



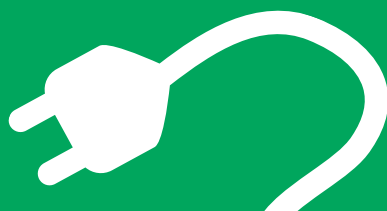
NORSTAT INC.



**ALFA
ELECTRIC**



Control



**THERMAL MANAGEMENT SOLUTIONS
FOR ELECTRICAL ENCLOSURES**

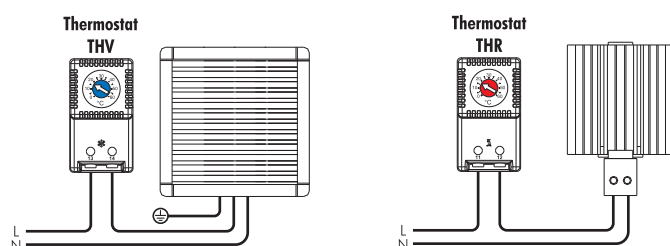


CONTROL

THV - THR THERMOSTATS

Compact Thermostat for DIN 35 mm. rail mounting.
Based on bimetallic junction, provides high capacity
NO or NC contact. Two versions available.

THVx	NO Contact	Typically used for controlling ventilation devices
THRx	NC Contact	Typically used for controlling heaters

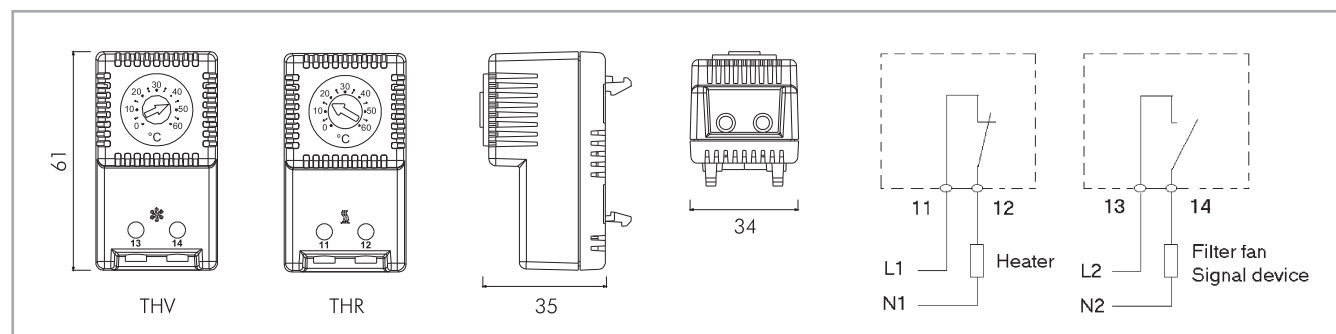


Features	Unit	THR1	THR2	THR3	THV1	THV2	THV3
Contact function	-	NC	NC	NC	NO	NO	NO
Temperature setting range	°C	-10/+50	0/+60	+20/+80	-10/+50	0/+60	+20/+80
Precision	°C	±4					
Hysteresis	°C	7					
Max switching current							
250Vac resistive load (inductive load)	A	10 (1.6)					
125Vac resistive load (inductive load)	A	15 (2.5)					
Max. switching power in Vdc	W	30					
Temperature sensor type	-	Thermostatic bimetal					
Contact type	-	Snap action					
Contact resistance	mOhm	< 10					
Service life	cycles	> 100 000					
Electrical connections	-	2-pole terminal for 2.5 mm² wire					
Casing	-	PA6, UL94 V0 self-extinguishing, light grey RAL 7035					
Protection degree EN60529	-	IP20					
Operating temperature	°C (°F)	-25/+80 (-13/+176)					
Storage temperature	°C (°F)	-45/+80 (-49/+176)					
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022					
Installation position	-	Variable					
Conformity/Certifications	-	CE-UL c File n. E348803					
Dimensions HxWxD	mm	61x34x35					
Weight (with packaging)	kg	0.048 (0.055)					

Accessories

DIN rail bracket

GUIDADINPL



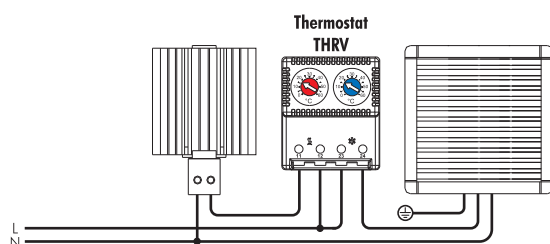
Specifications, values and drawings are subject to change without notice.


