



Description



The device ALAN-8 (Multi) has the following characteristics:

1. Temperature sensor type **J** from -200 °C to +950 °C.
 2. Temperature sensor type **K** from 0 °C to +1350 °C.
 3. Temperature sensor type **PT100** with 2 cables from -200 °C to +850 °C.
 4. Temperature sensor type **PT100** with 3 cables from -200 °C to +850 °C.
 5. Input signal **4 ÷ 20mA** with analysis 0÷2000 units and adjustable scale.
 6. Input signal **0 ÷ 20mA** with analysis 0÷2000 units and adjustable scale.
- The **new scale** can be shifted within the scale of the screen from **-99÷2000 units**.

7. Detection of **cutline or short circuit line in the temperature sensors or 4÷20mA, 0÷20mA (sensor failure)** in each channel.
8. Internal relay with one associated auxiliary contact 250VAC 10A for setting up an external alarm circuit in case of **main power failure**.
9. The input signal **J, K, PT100 or mA** for every channel can be set through parameters (**ChM1÷ChM8**). Each channel can be adjusted independently. The sensors/mA inputs are galvanic isolated from the outputs and power supply.
10. Each channel can be activated or deactivated and set or not to the average group which it will belong. Two groups of averages can be defined.
11. The **OVER FLOW** and **WRONG CONNECTION** alarms activate only the general relay of the device while the LEDs and the display are flashing. These alarms do not update the alarm's table. With the parameters **OOF1** to **OOF8** we drive each line failure to one of the 11 outputs. In addition, line failure deactivates all the alarms of the corresponding channel. A message **OV F** for the Over Flow and **WR C** for the Wrong Connection of PT100 are displayed on screen. By pressing **[RESET]**, the general relay is deactivated and the corresponding LED remains on. If the parameter No.172 **OFWC** is set to OFF, the general relay is deactivated.
12. The **OVER FLOW** alarm is activated for: sensor type **J** over 950 °C, sensor type **K** over 1350 °C, sensor type **PT100** over 850 °C and below -200 °C, **4÷20mA** below 3.9mA and over 20.05mA and **0÷20mA** over 20.05mA.
13. The Set Points can function either as **alarm** or as **limit supervisors** by adjusting the parameter No.171 **MoSP**.
14. Possibility to invert the commands High and Low of Set Points.
15. Zero adjustment of each indication independently.
16. LCD screen of 2x16 characters.
17. Recording and depicting incoming alarms to screen numbered and in the order they appear.
18. Up to 32 alarms, 4 for each channel.
19. Capability to drive each of the 32 alarms to the outputs 1÷11 independently or in groups.
20. 8 LEDs, one for each channel.
21. Capability to drive the LED operation to the outputs for monitoring.
22. One general internal relay output 250VAC 10A for siren activation.
23. Time-delay for each of the 32 alarms. **NOTE:** Time-delay for the Average Set Point High and Low alarms is common to each channel (parameters **Tia1** to **Tia8**), for example time-delay **Tia1** for channel 1 applies to **AS1H** and **AS1L**.
24. External RESET for connecting an external button.
25. Outputs can drive micro-relays of 30mA consumption. It is **recommended** to place the micro-relays near the device.
26. Power supply output 24VDC to supply micro-relays and transmitters of 4÷20mA (maximum current 300mA).
27. Screw terminal 0 Volt for supplying transmitters.
28. Power supply: 24VAC ± 10% 50/60Hz or 24VDC +30% / -10%
29. Maximum consumption: 10W
30. Internal power supply fast blow fuse: 1A
31. Internal fast blow fuse in the outputs: 315mA
32. Internal fast blow fuse in the network's communication: 315mA

