

Series K . Modules R2, R4, R6

Relay outputs

PANEL METERS . OPTIONAL CONTROL MODULES

Special relay output modules for K Series panel meters, with 2, 4 and 6 relay outputs. Relays with 3 contacts each (NC, NO, common). Switching up to 250V @ 6A continuous. Terminal with 3.81 mm pitch. Configurable activation and deactivation delays, hysteresis, double setpoint, ...

1. Modules R2, R4, R6

Modules with 2, 4 and 6 relays

Modules with 2, 4 and 6 relay outputs for K Series panel meters. Relays with 3 contacts each, with switching capability up to 250 V @ 6 A. The R2, R4 and R6 modules provide setpoint configuration, hysteresis, independent activation and deactivation delays, and second alarm setpoint for windowed alarms.

Modules R2, R4 and R6 are installed on slot 'Opt.1' (see section 1.8) and are configured from instruments front keypad.

Only one module R2, R4 or R6 can be installed per instrument. Modules R2, R4 and R6 are not compatible with standard R1 modules.

The R2, R4 and R6 modules can be ordered pre-installed into a K Series panel meter, or standalone for delayed installation, as they do not require soldering or special configuration.

Index

1. Modules R2, R4, R6.	2
1.1 How to order	2
1.2 How to install the R2, R4, R6 modules	2
1.3 Technical specifications	2
1.4 Rear view and connections	3
1.5 Front view	3
1.6 Configuration menu	4
1.6.1 Alarm configuration.	4
1.6.2 Alarms 1, 2, 3, 4, 5 and 6	5
1.6.3 Factory reset	5
1.6.4 Firmware version	5
1.7 To access the instrument.	6
1.8 Modular system.	6
1.9 Precautions on installation.	7
1.10 Factory configuration	7
1.11 CE declaration of conformity	7
1.12 Warranty	7

1.2 How to install the R2, R4, R6 modules

- To install a R2, R4 or R6 module into a K Series panel meter :
1. open the instrument housing (see section 1.7)
 2. install the module at slot 'Opt.1' (see section 1.8) and close the instrument
 3. configure the module as indicated in the 'Configuration menu' (see section 1.6)
 4. connect the signal terminals (see section 1.4)

1.1 How to order

To order **pre-installed** R2, R4 or R6 modules into K Series panel meters, see the 'How to order' section into the panel meter user's manual, for information on how to build the order reference.

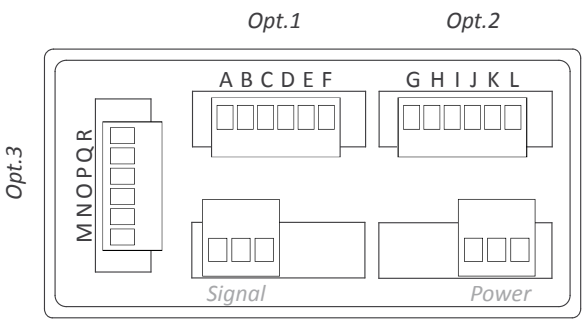
To order **standalone** R2, R4 or R6 modules, for **delayed** installation into K Series panel meters, use the following ordering references : 'BK-R2', 'BK-R4' or 'BK-R6'

1.3 Technical specifications

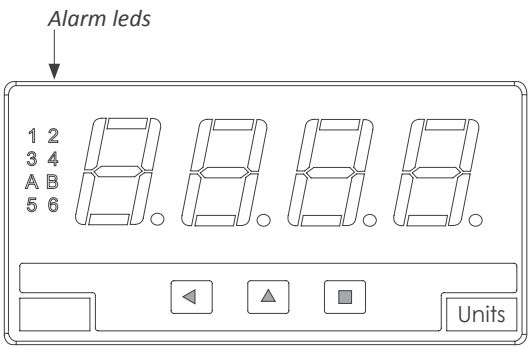
Slots allowed	'Opt.1' (see section 1.8)
• Module R2	occupies Opt.1
• Module R4	occupies Opt.1 and Opt.2
• Module R6	occupies Opt.1, Opt.2 and Opt.3
Number of relays	2 with module R2
	4 with module R4
	6 with module R6
Type of relay	3 contact relay (NC, NO, common)
Current maximum	6 A per relay (resistive load)
Voltage maximum*	250 Vac continuous
Isolation	2500 Veff
Type of terminal	plug-in screw terminal
	pitch 3.81 mm

* terminals approved for 300 V (according to UL1059, groups B and D) and 160 V (according to VDE on CAT-III and pollution degree 3).