THRV - THVV

DOUBLE-THERMOSTATS

Compact double thermostat for DIN 35 mm. rail mounting. Based on bimetallic junction, provide high capacity and separated NO and NC contacts in different combinations. Three versions available.

THRV13	NC	NO
THRV22	NC	NO
THVV22	NO	NO

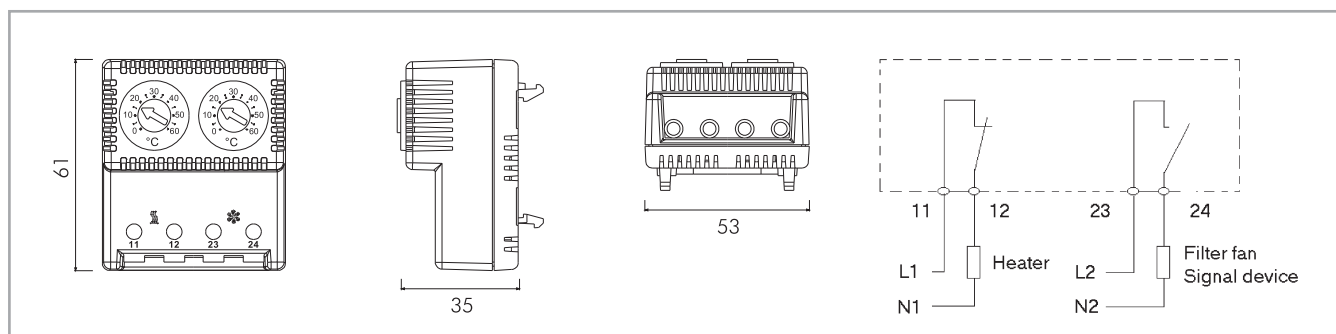


Features	Unit	THRV13		THRV22		THVV22	
Contact function	-	NC	NO	NC	NO	NO	NO
Temperature setting range	°C	-10/+50	+20/+80	0/+60	0/+60	0/+60	0/+60
Precision	°C	±4					
Hysteresis	°C	7					
Max switching current	-						
250Vac resistive load (inductive load)	A	10 (1.6)					
125Vac resistive load (inductive load)	A	15 (2.5)					
Max. switching power in Vdc	W	30					
Temperature sensor type	-	Thermostatic bimetal					
Contact type	-	Snap action					
Contact resistance	mOhm	< 10					
Service life	cycles	> 100 000					
Electrical connections	-	2-pole terminal for 2.5 mm ² wire					
Casing	-	PA6, UL94 V0 self-extinguishing, light grey RAL 7035					
Protection degree EN60529	-	IP20					
Operating temperature	°C (°F)	-25/+80 (-13/+176)					
Storage temperature	°C (°F)	-45/+80 (-49/+176)					
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022					
Installation position	-	Variable					
Conformity/Certifications	-	CE-UL c  us File n. E348803					
Dimensions HxWxD	mm	61x53x35					
Weight (with packaging)	kg	0.080 (0.09)					

Accessories

DIN rail bracket

GUIDADINPL



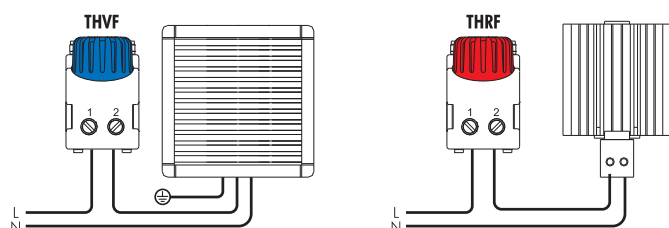
Specifications, values and drawings are subject to change without notice.