Technical specifications

1. By setting the input signal to **mA**, we adjust the scale channels through the parameters (**IN1L/IN1H÷IN8L/IN8H**). For example, if the input signal is 4÷20mA and we want the corresponding scale of channel No.1 to be -50÷+50, we adjust the parameter **IN1H** to +50 and afterwards we adjust the parameter **IN1L** to -50. If we try the opposite, that is adjusting first the parameter **IN1L** to -50, it won't be possible because the difference (**IN1H - IN1L**) can never be greater than 2000 units.
2. **Activation / deactivation of a channel.** Each channel can be set through parameter (**SCh1÷SCh8**) with possible **values** (-1÷2): "-1" = channel deactivated, "0" = channel activated and doesn't belong to any average group, "1" = channel activated and belongs to average group No.1, "2" = channel activated and belongs to average group No.2
3. The Set Points alarms, through the parameter No.171 **MoSP**, can function either as **alarms** or as **limit supervisors**.
 - A) **Operating as alarm:** When an alarm appears, the LED, the general relay and the corresponding output (1÷11) are activated. By pressing **[RESET]** we deactivate them all. If an alarm still exists, the corresponding LED remains ON and switches to OFF when the cause of the alarm disappears.
 - B) **Operating as limit supervisor:** When an alarm appears, the LED, the general relay and the corresponding output (1÷11) are activated. By pressing **[RESET]** we deactivate the LED and the general relay but the output (1÷11) is not deactivated. It will be deactivated only if the cause of the alarm disappears. This operation is suitable for High and High-High surveillance.

4. Capability of **inverting** Set Point commands. For example, in channel No.1, the parameter **SP1L** (Set Point 1 Low) corresponds to parameter **HC1L** (Heating Cooling 1 Low). If we set **HC1L** to **Col**, the command is executed over the Set Point. If we set **HC1L** to **Hot**, the command is executed below the Set Point. For example, in High and High-High surveillance, the parameters are set as follows: **HC1H = Col** and **HC1L = Col**.
5. The screen depicts 4 temperature channels at the same time. It refreshes **automatically** to the next set of temperatures and the two average group temperatures. The refreshing time can be set from the parameter **Tisc**. By pressing **[SET]** we **manually** change the indication.
6. When an alarm appears, the temperature indication of the channel with the alarm starts flashing on screen, while the corresponding channel group freezes on screen. Each incoming alarm is recorded and numbered according to the alarm sequence into a table. Up to 30 alarms are recorded, with the new incoming alarm being placed to the 30th position and the 1st being lost. By pressing **[↵]** and **[SET]** the alarm table appears on screen. To clean the whole table, we press at the same time **[↵]** and **[SET]**. The temperature indications appear on screen by pressing **[SET]**.
7. There are up to 32 alarms where each channel has 4, two Set Point alarms (HIGH, LOW) and two average alarms (HIGH, LOW). When a channel does not belong to any group, the two average alarms are automatically deactivated.
8. Each alarm is driven to an output (1÷11) by adjusting the proper parameter. The outputs of Set Point alarms are adjusted from parameters (**OS1H/OS1L÷OS8H/OS8L**), while the outputs of average alarms are adjusted from parameters (**OA1H/OA1L÷OA8H/OA8L**). Alarms can be driven to outputs independently or in groups. If we set "0", the alarm doesn't correspond to any output and if we set from "1÷11", the alarm corresponds to the selected output.
9. Each channel has one LED, in a total of 8 LEDs. A LED starts flashing when an alarm appears and remains ON until it is recognized by **[RESET]**. If the cause of the alarm remains after the **RESET**, the LED remains steadily ON and turns off when the cause disappears.
10. Each LED can be driven to an output (1÷11) for monitoring. This adjustment is set from parameters (**OLE1÷OLE8**). If we set "0", the LED will not correspond to any output while if we set from "1÷11", the LED of the respective channel is driven to the selected output.
11. General internal relay alarm (250VAC, 10 A resistive loads). When one or more of the 32 alarms appear, the general relay is activated. If the parameter No.172 **OFWC** is set to OFF, the OVER FLOW and WRONG CONNECTION alarms do not activate the general relay.
12. Internal relay with one associated auxiliary contact 250VAC 10A for setting up an external alarm circuit in case of **main power supply failure**.
13. Detection of **cutline or short circuit line in the temperature sensors or 4÷20 mA, 0÷20 mA (sensor failure)** in each channel.