1.4 Rear view and connections

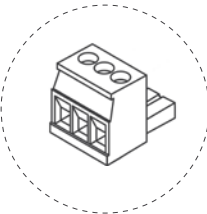


1.5 Front view



Relay	Common	Normally Open (NO)	Normally Closed (NC)
relay 1	A	B	C
relay 2	D	E	F
relay 3	G	H	I
relay 4	J	K	L
relay 5	M	N	O
relay 6	P	Q	R

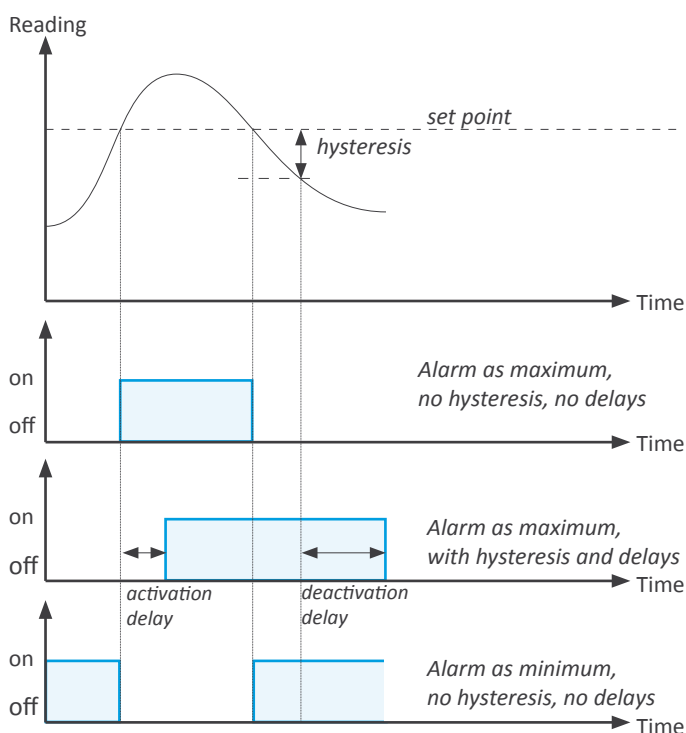
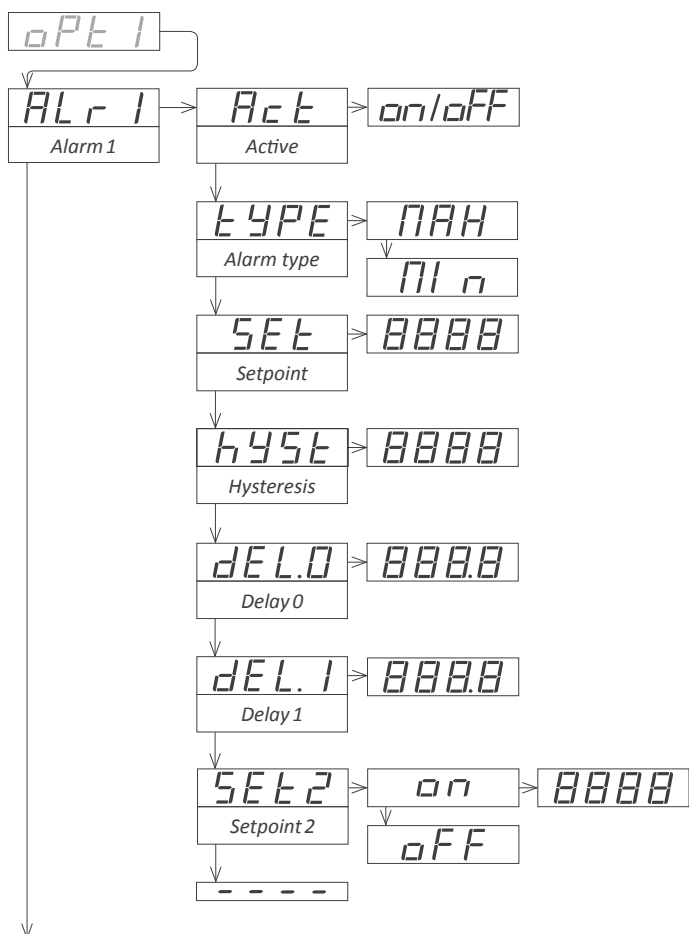
Table 1 - Connections for modules R2, R4 and R6



Detail of the plug-in screw terminals provided with the instrument. The instrument is provided with all terminals needed, both male and female.

