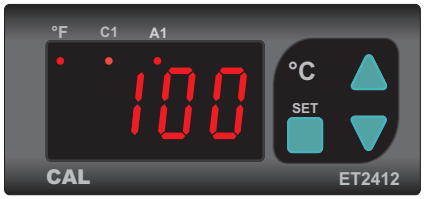
Read this document carefully before using this device. The guarantee will be expired by device demages if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

CAL ET2412 ON/OFF HEAT CONTROLLER

Thank you for choosing **CAL ET2412** ON/OFF Heat Controller.

* 77 x 35mm sized.
* Single NTC sensor input.
* Zero point input shift.
* Selectable heating or cooling control for C1 relay output.
* A1 Relay output for alarm control.
* Selectable independent, deviation and band alarm types.
* In the case of sensor failure, relay state can be set to ON or OFF.
* Upper and lower setpoint limits can be adjusted.
* Temperature unit can be selected as °C or °F.



CE RoHS Compliant

Order Code : ET2412 - ☐☐☐ - ☐☐
1 2

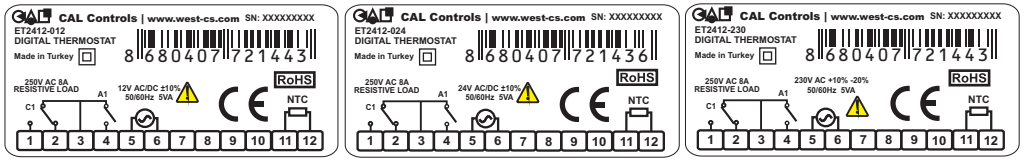
1 - Supply Voltage
230.....230V AC
024.....24V AC/DC
012.....12V AC/DC
SM.....7-24VAC/9-30VDC

2 - Relay Current Selection
08.....8A Relay Output

CONNECTION DIAGRAM

CAL ET2412 is intended for installation within 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 electrical power. The device must be protected against inadmissible humidity, vibrations, severe soiling. 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 out by a qualified staff and must be according to the relevant locally applicable regulations.

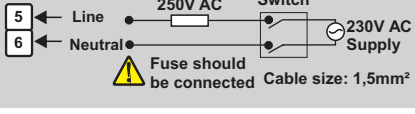


Equipment is protected throughout by DOUBLE INSULATION

Holding screw 0.4-0.5Nm.

NOTE:
SUPPLY:

184-253V AC
50/60Hz 3VA



Note:
1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.
2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

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TECHNICAL SPECIFICATIONS

INPUT			
Input Type		**Scale Range**	**Accuracy**
NTC Sensor Resistance	EN 60751	-60.0...150.0 °C -76.0...302.0°F	± 1% (for full scale) ± 1 Digit

ENVIRONMENTAL CONDITIONS	
Ambient/Storage temperature	0 ... +50 / °C -25... +70°C(without icing)
Relative Humidity	Max. humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.
Protection Class	According to EN60529; Front panel: IP65 Rear panel : IP20
Height	Max. 2000m

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

ELECTRICAL CHARACTERISTICS	
Supply	230V AC +%10 -%20, 50/60Hz or 12/24V AC/DC ±%10
Power Consumption	Max. 3VA
Wiring	Power connector : 2.5mm² screw-terminal, Signal connector : 1,5mm² screw-terminal conenction.
Line Resistance	Max. 100ohm
Data Retention	EEPROM (Min. 10 years)
EMC	EN 61326-1: 2013 (Performance criterion B is satisfied for EN 61000-4-3)
Safety Requirements	EN 61010-1: 2012 (Pollution degree 2, overvoltage category II)
Indicator	4 digits, 12.5mm, 7 segment red LED

OUTPUT	
C1 Output	250V AC, 8A (for resistive load), NO and NC control output.
A1 Output	250V AC, 8A (for resistive load), NO control output.
Life Expectancy for Relay	30.000.000 Switching for no-load operation; 300.000 switching for 8A resistive load at 250VAC.

CONTROL	
Control Type	Single-setpoint and alarm control.
Control Algorithm	On-Off Control.
A/D Converter	12 bit resolution, 100ms sampling time.
Hysteresis	Adjustable between 0.1 and 20.0°C/F.

