

RA10 series USER'S MANUAL

Overview:

RA10 is a programmable unit based on microprocessor, made for marine applications. It reads temperature digitally by **K** or **J** type thermocouples.

RA10 can manage up to two readings by an alternatively visualization on display, in manual or automatic way.

Two User-manageable alarm thresholds are provided for every reading.

Functioning:

After switching on, a lamp-test is executed.

A and **B** LEDs indicate which reading display is visualizing.

If only one input channel is supplied, it must be the one corresponding to channel **A**.

TYPE and **MODE** keys allow to change the display luminous intensity.

SET key works to shut off buzzer and switch-off the internal relay.

A1 and **A2** LEDs indicate alarm condition about A reading.

B1 and **B2** LEDs indicate alarm condition about B reading.

Alarm condition is also indicate by buzzer and internal relay switch-on.

Press **SET** key to silence buzzer and switch-off internal relay.

LEDs will turn off when alarm condition will not exist anymore.

If one or both alarm thresholds are not used, they have to be disabled moving their value to **999** in set-up mode.

Two SPDT outputs for A1 and B1, or four SPDT outputs for all alarm conditions can be provided on request.

RA10 has a display luminous intensity regulation.

If luminosity memory is on (see **Lu** code in set-up mode), after switching on RA10 display stays at previous intensity regulation. This is useful if RA10 works only at night.

RA10 allows to adjust the measure scale in a proportional way: +/- 25% range starting from default set.

Keys :

TYPE increase display luminosity / increase value in set-up mode;

MODE decrease display luminosity / decrease value in set-up mode;

SET switch off buzzer and internal relay / set-up accessing;

SEL A/B readings swapping in manual mode / next step in set-up mode.

Set-up:

Entering set-up: press **SET** key for 10 seconds until buzzer produces a “beep” and **SEt1** message appears on display; release **SET** key.

During set-up, A and B LEDs blink.

SEL key allows to go ahead to next step. Value can be set by **TYPE** key (increase) and **MODE** key (decrease). **SEt1** table shows set-up codes.

Once all changes are made, **SEt1** message appears again: exit from set-up and store in memory changes by pressing **TYPE** key.

Caution: if no keys are pressed for more than one minute, RA10 will escape from set-up and **no changes** will be stored in memory.

Particular function and signaling:

- Setting default datas: switch on RA10 keeping **SEL** key pressed.
WARNING : all previous information will be lost forever.

SEt1 table shows default datas beetween square brackets.

- Six LEDs blinking indicate a memory damage.
Press **SET** key to visualize error code.

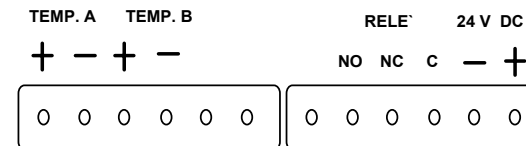
Set1 table:

| Code | Description |
|-------------|---|
| Lu | 0 = luminosity memory off 1 = luminosity memory on [0000] |
| A1 | A1 threshold. Move to 999 to exclude [999] |
| A2 | A2 threshold. Move to 999 to exclude [999] |
| b1 | B1 threshold. Move to 999 to exclude [999] |
| b2 | B2 threshold. Move to 999 to exclude [999] |
| tA | 0 = K type thermocouple (A) 1 = J type thermocouple (A) [0000] |
| tb | 0 = K type thermocouple (B) 1 = J type thermocouple (B) [0000] |
| CH | 0 = A channel only 1 = both A and B channels: manual swap by SEL key 2 = both A and B channels: automatic swap [0000] |
| oA | A channel "Zero offset" Range: +/- 20°C |
| ob | B channel "Zero offset" Range: +/- 20°C |
| rA | Scale proportional adjustment (A channel) Range: +/- 25% |
| rb | Scale proportional adjustment (B channel) Range: +/- 25% |
| Set1 | Press TYPE key to exit set-up and store in memory changes |

Technical specifications:

| | |
|-------------------------|---|
| Power supply | 12/24 V d.c. (from 10 to 30 Volt d.c.) |
| Power consumption | Is < 200 mA @ 12V / Is < 100 mA @ 24V |
| Working temperature | -5 / 60 °C |
| Thermocouples | K type (Chromium – Aluminum) J type (Iron – Constantan) |
| K type range of measure | From 0 to 990 °C |
| J type range of measure | From 0 to 750 °C |
| Accuracy | +/- 2°C for both thermocouple types |
| Resolution | 1 °C |
| Alarms | A1,A2 and B1,B2: User adjustable thresholds, LED signaling, buzzer |
| Relay output | SPDT type, I _{max} = 2A res. / V _{max} = 50 V |
| Plastic box | DIN 43700 - 48.0 x 96.0 mm total length: 120.0 mm |
| Cutting edge | 44.0 x 91.0 mm |

Wiring diagram:



TEMP. A : A thermocouple input, left channel.
TEMP. B : B thermocouple input, right channel (RA12 only).

Cable colours suggestions:

- Green = - Red = +
- Yellow = + Red = -

Ordering informations:

- RA11 (A channel only)
- RA12 (two independent channels, A and B)

