

SİSEL MÜHENDİSLİK ELEKTRONİK SAN. VE TİC. A.S. Yukarı Dudullu Barbaros Cad. Kutup Sk. No:20 34775 - ÜMRANİYE/İSTANBUL-TÜRKİYE Tel: +90 216 499 46 64 Pbx. Fax: +90 216 365 74 01

Read this document carefully before using this device. The guarantee will be expired by damaging of the device if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, metarial damage or capital disadvantages.

# **ENDA ETC SERIES PID TEMPERATURE CONTROLLERS**

3 - Modbus Option

Temperature range

0... 600°C

0...1200°C

0... 400°C

0...1600°C

0...1600°C

-200...600°C

-99.9...300.0°C

RS.....RS-485 Modbus

communication None.....Don't support RS-485

Modbus comm.

+32... +1112°F

+32... +2192°F

+32... +752°F

+32... +2912°F

+32... +2912°F

-328... +1112°F

-99.9...+543.0°F

Thank you for choosing ENDA ETC SERIES temperature controllers

\* Selectable sensor type.

\* Input offset feature.

4420.....48x48x87mm

7420.....72x72x97mm

8420 48x96x87mm

9420.....96x96x50mm

J (Fe-CuNi) Thermocouple

K (NiCr-Ni) Thermocouple

T (Cu-CuNi) Thermocouple

S (Pt10Rh-Pt) Thermocouple

R (Pt13Rh-Pt) Thermocouple

**ENVIROMENTAL CONDITIONS** 

**ELECTRICAL CHARACTERISTICS** 

Max. Relative humidity

Supply

Wiring Line resistance

Accuracy Data retention

OUTPUTS

CONT./AL2

CONTROL

Control type

Control algorit

SSR out

Power consumpt

Rated population degree

selected.

1 - Dimensions

\* Automatic calculation of PID parameters (SELF TUNE).

\* Communication vai RS-485 ModBus protocol (Optional).

2 - Supply Voltage

SM

230VAC...230V AC

9-30V DC

7-24V AC

24VAC.....24V AC

EN 60584

EN 60584

EN 60584

EN 60584

EN 60584

Do not use the device in locations subject to corrosive and flammable gases.

Ambient/storage temperature 0 ... +50 °C /-25... +70 °C (with no icing)

\* Selectable SSR or relay control output.

\* Parameter access protection on 3 levels.

\* Programming by using keypad or Modbus. \* CE marked according to European Norms.

\* AL1 relay output for first alarm out. \* Selectable Heat/Cool control.

**TECHNICAL SPECIFICATIONS** 

Input type

Pt 100 Resistance thermometer EN 60751

Pt 100 Resistance thermometer EN 60751

Enter PID parameters of the system if they are known at the begining Otherwise, Self-Tune should be activated. \* Soft-Start.

\* Relay output can be programmable as second alarm or control output.