THRF - THVF

BIMETALLIC THERMOSTAT FIXED SET

Fixed set point compact thermostat for DIN 35 mm. rail mounting. Based on bimetallic junction, provides high capacity NO or NC contact. Two versions available.

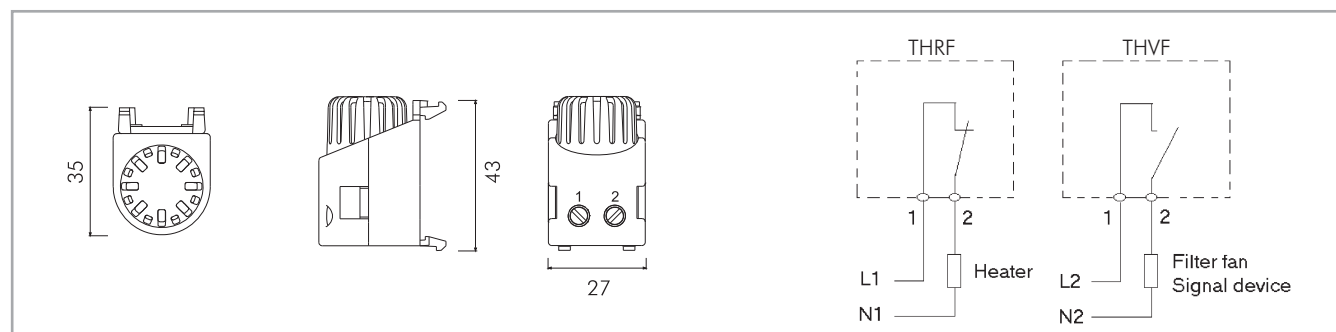


Features	Unit	THRF05	THVF35	THVF50
Contact function	-	NC	NO	NO
Temperature set (hysteresis)	°C	+5 (10)	+35 (10)	+50 (10)
Precision	°C		±4	
Max switching current				
240Vac resistive load (inductive load)	A		5 (1.6)	
120Vac resistive load (inductive load)	A		10 (2.0)	
Max. switching power in Vdc	W		30	
Temperature sensor type	-		Thermostatic bimetal	
Contact type	-		Snap action	
Contact resistance	mOhm		< 10	
Service life	cycles		> 100.000	
Electrical connections	-		2-pole terminal for 2.5 mm² wire	
Casing	-		PA6, UL94 V0 self-extinguishing, light grey RAL 7035	
Protection degree EN60529	-		IP20	
Operating temperature	°C (°F)		-40/+80 (-40/+176)	
Storage temperature	°C (°F)		-45/+80 (-49/+176)	
Mounting	-		Clip for mounting on DIN rail 35 mm EN50022	
Installation position	-		Variable	
Conformity/Certifications	-		CE	
Dimensions HxWxD	mm		43x27x35	
Weight (with packaging)	kg		0.024 (0.056 - 2pcs x pack)	

Accessories

DIN rail bracket

GUIDADINPL



Specifications, values and drawings are subject to change without notice.

