

Safety and Installation Instructions for barrier model:

E1071S 1 channel Temperature Converter and Trip Amplifiers Eurocard Eckardt TSV175 pin layout.

This installation manual is intended to be read and used in conjunction with the E1071 data sheet DTS0034.

Warning

E1071 series are isolated Intrinsically Safe Associated Apparatus installed into standard Eurocard 19" racks located in Safe Area within the specified operating temperature limits and connected to equipment with a maximum limit for AC power supply U_m of 250 Vrms.

E1071 series must be installed by qualified personnel, in accordance to the relevant national/international installation standards (e.g. BS 5345 Pt4, VDE 165, ISA RP12.6) following the established installation rules, particular care shall be given to segregation and clear identification of I.S. conductors from non I.S. ones. Units can be located in Hazardous Area if enclosed in "explosion proof housing" or "air purged housing" conforming to the applicable standards.

In the system safety analysis, always check the Hazardous Area devices to conform with the related system documentation, if the device is Intrinsically Safe check its suitability for the Hazardous Area and gas group encountered and that its max. allowable voltage, current, power (U_a , I_a , P_a) are not exceeded by the safety parameters (U_o , I_o , P_o) indicated in the corresponding data sheet and card side cover of the E1071 series Associated Apparatus connected to it.

When checking the power matching also consider the maximum operating temperature of the field device, check that added connecting cable and field device capacitance and inductance do not exceed the limits (C_o , L_o , L/R) given in the Associated Apparatus parameters for the effective gas group (see parameters on card side cover and data sheets).

On request GM can supply the I.S. book, a comprehensive tutorial about the constraints imposed by the I.S. regulation.

Operation

Input channel of E1071 accept a signal from Hazardous Area (Thermocouple, millivolt, Resistance Thermometer, Transmitting Potentiometer) and provide a 0/4-20 mA, 0/1-5V or 0/2-10 V output to drive a load in Safe Area. In addition to the analog output the barrier has also a two channel trip amplifiers providing two relay SPST contacts, alarm A and B, that can be configured as HIGH, LOW or LOW start-up alarm operating mode and NE or ND relay operating mode.

Presence of supply power is displayed by a green signaling LED, status of alarm output A and B is displayed by two red LED, integrity of field sensor and connecting line can be monitored by a configurable burnout circuit which, if enabled, can drive output signal to upscale or downscale limit and by signaling red LED. Type E1071S has a single input and output channel.

Configuration

Alarm trip point setting and readout, input variable readout and configuration of all operating parameters is performed by the GM Pocket Portable Configurator type PPC1090 that plugs directly into the non intrinsically safe portion of the E1071 converter circuit. It has a 5 digit display and four push button with a menu driven configuration software, the main features of the converter can be easily configured, these are: type of input circuit, type of sensor, burnout condition (for TC or RTD input sensor), measuring range, type of output and range, refer to the Instruction Manual ISM0021 for a detailed description of configuration and menu options.

Installation

E1071 series are 3HE (128,5mm) high, 4TE (20,32mm) wide and 175,5 mm long Eurocard plug in modules units according to DIN 41494, terminated with a DIN 41612 type F 32 pin card edge connector, plugged on a standard Eurocard 3HE rack and wired to a variety of DIN 41612 type F pin compatible connectors, all cards are hot swappable, i.e. they can be plugged in/out into a powered "live" rack without suffering or causing any damage.

A wide option of mating connectors having different connecting methods like e.g. wire wrap, termi-point, crimp snap-in or screw terminals are available on the market and can be used for wiring the 19" rack.

As illustrated in the side cover, pins 2d, 2b, 2z are respectively the top left, top center, top right pins; 32d, 32b, 32z are respectively the bottom left, bottom center, bottom right pins of the edge connector (connector pin front view).

On card side cover and data sheet a block diagram identifies all connections and configurations.

Intrinsically Safe conductors must be identified and segregated from non I.S. and wired, in accordance to the relevant national or international installation standards (e.g. BS 5345 Pt4, VDE 165, ISA RP12.6), make sure that conductors are well isolated from each other and do not produce any unintentional connection.

The rack must provide an IP20 minimum degree of mechanical protection for indoor installation, outdoor installation requires an additional enclosure with higher degree of protection (i.e. IP54 to IP65) consistent with the effective operating environment of the specific installation, units must be protected against dirt, dust, extreme mechanical and thermal stress and casual contacts, any unauthorized card modification must be avoided, to identify cards in a system, a characters set can be tagged on the aluminum plate of the front panel handle. Installation in Hazardous Area is allowed only if the rack is enclosed in a proper "explosion proof housing" or "air purged housing" conforming to the applicable standards.

Start-up

Before plugging and powering the unit check all wires are properly connected, particularly supply conductors and their polarity, input and output wires, also check that Intrinsically Safe conductors and cable trays are segregated (no direct contacts with other non I.S. conductors) and identified either by color coding, preferably blue, or by marking.