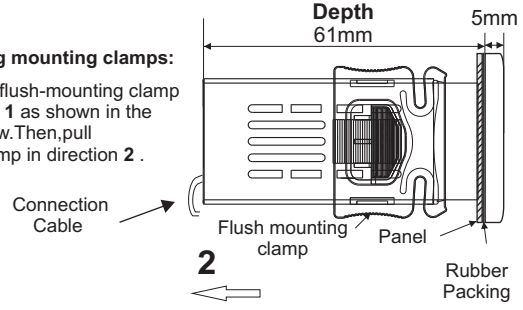
HOUSING	
Housing Type	Suitable for flush-panel mounting according to DIN 43 700.
Dimensions	W77xH35xD61mm
Weight	Approx. 215g (After packing)
Enclosure Materials	Self extinguishing plastics

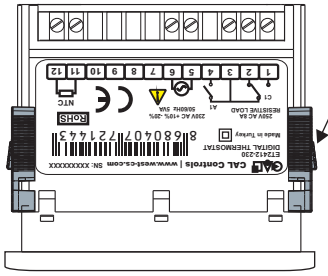
While cleaning the device, solvents (thinner, benzine, acid etc.) or corrosive materials must not be used.

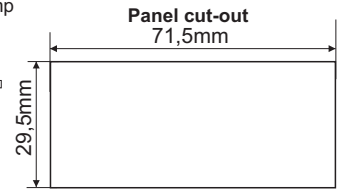
Dimensions

For removing mounting clamps:

- Push the flush-mounting clamp in direction **1** as shown in the figure below.Then,pull out the clamp in direction **2** .



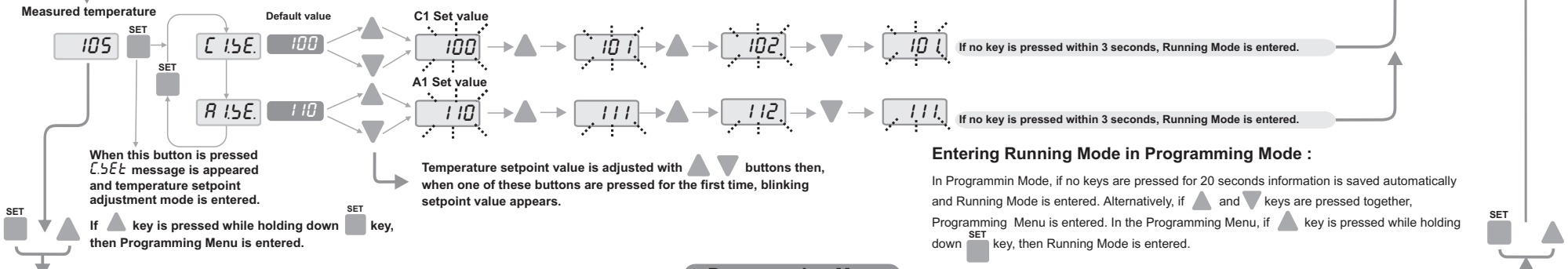




Note: **1)** Panel thickness should be maximum 7mm.
2) If there is not 60mm free space at the back side of the device,it would be difficult to remove it from the panel.

Programming Diagram

Running Mode



Entering Running Mode in Programming Mode :

In Programmin Mode, if no keys are pressed for 20 seconds information is saved automatically and Running Mode is entered. Alternatively, if ▲ and ▼ keys are pressed together, Programming Menu is entered. In the Programming Menu, if ▲ key is pressed while holding down SET key, then Running Mode is entered.

Programming Menu

C 1Cn. → SET → A 1Cn. → SET → ConF. → SET → SECu. → SET

C 1Cn.

Default Value: -60

C 1LL. = Control set point lower limit for C1 output.
It can be adjusted between -60.0 and C 1HL. parameter value.

Default Value: 150

C 1HL. = Control set point upper limit for C1 output.
It can be adjusted between 150.0 and C 1LL. parameter value.

Default Value: 2

C 1HY = Output hysteresis value.
It can be adjusted between 0.1 and 20.0 °C.

A 1Cn.