Button's function

button	function
ENTER	- access parameters menu - confirm the new value of a parameter
SET	1. cancel the new value of a parameter 2. while programming parameters: By pressing once, an arrow starts flashing next to the parameter value and its value can be modified with the arrows By pressing again, the arrow starts flashing next to the parameter name and we can scroll into the parameters with the arrows 3. when not programming parameters: - displays the next group of temperatures/mA - when the alarms appear on screen, by pressing SET we change the indication to the set of temperatures/mA
 TEST	- inside parameters menu, we can scroll through the parameters or change their values - outside parameters menu, functions as TEST LAMP
 RESET	- inside parameters menu, we can scroll through the parameters or change their values - outside parameters menu, functions as alarm RESET
SET + 	clears the alarms table (does not reset alarms)
SET + 	the alarm table appears on screen

Managing the parameters

By pressing **[ENTER]** we enter the parameter's menu and the first parameter is displayed, **Code**. In order to access the parameters, we have to set the parameter **Code** to "22".

By pressing **[SET]** the arrow flashes next to the parameter's value and with the arrows **[↵]**, **[↩]** we can modify its value.

By pressing **[ENTER]** we **confirm** the new value and the arrow flashes next to the parameter's name.
By pressing **[SET]** we **cancel** the new value and return to the parameter's indication while the arrow flashes next to the parameter's name.

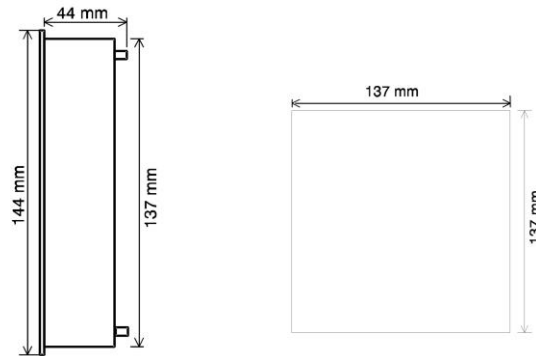
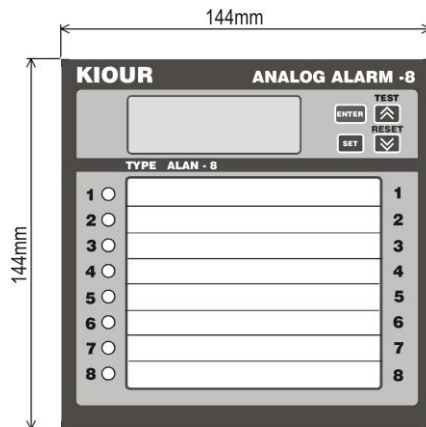
With the arrows **[↵]**, **[↩]** we scroll into the parameters with the order they appear in the parameter's table.

By pressing **[ENTER]** we exit parameters menu.

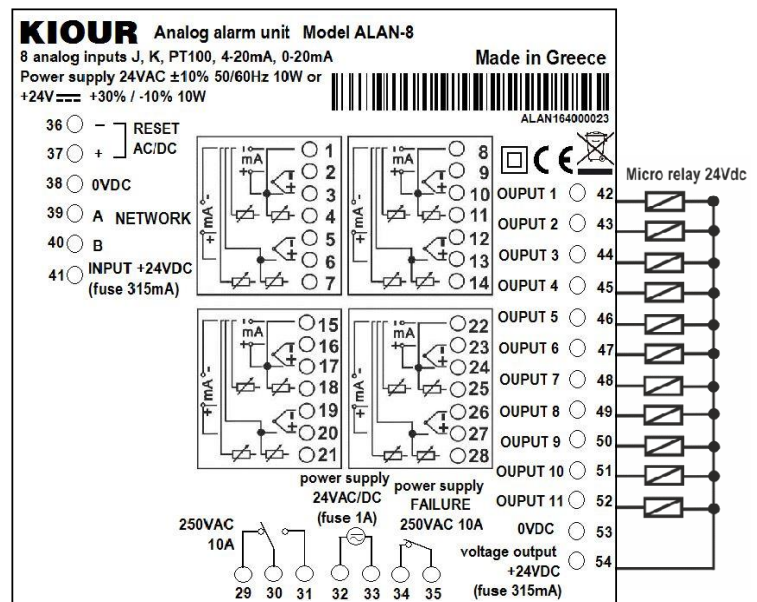
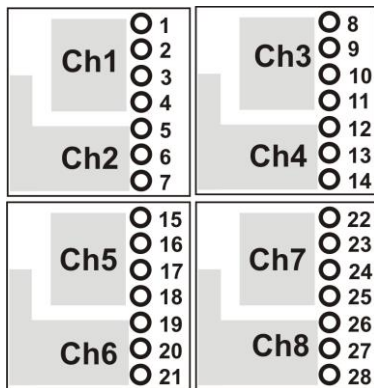
Parameter's table

