fire or other events occurring without providing an alarm, but it is not insurance or guarantee that such will not occur or that there will be no personal injury or property loss as a result. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE OR OTHER LOSS BASED ON A CLAIM THE PRODUCT FAILED TO GIVE WARNING. HOWEVER, IF SELLER IS HELD LIABLE, WHETHER DIRECTLY OR INDIRECTLY, FOR ANY LOSS OR DAMAGE ARISING UNDER THIS LIMITED WARRANTY OR OTHERWISE, REGARDLESS OF CAUSE OR ORIGIN, SELLER'S MAXIMUM LIABILITY SHALL NOT IN ANY CASE EXCEED THE PURCHASE PRICE OF THE PRODUCT, WHICH SHALL BE THE COMPLETE AND EXCLUSIVE REMEDY AGAINST SELLER. This warranty gives you specific legal rights, and you may also have other rights which vary from country to country. No increase or alteration, written or verbal, to this warranty is authorized.