THS

THERMOSTAT CHANGE-OVER CONTACT WITH LOW HYSTERESIS

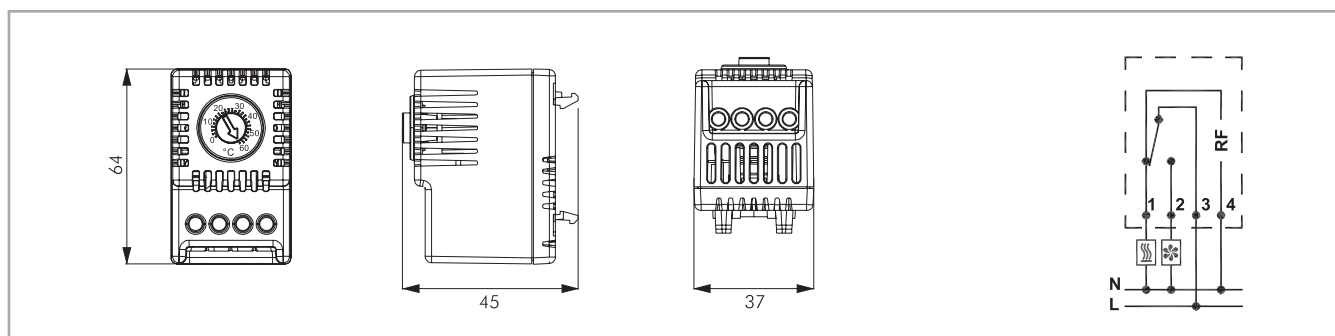


Features	Unit	THS2
Contact function	-	Change over contact
Temperature setting range	°C	0 / +60
Precision	°C	±3
Hysteresis	°C	1
Max switching current		
NC 100-250VAC (inductive load cos phi 0.6)	A	10 (2)
NO 100-250VAC (inductive load cos phi 0.6)	A	5 (2)
Max. switching power in Vdc	W	30
Temperature sensor type	-	Thermostatic bimetal
Service life	cycles	> 100 000
Electrical connections	-	4-pole terminal for 2.5 mm ² wire
Casing	-	PA6, UL94 V0 self-extinguishing, light grey RAL 7035
Protection degree EN60529	-	IP20
Operating temperature	°C (°F)	-40/+80 (-40/+176)
Storage temperature	°C (°F)	-45/+80 (-49/+176)
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022
Installation position	-	Variable
Conformity/Certifications	-	CE
Dimensions HxWxD	mm	64x37x45
Weight (with packaging)	kg	0.07 (0.08)

Accessories

DIN rail bracket

GUIDADINPL



Specifications, values and drawings are subject to change without notice.

EUH HYGROSTAT

Electronic Hygrostat for DIN 35 mm. rail mounting.
Typically used to control enclosure heaters.
LED display of power on and status.

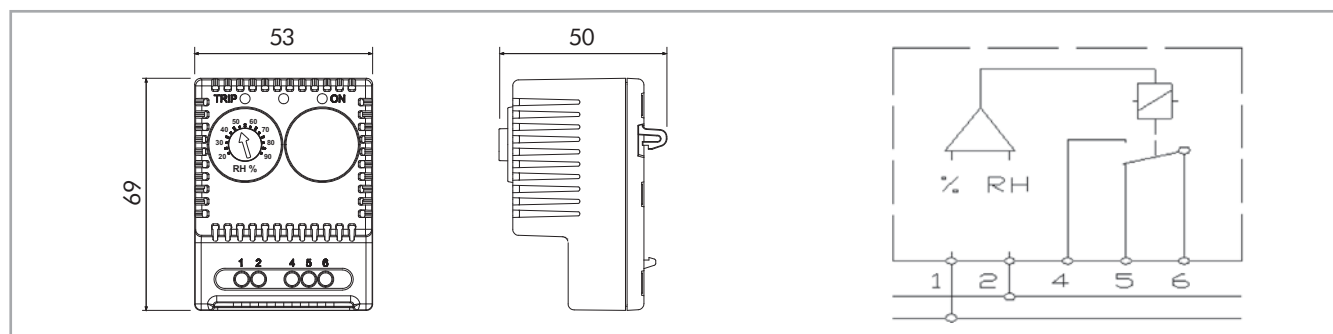


Features	Unit	EUH11	EUH22
Power supply	V/Hz	115/50-60	230/50-60
Relative Humidity setting range	RH%	20-90	
Relative Humidity Hysteresis	%	5	
Reaction time	sec	60	
Max switching current			
NO at 250Vac resistive load	A	10	
NO at 30Vdc resistive load	A	8	
NO at 240Vac motor load	Hp	1/2	
NO at 120Vac motor load	Hp	1/4	
NC at 250Vac resistive load	A	10	
NC at 30Vdc resistive load	A	8	
Contact type		Change over	
Contact resistance		< 10	
Service life	cycles	> 100 000	
Electrical connections	-	5-pole terminal for 2.5 mm² wire	
Optical signal	-	LED	
Casing	-	PA6, UL94 V0 self-extinguishing, light grey RAL 7035	
Protection degree EN60529	-	IP20	
Operating / Storage temperature	°C (°F)	-40/+80 (-40/+176)	
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022	
Installation position	-	Vertical	
Conformity/Certifications	-	CE	
Dimensions HxWxD	mm	69x53x50	
Weight (with packaging)	kg	0.11 (0.12)	

Accessories

DIN rail bracket

GUIDADINPL



Specifications, values and drawings are subject to change without notice.