Check conductors for exposed wires that could touch each other causing dangerous unwanted shorts.

Turn on power, the "power on" green led must be lit, alarm LED should reflect the input variable condition with respect to trip points setting, output on each channel must be in accordance with the corresponding input signal.

Operation

The Pocket Portable Configurator type PPC1090 is suitable to configure the “smart” barrier of D1000 and E1000 series.

The configurator is powered by the unit (no battery power) when the telephone jack is plugged into the barrier (RJ11 4 poles connector type with 1:1 connection). It has a 5 digit display, 4 leds and four push buttons with a menu driven configuration software and can be used in Safe Area without any certification because it's plug in the non intrinsically safe portion of circuit.

Configuration

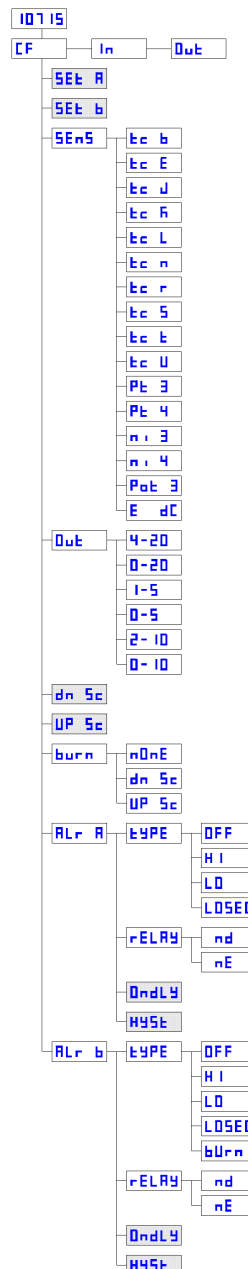
The configuration procedure is equal for all the barriers and follows a unit specific menu.

The display shows the actual menu item, the led shows the channel configured and the push button actuates as “Enter”, “Select”, “Down” and “Up” key. The “Enter” key is pressed to confirm the menu item, the “Select” key is pressed to scroll the menu item, the “down” and “Up” keys are pressed to decrement or increment the numeric value of menu item. The “Up” key is also pressed to decrement the menu level.

When the PPC1090 is plugged in to the unit, the display shows the barrier model (first level menu).

Then press the “Enter” key to the second level menu and the “Select” key to scroll the menu voice. When the selected menu item is displayed press the “Enter” key to confirm the choice. Follow this procedure for every voice of the menu. When a numeric menu item is to be changed, press the “Select” key to highlight the character and then the “Up” and “Down” keys to select the number; confirm the modification with the “Enter” key. To return to a higher level menu press the “Up” key.

E1071S Menu



Menu Item Description

- 1) E1071S [1 Level Menu]
Displays Model E1071S single channel temperature converter plus trip amplifier. Press "Enter" key to second level menu.
- 2) CF [2 Level Menu]
Displays the parameters configuration menu. Press "Enter" key to configure the functional parameters, press the "Select" key to the next menu level item or "Up" key to return to first level.
- 3) In [2 Level Menu]
Displays the input variable monitoring. Press "Enter" to display the current input value reading, press the "Select" key to the next menu level item or "Up" key to return to first level.
- 4) Out [2 Level Menu]
Displays the analog output variable monitoring. Press "Enter" to display the current output value reading, press the "Select" key to the next menu level item or "Up" key to return to first level.
- 5) Set A [3 Level Menu]
Displays the SET A Trip Point Value configuration. Press "Enter" to set the trip point value, press the "Select" key to the next menu level item or "Up" key to return to second level. If you pressed "Enter" key, you can set the set value; press the "Select" key to highlight the character you want to change and then the "Up" and "Down" keys to select the number; confirm the modification with the "Enter" key
- 6) Set B [3 Level Menu]
Displays the SET B Trip Point Value configuration. Press "Enter" to set the trip point value, press the "Select" key to the next menu level item or "Up" key to return to second level. If you pressed "Enter" key, you can set the set value; press the "Select" key to highlight the character you want to change and then the "Up" and "Down" keys to select the number; confirm the modification with the "Enter" key
- 7) Sens [3 Level Menu]
Displays the input sensor type configuration. Press "Enter" to set the input sensor, press the "Select" key to the next menu level item or "Up" key to return to second level. If you pressed "Enter" key, you can choose between 16 different sensor; press "Select" key to change the input sensor and then the "Enter" key to confirm the choice. The input sensor are:
 Tc B Thermocouple type B
 Tc E Thermocouple type E
 Tc J Thermocouple type J
 Tc K Thermocouple type K
 Tc L Thermocouple type L
 Tc N Thermocouple type N
 Tc R Thermocouple type R
 Tc S Thermocouple type S
 Tc T Thermocouple type T
 Tc U Thermocouple type U
 Pt 3 Thermoresistance Pt 100 Ω with 3 wire connection
 Pt 4 Thermoresistance Pt 100 Ω with 4 wire connection
 Ni 3 Thermoresistance Ni 100 Ω with 3 wire connection
 Ni 4 Thermoresistance Ni 100 Ω with 4 wire connection
 Pot 3 Potentiometer
 E dc mV dc input from externally powered transmitter
- 8) Out [3 Level Menu]
Displays the analog output type configuration. Press "Enter" to set the analog output type and range, press the "Select" key to the next menu level item or "Up" key to return to second level. If you pressed "Enter" key, you can choose between 6 different output types; press "Select" key to change the output type and range and then the "Enter" key to confirm the choice. The output types are:
 4-20 4 to 20 mA current output
 0-20 0 to 20 mA current output
 1-5 1 to 5 V voltage output
 0-5 0 to 5 V voltage output
 2-10 2 to 10 V voltage output
 0-10 0 to 10 V voltage output
- 9) Dn Sc [3 Level Menu]
Displays the input low scale configuration. Press "Enter" to set the low scale input value, press the "Select" key to the next menu level item or "Up" key to return to second level. If you pressed "Enter" key, you can set the low input value; press the "Select" key to highlight the character you want to change and then the "Up" and "Down" keys to select the number; confirm the modification with the "Enter" key
- 10) Up Sc [3 Level Menu]
Displays the input high scale configuration. Press "Enter" to set the high scale input value, press the "Select" key to the next menu level item or "Up" key to return to second level. If you pressed "Enter" key, you can set the high input value; press the "Select" key to highlight the character you want to change and then the "Up" and "Down" keys to select the number; confirm the modification with the "Enter" key