1.6 Configuration menu

To access the 'configuration menu' of the module, press the [■] key for 1 second, and then move through the menu with the [▲] key until the 'Opt.X' entry, corresponding to the slot where the module is installed (see section 1.8) is displayed. Press the [■] key to access the module configuration menu. See the 'How to operate the menus' section in the instrument user's manual for a detailed description on how to move through the menus.



1.6.1 Alarm configuration

To configure alarm 1, access the 'Alarm 1' ('ALr1') menu and configure the following parameters :

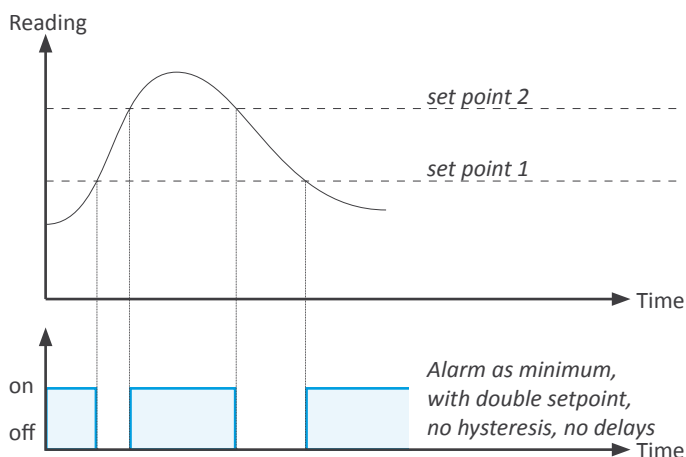
- select 'Active' ('Act') to 'on'
- at 'Alarm type' ('Type') select the alarm acting as a maximum type alarm ('MAX') or a minimum type alarm ('Min'). The maximum type alarm (or minimum type alarm) activates when the display value is higher (or lower) than the setpoint value.
- at 'Setpoint' ('Set') enter the value for the alarm activation point.
- configure the hysteresis value at 'Hysteresis' ('hyst'). The hysteresis applies to the deactivation process of the alarm. The alarm deactivates when the reading has passed the setpoint value plus the hysteresis value. Hysteresis helps to avoid repetitive switching of the alarm relays, due to fluctuating input signals around the setpoint.

Activation and deactivation delays have independent configuration parameters. They are expressed in tenths of second and can be configured from 0.0 to 99.9 seconds.

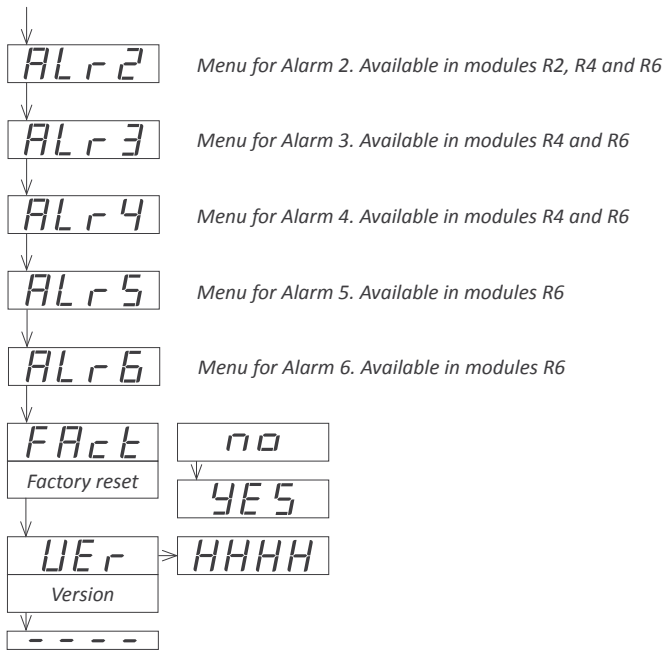
- at 'Delay0' ('DEL.0') configure the activation delay. The activation delay will delay the activation of the alarm. The activation delay starts counting when the setpoint value is passed.
- at 'Delay1' ('DEL.1') configure the deactivation delay. The deactivation delay will delay the deactivation of the alarm. The deactivation delay starts counting when the setpoint value plus the hysteresis value, is passed.

Alarms can be configured with a second setpoint, to work with windowed alarms. The first setpoint activates the alarm, and the second setpoint deactivates the alarm (configuration for 'Alarm as maximum' type of alarm). Second setpoint must always be higher in value than the first setpoint.

- to activate the second setpoint, activate 'Setpoint 2' ('Set2') to 'on' and then configure the desired setpoint value.