ETUH

THERMO-HYGROSTAT

Electronic Hygrothermostat for DIN 35 mm. rail mounting. Typically used to control enclosure heaters. The change over contact triggers either for high humidity or low temperature, independently set adjustable. LED display of power on and status.

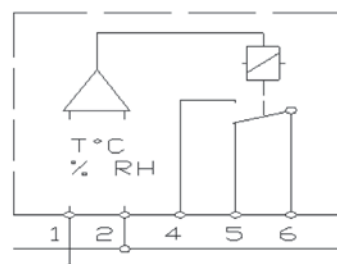
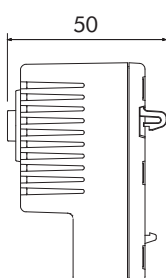
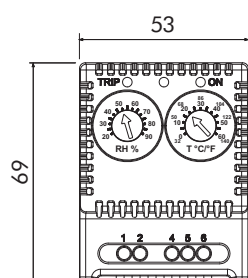


Features	Unit	ETUH11	ETUH22
Power supply	V/Hz	115/50-60	230/50-60
Temperature setting range	°C	0 / +60	
Precision	°C	±1	
Temperature Hysteresis	°C	2	
Relative Humidity setting range	RH%	20-90	
Relative Humidity Hysteresis	%	5	
Reaction time	sec	60	
Max switching current			
NO at 250Vac resistive load	A	10	
NO at 30Vdc resistive load	A	8	
NO at 240Vac motor load	Hp	1/2	
NO at 120Vac motor load	Hp	1/4	
NC at 250Vac resistive load	A	10	
NC at 30Vdc resistive load	A	8	
Contact type		Change over	
Contact resistance		< 10	
Service life	cycles	> 100 000	
Electrical connection	-	5-pole terminal for 2.5 mm ² wire	
Optical signal	-	LED	
Casing	-	PA6, UL94 V0 self-extinguishing, light grey RAL 7035	
Protection degree EN60529	-	IP20	
Operating / Storage temperature	°C (°F)	-40/+80 (-40/+176)	
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022	
Installation position	-	Vertical	
Conformity/Certifications	-	CE-UL c  us File n. E348803	
Dimensions HxWxD	mm	69x53x50	
Weight (with packaging)	kg	0.11 (0.12)	

Accessories

DIN rail bracket

GUIDADINPL



Specifications, values and drawings are subject to change without notice.

MUH

MECHANICAL HYGROSTAT

Hygrostat for DIN 35 mm. rail mounting.
Typically used to control enclosure heaters.