Default Value: -60

A 1LL. = Control set point lower limit for A1 output.
It can be adjusted between -60.0 and A 1HL. parameter value.

Default Value: 150

A 1HL. = Control set point upper limit for A1 output.
It can be adjusted between 150.0 and A 1LL. parameter value.

Default Value: 2

A 1HY = A1çıkışı histerisiz değeri.
0.1 ile 20.0 °C arasında ayarlanabilir.

Default Value: inAL

A 1tY = Alarm type selection.
Please see A1 Output Format Table for settings.

Default Value: oFF

A 1ES. = A1 Output state in case of sensor failure.
on = Output is ON in case of sensor failure.
oFF = Output is OFF in case of sensor failure.

ConF.

Default Value: HEAt

CtYP. = Control type selection.
CtYP. = HEAt Heating control is selected.
CtYP. = CooL Cooling control is selected.

Default Value: °C

Unit. = Temperature unit selection.
Unit. = Can be selected as °C or °F

Default Value: no

dP. = Decimal point display selection.
If dP. = no , decimal value is not dotted.
If dP. = YES , decimal value is dotted.

Default Value: 0

oFFS. = Offset value.
Zero point shift value is added to the measured value. This feature is used for eliminating the measuring probe distance errors. It can be adjusted between -20.0 and 20.0°C.

Default Value: oFF

C 1ES. = C1 Output state in case of sensor failure.
on = Output is ON in case of sensor failure.
oFF = Output is OFF in case of sensor failure.

SECu.

Default Value: 0

SCod = Access code for security menu. This parameter should be 412 .

When SCo. = 0 , if ▼ key is pressed for 4 seconds while holding down SET key, then dPAr. is seen on display and the device is returned to factory settings.

C 1Sc. = C 1Cn. Security menu access level.
nonE = Invisible.
PYES = Can be modified.
P no = Visible but can't be modified.

A 1Sc. = A 1Cn. Security menu access level
nonE = Invisible.
PYES = Can be modified.
P no = Visible but can't be modified.

Co.Sc. = ConF. Configuration menu access level.
nonE = Invisible.
PYES = Can be modified.
P no = Visible but can't be modified.

C.S.Sc. = C1 set value security access level.
PYES = Can be modified.
P no = Visible but can't be modified.

A.S.Sc. = Alarm set value security access level.
PYES = Can be modified.
P no = Visible but can't be modified.

ERROR MESSAGES

PFA	Sensor is broken
- - - -	Temperature value is higher than the scale
- - - -	Temperature value is lower than the scale

Modification Of Parameter Diagram

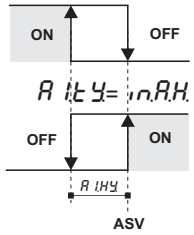
While holding down SET key, parameter value blinks and by ▼ ▲ using keys, the requested value can be adjusted.

If ▲ key is pressed and held 0.6 seconds, the value of the selected parameter increases rapidly. If waited enough,the value increases a hundred at each step. After 1 second, following the release of the key, initial increasing condition is returned. The same procedure is valid for the decrementing.

A1 OUTPUT FORMATS

Independent Alarm

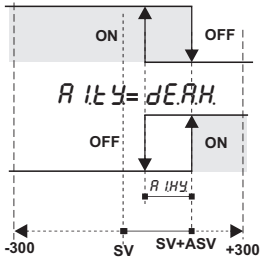
A 1tY= inAL



(ASV Min. = Beginning of Scale
ASV Max. = End of Scale)
SV = C1 output setpoint
ASV = A1 output setpoint

Deviation Alarm

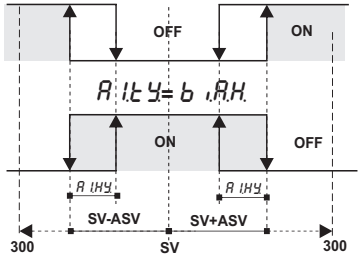
A 1tY= dEAL



(ASV Min. =-300, ASV Max. = +300)

Band Alarm

A 1tY= b AL



SV =C1 output setpoint ASV = A1 output setpoint
(ASV Min. = 0, ASV Max. = +300)

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