1.6 Configuration menu (cont.)



1.6.2 Alarms 1, 2, 3, 4, 5 and 6

To configure alarm 1, enter the 'Alarm 1' ('ALr1') menu (see section 1.6.1). Menus 'Alarm 2' ('ALr2'), 'Alarm 3' ('ALr3'), 'Alarm 4' ('ALr4'), 'Alarm 5' ('ALr5') and 'Alarm 6' ('ALr6') control the configuration for alarms 2, 3, 4, 5 and 6 and are identical to the 'Alarm 1' ('ALr1') menu.

Module 'R2' provides alarms 1 y 2.

Module 'R4' provides alarms 1, 2, 3 and 4.

Module 'R6' provides alarms 1, 2, 3, 4, 5 and 6.

1.6.3 Factory reset

At the 'Factory reset' ('FAct') menu, select 'yes' to load the default factory configuration for the instrument (see section 1.10).

1.6.4 Firmware version

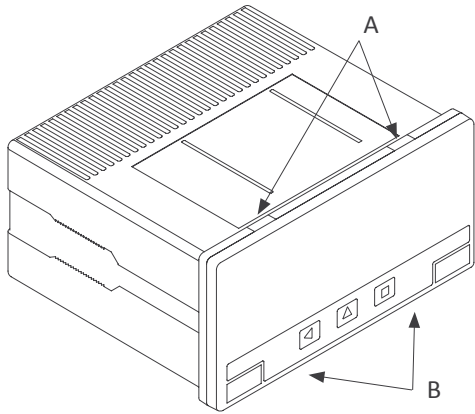
The 'Version' ('VEr') menu informs of the current firmware version installed in the module.

1.7 To access the instrument

You may need to access the inside of the instrument to add or replace internal modules. Use a flat screwdriver to unlock the upper clips marked with 'A'. Then unlock the lower clips marked with 'B' and remove the front cover. Let the inside of the instrument slide out of the housing.

To reinsert the instrument make sure that all modules are correctly connected to the pins on the display module. Place all the set into the housing, assuring that the modules correctly fit into the internal guiding slides of the housing. Once introduced, place again the front cover by clipping first the upper clips 'A' and then the lower clips 'B'.

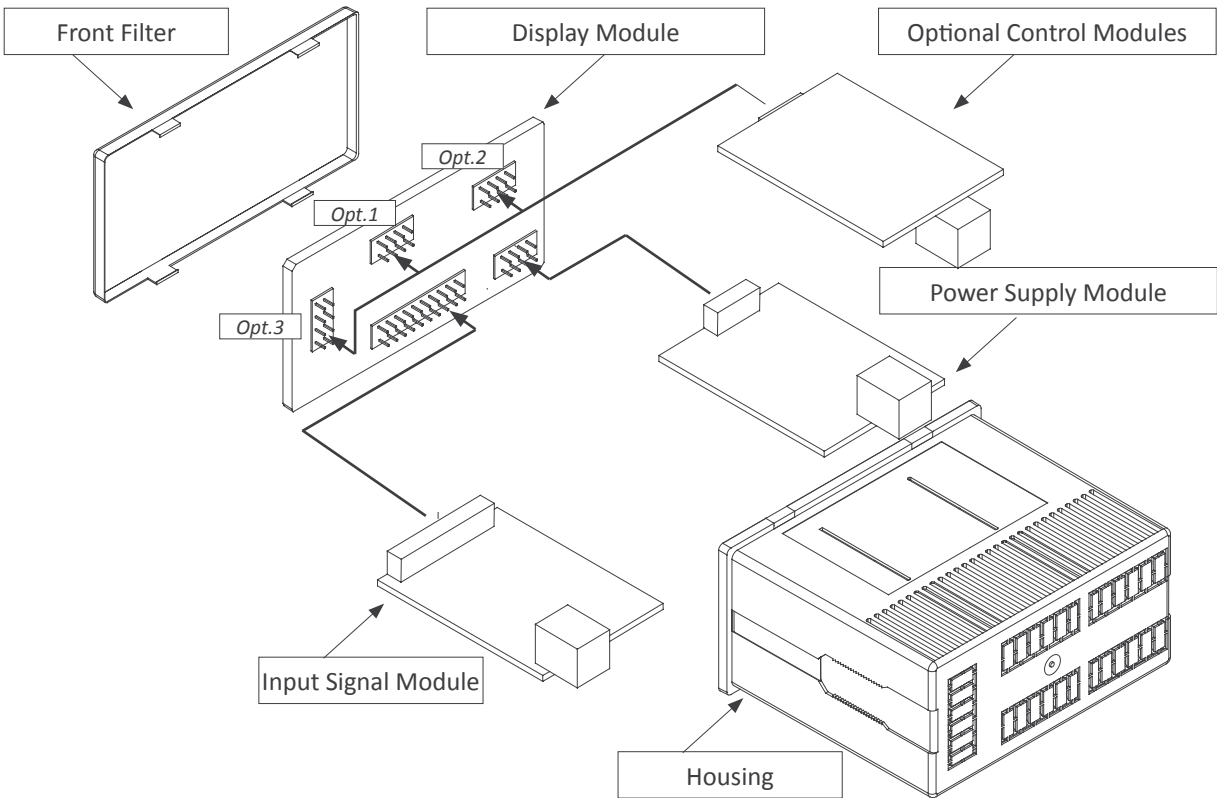
Important - If your instrument was delivered with the IP65 front seal option, accessing the inside of the instrument will permanently break the IP65 seal on the areas of clips 'A' and 'B'.