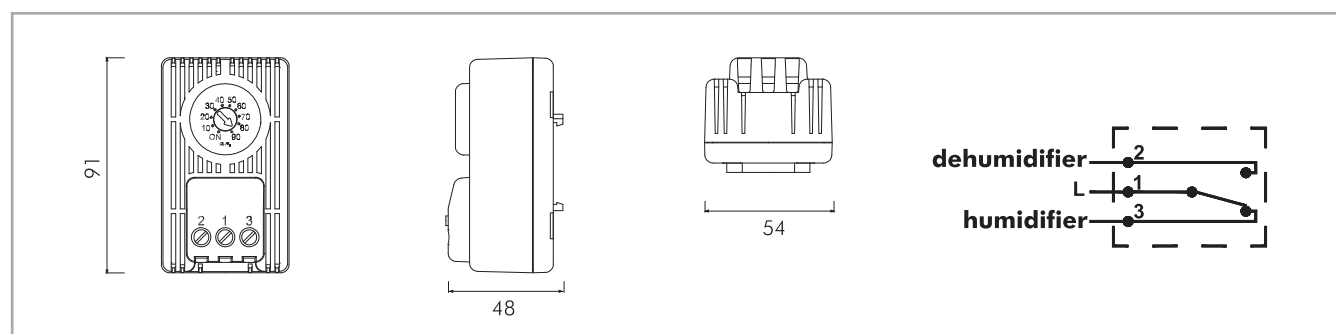


Features	Unit	MUH
Relative Humidity setting range	RH%	20-90
Relative Humidity Hysteresis	RH%	5 (max 10)
Precision	RH%	±4
Max switching current		
NC at 240Vac resistive load	A	2.2
NC at 120Vac resistive load	A	4.4
NO at 240Vac resistive load	A	5
NO at 120Vac resistive load	A	10
Contact type	-	Change over
Electrical connection	-	3-pole terminal for 2.5 mm ² wire
Casing	-	PA6, UL94 V0 self-extinguishing, light grey RAL 7035
Protection degree EN60529	-	IP20
Operating temperature	°C (°F)	-10/+50 (+14/+122)
Storage temperature	°C (°F)	-45/+80 (-49/+176)
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022
Installation position	-	Vertical
Conformity/Certifications	-	CE
Dimensions HxWxD	mm	91x54x48
Weight (with packaging)	kg	0.15 (0.17)

Accessories

DIN rail bracket

GUIDADINPL



Specifications, values and drawings are subject to change without notice.

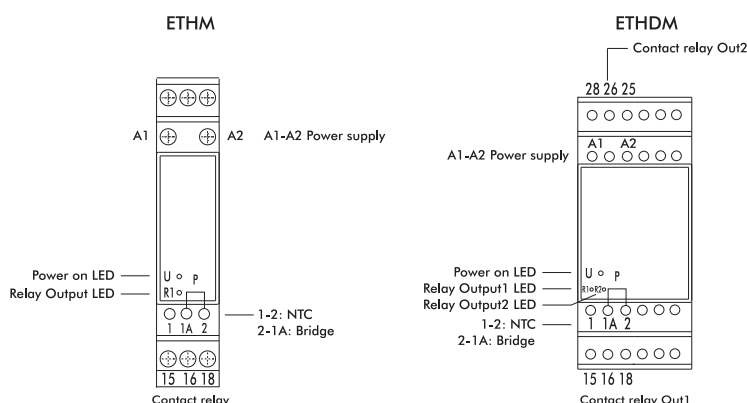
ETHM - ETHDM

TEMPERATURE CONTROLLERS

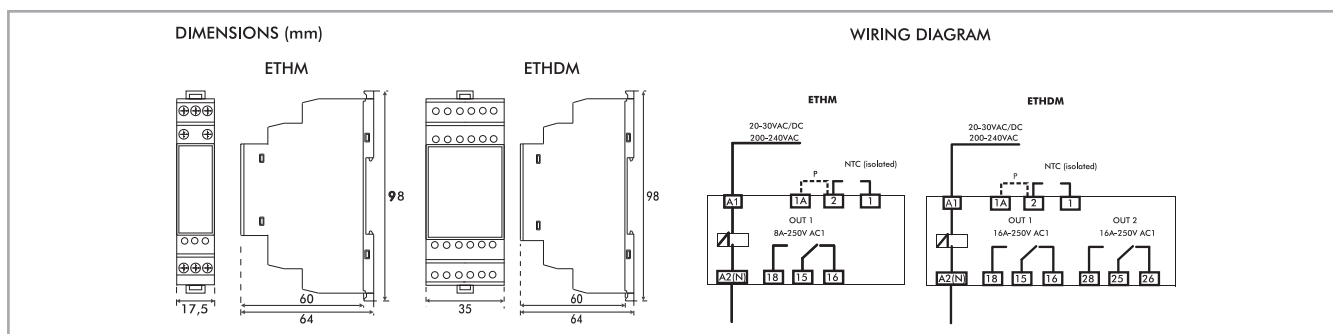
Compact Size - 1 DIN Module (17,5mm) or 2 DIN modules (35mm)
 Supply 20-30 VAC/DC or 200-240 VAC
 Din rail mounting
 Analog temperature adjustment
 Suitable for temperature control inside electric panel
 (Fan control and resistor control)
 One or two independent NTC probe inputs
 1 relay output x 8A (ETHM10,ETHM14),
 2 relay outputs x 16A (ETHDM10, ETHDM14)



