TEMPERATURE CONTROLLER WITH SERVOMOTOR DRIVE OUTPUT 1/8 DIN - 48 x 96

KX6E model Quick Guide • ISTR-FKX6EENGoo



viale Indipendenza 56, 27029 - Vigevano (PV) - ITALY Tel.: +39 0381 698 71, Fax: +39 0381 698 730 internet site: www.ascontecnologic.com sales@ascontecnologic.com E-mail:

MODEL CODE

The Hardware resources are identified by the following Model Code. Model: KX 6E A B C D E F G

| Line | КΧ | 6E | |
|---|-----|----|-----|
| Power Supply | | Α | 11 |
| 100 240Vac (-15 +10%) | | Н |] [|
| Analogue Input | | В |] [|
| TC, mA + Digital Input 1 | | В |] [|
| Output OP1 and OP2 | | CD | |
| Output 1 + Output 2: Servomotor relays SPST 2 A (resistive lo | ad) | мм | |
| Output OP3 | | E | 1 |
| Relay (SPST NO, 2 A/250 Vac) | | R | 1 |

Model Code example: **KX6E HBMMRR-P**

Controller KX6E, 100... 240 Vac, mA + Digital Input 1, 2 Relay Outputs for Servomotor Control, Potentiometer + Digital Input 2.

DECLARATION OF CONFORMITY AND MANUAL RETRIEVAL

KX6E is a panel mounting, Class II instrument. It has been designed with compliance to the European Directives. All information about the controller use can be found in the Engineering Manual: ISTR-MKX6E-ENGox ("x" is the revision). The Declaration of Conformity and the manual of the controller can be downloaded (free of charge) from the web-site: www.ascontecnologic.com

Once connected to the web-site, search: KX6E

then click on **KX6E**.

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CE

In the lower part of the product page (in any language) is present the download area with links to the documents available for the controller (in the available languages).

▲ Warning!

Whenever a failure or a malfunction of the device may cause dangerous situations for persons, things or animals, please remember that the plant must be equipped with additional devices which will guarantee safety.

- We warrant that the products will be free from defects in material and workmanship for 18 months from the date of delivery. Products and components that are subject to wear due to conditions of use, service life and misuse are not covered by this warranty.

| | Output OP4 | F |
|---|---|---|
| | Relay (SPST NO, 2 A/250 Vac) | R |
|] | Options | G |
| | No options | - |
| | Potentiometer input + Digital Input 2 + RS 485 Modbus | С |
| 1 | Potentiometer input + Isolated Digital Input 2 | Р |
| | RS485 Modbus | s |

DIMENSIONS

Overall dimensions (W x H x D): 48 x 96 x 75.9 mm (1.89 x 3.78 x 2.99 in.)

Panel Cut-out (W x H):

45+0.6 x 89+0.6 mm (1.78^{+0.023} x 3.50^{+0.023} in.)









Analogue Input

+

mA

2

1



TERMINALS PROTECTION FLAPS



IA

FRONT REMOVABLE

DISPLAY AND KEYS



| | Operator Mode | Editing Mode | | |
|----|--|---|--|--|
| IJ | Access to: – Operator Commands (Setpoint selection) – Parameters – Configuration | Confirm and go to Next parameter | | |
| | Access to: – Operator additional information (Output value) | Increase the displayed value or select the next element | | |
| ᢦ | Access to: – Set Point modification | Decrease the displayed value or select the previous element | | |
| G | Start the programmed function (Auto/Man) | Exit from Operator commands/Parameter setting/Configuration | | |

(*) Warning This LED flashes when the controller detects a potentiometer failure

This function does not require the operator supervision, after it has been started by the keyboard, the rest of the operations are automatic. From the parameters select, using the 🛆 and 💙 keys the P.E. Automatic potentiometer calibration parameter.

98

2:

Extraction procedure

1, 1A: Pulling the controller from the upper

sequence the 2 retainers;

the external housing.

and lower sides, carefully open in

Extract the controller module from

Press the \land and \bigtriangledown keys to set the parameter to YES.

The 🔁 key starts the "Potentiometer self-calibration function with servomotor time auto-learning".

The calibration process is illustrated in the drawing on the right.

At the end of the automatic potentiometer calibration the instrument moves the valve to zero and shows one of the following messages:

| Value shown | Description |
|-------------|--|
| donE | Calibration succesfully ended, the potentiometer has been calibrated and the valve stroke time has been written in the $5 E_{r,E}$ (Stroke time) parameter |
| E.P.r.E | Potentiometer reversed |
| na.PE | No potentiometer |
| E.P.c A | Potentiometer calibration error |

The indication disappears when the 🖃 button is pressed (the instrument returns to the P.c. RL parameter). In case of errors, execute the necessary actions and restart the calibration procedure:

| Value shown | Correction action |
|-------------|---|
| EPrE | Potentiometer reversed. The connection of the potentiometer terminals, must be inverted (terminals 13 and 15), then run the potentiometer calibration again. |
| naPt | No potentiometer. In case the potentiometer is present, carefully control the potentiometer cables and connections (terminals 13, 14 and 15), then run the potentiometer calibration again. If the problem persists, the potentiometer can be out of range (less than 100 Ω or more than 10 k Ω) or damaged. |
| E.P.c. A | Potentiometer calibration error. The limit switches of the servomotor are set too close. Correct the position of the servomotor limit switches, then run the potentiometer calibration again |