Risk of electric shock. Removing the front cover will grant access to the internal circuits. Disconnect the input signal to prevent electric shock to the operator. Operation must be performed by qualified personnel only.

1.8 Modular system

K Series panel meters are designed to create a modular system. This modular system allows for addition, replacement or substitution of any of the internal modules conforming the instrument. Below is a graphic explanation for the position of each module.



1.9 Precautions on installation



Risk of electrical shock. Instrument terminals can be connected to dangerous voltage.



Instrument protected with double isolation. No earth connection required.



Instrument conforms to CE rules and regulations.

This instrument has been designed and verified conforming to the 61010-1 CE Security Regulation, for industrial applications.

Installation of this instrument must be performed by qualified personnel only. This manual contains the appropriate information for the installation. Using the instrument in ways not specified by the manufacturer may lead to a reduction of the specified protection level. Disconnect the instrument from power before starting any maintenance and / or installation action.

1.10 Factory configuration

Alarms 1, 2, 3, 4, 5 and 6

Active	on
Type	as maximum
Setpoint 1	1000
Setpoint 2	2000
Setpoint 3	3000
Setpoint 4	4000
Setpoint 5	5000
Setpoint 6	6000
Hysteresis	0 counts
Activation delay	0.0 seconds
Deactivation delay	0.0 seconds
Setpoint 2	Off

1.11 CE declaration of conformity

Manufacturer FEMA ELECTRÓNICA, S.A.
Altimira 14 - Pol. Ind. Santiga
E08210 - Barberà del Vallès
BARCELONA - SPAIN
www.fema.es - info@fema.es

Products Modules R2, R4 and R6

The manufacturer declares that the instruments indicated comply with the directives and rules indicated below.

Directive of electromagnetic compatibility 2004/108/CEE

Directive of low voltage 73/23/CEE

Security rules 61010-1

Emission rules

61000-6-4 Generic rules of emission

Immunity rules

61000-6-2 Generic rules of immunity

61000-4-2 By contact ± 4 KV - Criteria B

By air ± 8 KV - Criteria B

61000-4-3 Criteria A

61000-4-4 On signal lines : ± 1 KV - Criteria B

61000-4-6 Criteria A

61000-4-8 30 A/m a 50 Hz - Criteria A

Barberà del Vallès November 2012

Daniel Juncà - Quality Manager

1.12 Warranty

This instrument is warranted against all manufacturing defects for a period of 24 MONTHS from the shipment date. This warranty does not apply in case of misuse, accident or manipulation by non-authorized personnel. In case of malfunction get in contact with your local provider to arrange for repair. Within the warranty period and after examination by the manufacturer, the unit will be repaired or substituted when found to be defective. The scope of this warranty is limited to the repair cost of the instrument, not being the manufacturer eligible for responsibility on additional damages or costs.



Panel meters
Standard 96x48mm



Panel meters
Miniature 48x24mm



Signal converters



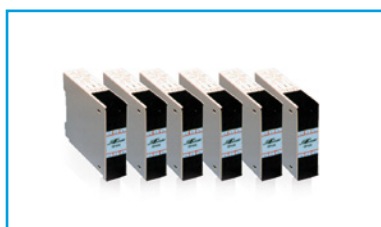
Panel meters
Compact 72x36mm



Large format meters



Bar meters



Isolators



Low cost



'Customized'
instruments

FEMA

ELECTRÓNICA

FEMA ELECTRÓNICA, S.A.

Altimira 14 - Pol. Ind. Santiga
E08210 Barberà del Vallès
BARCELONA - SPAIN

■ Tel. +34 93.729.6004
Fax +34 93.729.6003

■ info@fema.es
www.fema.es