\* In the case of sensor failture periodical running or relay state can be



## **R**<sub>8</sub>HS Compliant









### **TERMS**

PV Display

1	ONS		Droop	ce value during nor	mal operation	
re	Process value during normal operation 0 +50 °C /-25 +70 °C (with no icing)  Process value during normal operation Mnemonic parameter code during programming					
	80% up to 31°C decreasing linearly 50% at 40°C.	SV Display:				
	According to EN 60529 Front panel : IP65			spiay : iint during normal o	neration	
	Rear panel : IP20			alue during program		
	Max. 2000m		SET	Control set key	9	
/ic	ice in locations subject to corrosive and flammable gases.			during normal op	eration	
				Parameter selection key during programming		
Εl	ERISTICS					
	230VAC +%10 -%20 or 24VAC ±%10, 50/60Hz or by your choose 9-30VDC / 7-24VAC ±%10 SMPS		Nam Set kev			
	Max. 7VA (For ETC4420 5VA)		during normal operation			
	2.5mm² screw-terminal connections			Menu selection l		
	For thermocouple max. 100ohm, for 3 wired Pt 100 max. 20ohm		ASET	during programn	ning	
	±0,2% (of full scale) ±1 digit		$\triangle$	Increment key du	ıring normal	
	EEPROM (minimum 10 years)			operation and pr		
	EN 61326-1:1997, A1:1998, A2:2001 (Performance criterion B for standard EN 61000-4-3)			Parameter selec		
	EN 61010-1: 2001 (Pollution degree 2, overvoltage category II)		$\triangle$	during programm	ning	
			$\nabla$	Decrement key o	luring	
	Relay : 250V AC, 2A (for resistive load), Selectable as Control or Alarm2 output.			normal operation		
	Relay: 250V AC, 2A (for resistive load), NO/NC selectable. (Alarm1 output).		If only this key is pressed in normal operation,			
	Selectable logic control output. (Max 12V 20mA).		software version number is seen			
	Mechanical 30.000.000 operation; Electrical 300.000 operation			CONTINUE VOI CITOTO	Tidilibor to doon	
		H	PV dis	nlav	7 segment, 4 digits,	
	Single set-point and alarm control		ı v uıs	piuy	red LED indicator	
	On-Off / P, PI, PD, PID (selectable)		yellow LED ind.(ETC8420)			
_	Better than 15 bits		SV display 7 segment, 4 digits,			
	500ms		yellow LED indicator			
	Adjustable between %0 and %100. If Pb=%0, On-Off control is selected.		Character PV display: 7mm(ETC4420)			
	Adjustable between 0.0 and 100.0 minutes.					
	Adjustable between 0.00 and 25.00 minutes.				12.5mm(ETC8420) 14mm(ETC7420)	
	Adjustable between 1 and 250 seconds.				20.3mm(ETC9420)	
	· · · · · · · · · · · · · · · · · · ·	- 10			1 ' '	

Keypad

State indicator

SV display 7mm(ETC4420) 12.5mm(ETC8420)

10.2mm(ETC7420)

14mm(ETC9420)

3 red LEDs for Control, Alarm1 and

SSR outputs

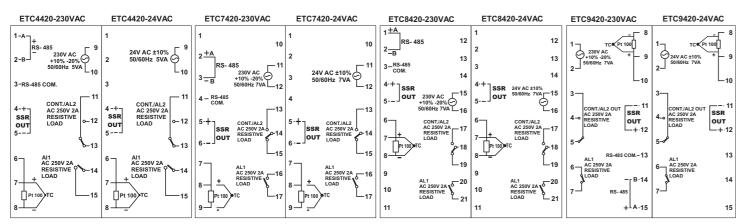
Mikro Switch

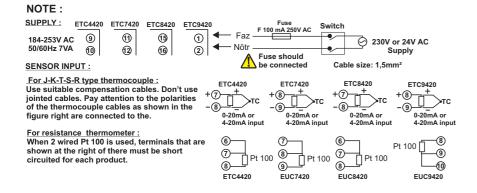
EN 61326-1:1997, A1:1998, A2:2001 (Performance criterion B for standard EN 61000-4-3) Safety fequirements EN 61010-1: 2001 (Pollution degree 2, overvoltage category II) Relay: 250V AC, 2A (for resistive load), Selectable as Control or Alarm2 output. Relay: 250V AC, 2A (for resistive load), NO/NC selectable. (Alarm1 output). Selectable logic control output. (Max 12V 20mA). Life expectancy for relay Mechanical 30,000,000 operation: Electrical 300,000 operation

A/D converter	Better than 15 bits			
Sampling time	500ms			
Propotional band	Adjustable between %0 and %100. If $Pb=$ %0, On-Off control is selected.			
Integral time	Adjustable between 0.0 and 100.0 minutes.			
Derivative time	Adjustable between 0.00 and 25.00 minutes.			
Control period	Adjustable between 1 and 250 seconds.			
Hysteresis	Adjustable between 1 and 50°C/F. If $IP = P E D$ , adjustable between 0,1 and 50°C/F)			
Output power	The ratio of power at a set point can be adjusted between 0% and 100%			
HOUSING				
Housing type	Suitable for flush-panel mounting according to DIN 43 700.			
Dimensions	ETC4420 : G48xY48xD87mm			
	ETC8420 : G48xY96xD87mm			
Weight	Approximately 400g after packing (For ETC4420 250g).			
Enclosure material	Self extinguishing plastics.			
While cleaning the device, solvents (thinner, benzine, acid etc.) or corrosive materials must not be used.				