PARAMETERS SETTING



Parameters List (PR55: 20) (in gray the parameters related to optional features)

| Group | Param. | Description | Range value or selection list elements | Default | User value | Note |
|---------------|--------|--|--|---------|---------------|------|
| Commands | oPEr | Operative mode selection | Auto = Auto mode; oPLo = Manual mode. | Auto | | |
| | EunE | Autotuning manual start | oFF = Not active; on = Active | oFF | | |
| Control | РЬ | Proportional band | 1 9999 (E.U.) | 50 | | |
| | E, | Integral time | From o (oFF) to 9999 (s) | 200 | | |
| | Еd | Derivative time | From o (oFF) to 9999 (s) | oFF | | |
| | d 6.5 | Servomotor dead band | 0 100% | 50 | | |
| | AL I | AL1 threshold | -1999 9999 | 0 | | |
| | HAL I | AL1 hysteresis | 1 9999 (E.U.) | 1 | | |
| | AL IL | Alarm 1 type | nonE = Alarm not used; LoAb = Absolute low alarm; HiAb = Absolute high alarm; LHAo = Window alarm in alarm outside the window; LHAI = Window alarm in alarm inside the window; SE.br = Sensor Break; LodE = Deviation low alarm (relative); HidE = Deviation high alarm (relative); LHdo = Relative band alarm in alarm out of the band; LHdi = Relative band alarm in alarm inside the band. | Hi.Ab | | |
| Alumis | AL 2 | AL2 threshold | -1999 9999 | 0 | | |
| | HAL 2 | AL2 hysteresis | 1 9999 (E.U.) | 1 | | |
| | AL 2.E | Alarm 2 type | nonE = Alarm not used; LoAb = Absolute low alarm; HiAb = Absolute high alarm; LHAo = Window alarm in alarm outside the window; LHAI = Window alarm in alarm inside the window; SE.br = Sensor Break; LodE = Deviation low alarm (relative); HidE = Deviation high alarm (relative); LHdo = Relative band alarm in alarm out of the band; LHdi = Relative band alarm in alarm inside the band. | Hi.dE | | |
| | R.S.P | Active set point selection | From 1 (SP 1) to nSP | 1 | | |
| | SP | Set point 1 | From SPLL to SPLH | 0 | | |
| | 5P 2 | Set point 2 | From SPLL to SPLH | 0 | | |
| Set Point | SPLL | Minimum set point value | From –1999 to SPHL | -1999 | | |
| | SPHL | Maximum set point value | From SPLL to 9999 | 9999 | | |
| | n SP | Number of used set points | 1 4 | 2 | | |
| | POŁ | Potentiometer enabling | nonE = Potentiometer not used; pot.o = Potentiometer used for indication. | Pot.o | | |
| | P.c RL | Automatic potentiometer calibration | no = Potentiometer calibration disabled; YES = Potentiometer calibration enabled. | no | | |
| | SEr.E | Servomotor stroke time | 5 300 seconds | 60 | | |
| | SEnS | Input type | J = TC J (0 1000°C/32 1832°F); crAL = TC K (0 1370°C/32 2498°F); S = TC S (0 1760°C/32 3200°F); r = TC R (0 1760°C/32 3200°F); t = TC T (0 400°C/32 752°F); 0.20 = 0 20 mA; 4.20 = 4 20 mA. | 1 | | |
| | dР | Decimal Point Position | 0 3 | 0 | | |
| | 550 | Initial Scale Value | -1999 9999 | 0 | | |
| | FSE | Full Scale Value | -1999 9999 | 1000 | | |
| Configuration | un it | Engineering unit | °c / °F | °c | | |
| - | oPE | Safety output value | -100 100 (% of the output) | 0 | | |
| | d iF I | Digital Input 1 function | oFF = Not used; 1 = Alarm reset; 2 = Alarm acknowledge (ACK); 3 = Hold of the measured value; | oFF | | |
| | d ,F2 | Digital Input 2 function | 4 = Reserved; 5 = Manual mode; 6 = HEAt with SP1 and Cool with SP2; 7 = SP1 - SP2 selection. | oFF | | |
| | u5rb | Dutton function dur- ing RUN TIME | nonE = No function; tunE = Auto-tune/self-tune enabling; oPLo = Manual mode; AAc = Alarm reset; ASi = Alarm acknowledge; St.by = Reserved; SP1.2 = SP/SP2 selection. | oPLo | | |
| | PR52 | Level 2 password (limited access level) | - oFF (Level 2 not protected by password); - 1 200. | 20 | | |

Complete Configuration and Parameter setting can be easily uploaded from the controller and downloaded to other controllers using the: Configuration Key and Communication Adapter model: A-o1.







Deviation Alarm





When Absolute External is selected



ΡV ALxH SP 🖁 ALxL 🛓 Time ÓŃ ÓŃ

When Internal Band is selected

Band Alarm



When External Band is selected

Absolute High-Low Alarm