No	Parameters description		min	max	default	UOM
1	Code	Entry code in parameters menu = "22"	0	254	0	
2	SP1H	Set Point High in Channel 1	-99	2000	100	°C/mA
3	SP1L	Set Point Low in Channel 1	-99	2000	0	°C/mA
...	...	...	...	...	...	°C/mA
16	SP8H	Set Point High in Channel 8	-99	2000	100	°C/mA
17	SP8L	Set Point Low in Channel 8	-99	2000	0	°C/mA
18	IN1L	4 mA in Channel 1 corresponds to an indication on screen (see Specification 1)	-99	2000	0	
19	IN1H	20 mA in Channel 1 corresponds to an indication on screen (see Specification 1)	-99	2000	2000	
...	...	...	...	...	...	
32	IN8L	4 mA in Channel 8 corresponds to an indication on screen (see Specification 1)	-99	2000	0	
33	IN8H	20 mA in Channel 8 corresponds to an indication on screen (see Specification 1)	-99	2000	2000	
34	Tisc	Time for automated refreshing of temperature indications on screen	1	150	6	sec
35	DF1H	Set Point High differential in Channel 1	1	150	2	
36	DF1L	Set Point Low differential in Channel 1	1	150	2	
...	...	...	...	...	...	
49	DF8H	Set Point High differential in Channel 8	1	150	2	
50	DF8L	Set Point Low differential in Channel 8	1	150	2	
51	0AJ1	Zero adjustment of temperature sensor in Channel 1	-50	+50	0	°C
...	...	...	...	...	...	
58	0AJ8	Zero adjustment of temperature sensor in Channel 8	-50	+50	0	°C
59	SCh1	Activation/deactivation of Channel 1 with values (-1+2): "-1" = channel deactivated, "0" = channel activated and does not belong to any average group, "1" = channel activated and belongs to average group No.1, "2" = channel activated and belongs to average group No.2	-1	2	1	
...	...	...	...	...	...	
66	SCh8	Activation/deactivation of Channel 8 with values (-1+2): "-1" = channel deactivated, "0" = channel activated and does not belong to any average group, "1" = channel activated and belongs to average group No.1, "2" = channel activated and belongs to average group No.2	-1	2	1	
67	AS1H	Average Set Point High in Channel 1	-99	100	50	°C/mA
68	AS1L	Average Set Point Low in Channel 1	-99	100	-50	°C/mA
...	...	...	...	...	...	°C/mA
81	AS8H	Average Set Point High in Channel 8	-99	100	50	°C/mA
82	AS8L	Average Set Point Low in Channel 8	-99	100	-50	°C/mA
83	Ti1H	Time-delay of Set Point High Alarm in Channel 1	0	200	0	sec
84	Ti1L	Time-delay of Set Point Low Alarm in Channel 1	0	200	0	sec
...	...	...	...	...	...	sec
97	Ti8H	Time-delay of Set Point High Alarm in Channel 8	0	200	0	sec
98	Ti8L	Time-delay of Set Point Low Alarm in Channel 8	0	200	0	sec
99	Tia1	Time-delay of Average Set Points High (AS1H) and Low (AS1L) Alarms in Channel 1	0	200	0	sec
...	...	...	...	...	...	sec
106	Tia8	Time-delay of Average Set Points High (AS8H) and Low (AS8L) Alarms in Channel 8	0	200	0	sec
107	OOF1	Drive the failure line alarm (OV F, WRC) of Channel 1 to one of the 11 outputs	0	200	0	sec
...	...	...	...	...	...	...
114	OOF8	Drive the failure line alarm (OV F, WRC) of Channel 8 to one of the 11 outputs	0	200	0	sec
115	OS1H	Drive the Set Point High command in Channel 1 to an output	1	11	0	
116	OS1L	Drive the Set Point Low command in Channel 1 to an output	1	11	0	
...	...	...	...	...	...	
129	OS8H	Drive the Set Point High command in Channel 8 to an output	1	11	0	
130	OS8L	Drive the Set Point Low command in Channel 8 to an output	1	11	0	
131	OA1H	Drive the Average Set Point High command in Channel 1 to an output	1	11	0	
132	OA1L	Drive the Average Set Point Low command in Channel 1 to an output	1	11	0	
...	...	...	...	...	...	
145	OA8H	Drive the Average Set Point High command in Channel 8 to an output	1	11	0	
146	OA8L	Drive the Average Set Point Low command in Channel 8 to an output	1	11	0	
147	OLE1	Drive the LED of Channel 1 to an output	1	11	1	
...	...	...	...	...	...	
154	OLE8	Drive the LED of Channel 8 to an output	1	11	8	
155	HC1H	Invert Set Point High command in Channel 1 to (Hot) or (Cool)	HoT / CoL		CoL	
156	HC1L	Invert Set Point Low command in Channel 1 to (Hot) or (Cool)	HoT / CoL		HoT	
...	...	...	HoT / CoL		...	
169	HC8H	Invert Set Point High command in Channel 8 to (Hot) or (Cool)	HoT / CoL		CoL	
170	HC8L	Invert Set Point Low command in Channel 8 to (Hot) or (Cool)	HoT / CoL		HoT	
171	MoSP	Set Points alarms (SP1H/SP1L+SP8H/SP8L) can function either as alarm (OFF) or as limit supervisor (ON)	ON / OFF		ON	
172	OFWC	Over Flow and Wrong Connection alarms activate (ON) or do not activate (OFF) the internal general relay alarm	ON / OFF		ON	
173	rP2H	Not in use				
174	rP2L	Not in use				
...	...	...				
185	rP8H	Not in use				
186	rP8L	Not in use				
187	rEPE	Not in use				
188	V-AD	Device's address on monitoring network	0	98	0	
189	ChM1	Input signal type in Channel 1, values: "1" for J sensor, "2" for K sensor, "3" for PT100 sensor with 3 cables, "4" for PT100 sensor with 2 cables, "5" for 4+20 mA and "6" for 0+20 mA	1	5	1	
...	...	...	...	...	...	
196	ChM8	Input signal type in Channel 8, values: "1" for J sensor, "2" for K sensor, "3" for PT100 sensor with 3 cables, "4" for PT100 sensor with 2 cables, "5" for 4+20 mA and "6" for 0+20 mA	1	5	1	