4/4 ETCXXXX-E-02-R-A3 1/4 ETCXXXX-E-02-R-A3

ENDA ETC series are intended for installation in control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of energy. The device must be protected against inadmissible humidity, vibrations, severe soiling and make sure that the operation temperature is not exceeded. All input and output lines that are not connected to the supply network must be laid out as shielded and twisted cables. These cables should not be close to the power cables or components. The installation and electrical connections must be carried on by a qualified staff and must be according to the relevant locally applicable regulations.





Holding screw 0.4-0.5Nm

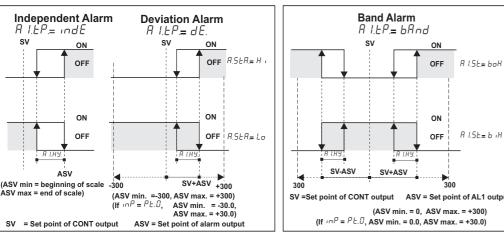
Equipment is protected throughout by DOUBLE INSULATION

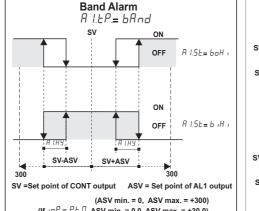
Logic output of the instrument is not electrically insulated from the internal circuits. Therefore, when using a grounding thermocouple, do not connect the logic output terminals to the ground.

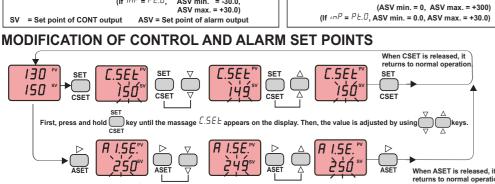
Note: 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.

2) In accordance with the safety regulation, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

### **ALARM1 AND ALARM2 OUTPUT TYPES**



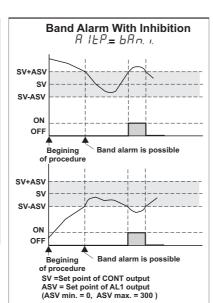


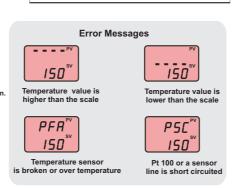


key, alarm setpoint value appears on the display. Then, the value is adjusted by using  $\bigcap_{k=1}^{V}\bigcap_{k=1}^{C}$  keys.

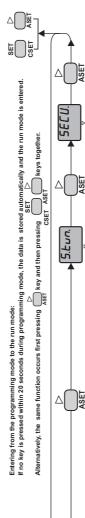
NOTE: The maximum of  $\mathcal{E}.S\mathcal{E}$  is the value of  $\mathcal{E}.H$  i.L. parameter and the minimum of it is the value of  $\mathcal{E}.Lo.L$  parameter. If independent alarm is selected,  $\mathcal{B}$  1.5 $\mathcal{E}$  and  $\mathcal{B}$ 2.5 $\mathcal{E}$  values can be adjusted between the limits of the full scale. If deviation alarm is selected,  $\mathcal{B}$  1.5 $\mathcal{E}$  and  $\mathcal{B}$ 2.5 $\mathcal{E}$  values can be adjusted between -300 and +300. If band alarm is selected,  $\mathcal{B}$  1.5 $\mathcal{E}$  and  $\mathcal{B}$ 2.5 $\mathcal{E}$  values can be adjusted between 0 and +300.

If £.o.£.5 different from out 1. Alarm1 and Alarm2 setpoint values can be adjusted in sequence when per press key





ETCXXX-E-02-R-A3



FLEO.

S F

L'HYS, ser A L'HYS,