- 11) Burn [3 Level Menu]
Displays the burnout configuration. Press "Enter" to set the burnout condition, press the "Select" key to the next menu level item or "Up" key to return to second level. If you pressed "Enter" key, you can choose between 3 different burnout conditions; press "Select" key to change the burnout and then the "Enter" key to confirm the choice. The condition types are:
none no burnout detection, the analog output follow the input value
dw sc when in burnout condition, the analog output goes to down scale (0 mA or 0 V)
up sc when in burnout condition, the analog output goes to high scale (22 mA or 11 V)
- 12) Alr A [3 Level Menu]
Displays the Alarm A configuration menu. Press "Enter" to set the alarm condition, press the "Select" key to the next menu level item or "Up" key to return to second level.
- 13) Alr B [3 Level Menu]
Displays the Alarm B configuration menu. Press "Enter" to set the alarm condition, press the "Select" key to the next menu level item or "Up" key to return to second level.
- 14) Type [4 Level Menu]
Displays the alarm type (A or B) configuration. Press "Enter" to set the alarm condition, press the "Select" key to the next menu level item or "Up" key to return to third level. If you pressed "Enter" key, you can choose between 5 different alarm conditions; press "Select" key to change the type and then the "Enter" key to confirm the choice. The condition types are:
OFF no alarm detection, the relay output is always in normal condition
HI high alarm condition, the relay output change status when an alarm condition is detected (input variable goes above the set value)
LO low alarm condition, the relay output change status when an alarm condition is detected (input variable goes below the set value)
LOSEC low with start-up alarm condition, the relay output change status when an alarm condition after the start-up is detected (input variable starts below the set value but no alarm condition is signaled, after the warm-up the variable goes above the set value arming the alarm detection, then when the variable goes below the set value the alarm condition is signaled)
BURN burnout alarm condition, the relay output change status when a burnout condition appear in the input sensor (only for thermocouple, thermoresistance or potentiometer input, not for mV input). The burnout alarm condition can be configured only for Alarm B
- 15) Relay [4 Level Menu]
Displays the relay normal condition (A or B) configuration. Press "Enter" to set the relay condition, press the "Select" key to the next menu level item or "Up" key to return to third level. If you pressed "Enter" key, you can choose between 2 different relay conditions; press "Select" key to change the type and then the "Enter" key to confirm the choice. The condition types are:
ND relay normally de-energized (energized in alarm condition)
NE relay normally energized (de-energized in alarm condition)
- 16) Only [4 Level Menu]
Displays the alarm delay action (A or B) configuration. Press "Enter" to set the delay time value, press the "Select" key to the next menu level item or "Up" key to return to third level. If you pressed "Enter" key, you can set the delay value (100 ms step); press the "Select" key to highlight the character you want to change and then the "Up" and "Down" keys to select the number; confirm the modification with the "Enter" key
- 17) Hyst [4 Level Menu]
Displays the alarm hysteresis value (A or B) configuration. Press "Enter" to set the deadband value, press the "Select" key to the next menu level item or "Up" key to return to third level. If you pressed "Enter" key, you can set the hysteresis value (engineering value); press the "Select" key to highlight the character you want to change and then the "Up" and "Down" keys to select the number; confirm the modification with the "Enter" key