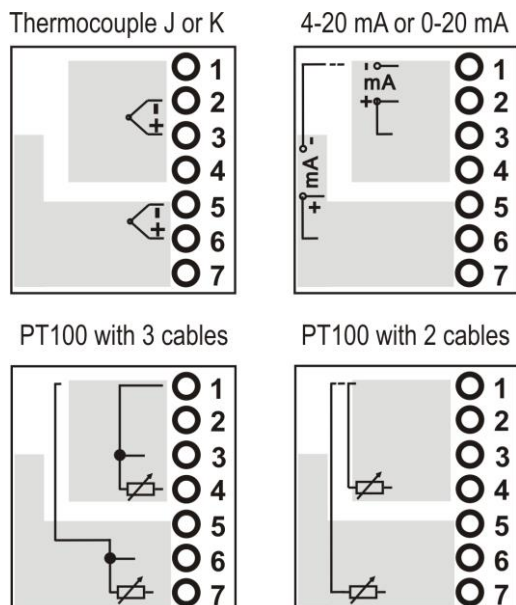
Dimensions



Connection diagrams – channels



Input connections of channel for each adjustment



Technical specifications

Power supply: 24VAC $\pm$ 10% 50/60Hz or 24VDC +30% / -10%
 Maximum power consumption: 10W
 Internal power supply fast blow fuse: 1A
 Internal fast blow fuse in the outputs: 315mA
 Internal fast blow fuse in the network: 315mA
 General internal relay alarm 250VAC 10A resistive loads
 Internal relay with one associated auxiliary contact 250VAC 10A for setting up an external alarm circuit in case of main power failure
 Accuracy: 1% $\pm$ 1 digit
 LCD screen 2x16 characters
 Operating temperature: -15 $\div$ +70 $^{\circ}$ C
 Storage temperature: -20 $\div$ +80 $^{\circ}$ C
 The device is mounted on a panel hole with dimension 137x137mm
 Connection with plug in screw terminals
 IP protection rating: IP42 front side. To be installed in an enclosure which provides protection against solid foreign objects and liquids at least IP42.
 Class of equipment: Class II
 Internal audible alarm is not included (buzzer)

Detection of cutline or short circuit line in the temperature sensors or 4÷20mA, 0÷20mA (sensor failure) in each channel

PT100 and 4÷20mA: In case of *cutline or short circuit line*, the general relay is activated and the corresponding input's LED is flashing. Specifically:

1. **PT100 3 cables:** a) *short circuit line*: the general relay is activated, the corresponding input's LED is flashing and the screen displays **OV F**.
b) *cutline in the sensor's cable*: the general relay is activated, the corresponding input's LED is flashing and the screen displays **OV F**.
c) *cutline in the compensation's cable*: the general relay is activated, the corresponding input's LED is flashing and the screen displays **WR C**.
2. **PT100 2 cables:** *cutline or short circuit line*: the general relay is activated, the corresponding input's LED is flashing and the screen displays **OV F**.
3. **4÷20mA:** *cutline or short circuit line*: the general relay is activated, the corresponding input's LED is flashing and the screen displays **OV F**.

Thermocouple J, K and 0÷20mA: In case of *cutline* the general relay is activated and the corresponding input's LED is flashing. Specifically:

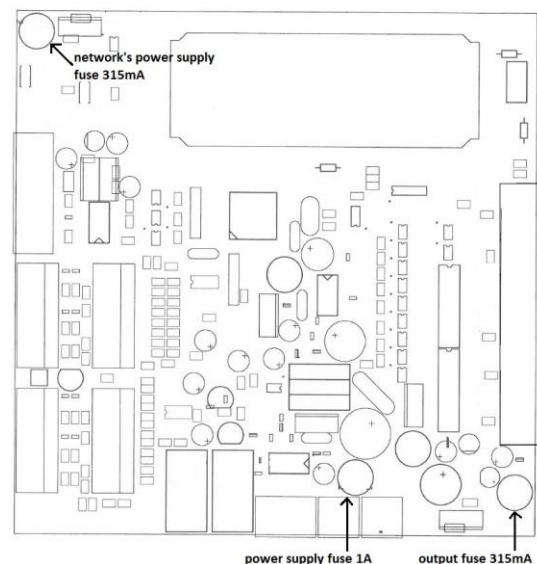
3. **Thermocouple J, K:** a) *cutline*: the general relay is activated, the corresponding input's LED is flashing and the screen displays **OV F**.
b) *short circuit line*: short circuit alarm corresponds to 0°C and the reception of the alarm can be adjusted by the parameters.
4. **0÷20mA:** a) *cutline*: the general relay is activated, the corresponding input's LED is flashing and the screen displays **OV F**.
b) *short circuit line*: short circuit alarm corresponds to 0mA and the reception of the alarm can be adjusted by the parameters.

Power failure setup

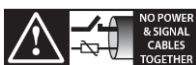
An internal relay 250VAC 10A with one contact (terminal blocks 34, 35) is available to set up an external alarm circuit in case main power supply fails. When the device is powered on, the said auxiliary contact will open and when power failure occurs the same contact will close, therefore an external alarm circuit with a separate power supply will also close and consequently, an audible and/or visual alarm will be triggered

Internal fuses

Internal power supply fast blow fuse: 1A
Internal fast blow fuse in the outputs: 315mA
Internal fast blow fuse in the network's communication: 315mA



ATTENTION to prevent electrostatic discharges at the side slots of the device and insertion of sharp objects



ATTENTION: separate the signal cables from the power supply cables to prevent electromagnetic disorders. Signal cables must never be in the same pipe with the power supply cables.



Read and keep these instructions. The device is under a two years' good operation guarantee. The guarantee is valid provided the manual instructions have been applied. Check and service of the device must be performed by an authorized technician. The guarantee covers only the replacement or the service of the device.