Features	Unit	ETHM10	ETHM14	ETHDM10	ETHDM14
Power supply	V	200-240 VAC	20-30 VAC/DC	200-240 VAC	20-30 VAC/DC
Input	-	NTC (10k - 25°C)			
Relay	-	1 SPDT output (8A)		2 SPDT outputs (16A-AC1)	
Control	-	ON/OFF			
Measurement range	°C	NTC -20 ~ +60°C			
Sampling rate	Hz	12			
Symmetric hysteresis	-	Adjustable from +1 to +5°C on both outputs			
Operating temperature	°C (°F)	-20/+65 (-4/+149)			
Operating humidity (no condensate)	RH%	30 ~ 95			
Housing	-	self-extinguishing plastic UL94V0			
Dimensions HxWxD	mm	17.5x64x98mm - 1 Din rail module		35x64x98mm - 2 Din rail module	
Connessions	-	2.5 mm² screw terminal block			
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022			
Conformity/Certifications	-	CE			
Weight (with packaging)	Kg	0,045 (0,055)		0,070 (0,090)	



The ETHDM10 and ETHDM14 are factory equipped with an integral NTC on the thermostat (terminals 1-2) and a bridge between terminals 2 and 1A. In this configuration the two set points of outputs OUT1 and OUT2 will refer to the temperature measured by the integrated NTC probe. Replacing the bridge between terminals 2 and 1A with a second NTC probe, output OUT1 will be controlled by the temperature measured at NTC probe 1 (on the thermostat), output OUT2 will be controlled by the temperature measured at NTC probe 2 (terminals 2 and 1A).



Specifications, values and drawings are subject to change without notice.



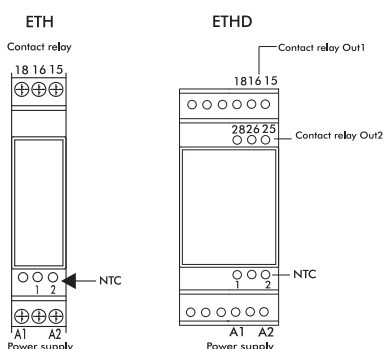
ETH - ETHD

TEMPERATURE CONTROLLERS

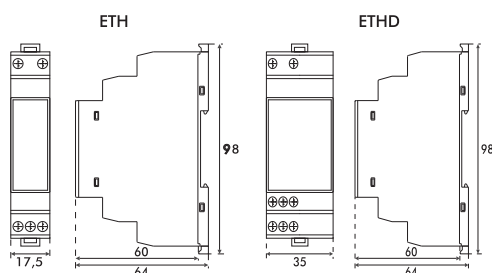
Compact Size - 1 DIN Module (17,5mm)
or 2 DIN modules (35mm)
Supply 10-30AC/DC or 200-240VAC
Din rail mounting
Digital adjustment of tempearture (2 red digit)
Appropriate for temperature control inside electric panel
(fan and resistor control)
NTC probe input
1 or 2 relay outputs



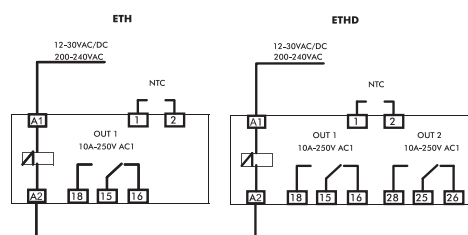
Features	Unit	ETH10	ETH14	ETHD10	ETHD14
Power supply	V	200-240 VAC	10-30 VAC/DC	200-240 VAC	10-30 VAC/DC
Input	-	NTC (10k - 25°C)			
Relay	-	1 SPDT output (10A-AC1)		2 SPDT outputs (10A-AC1)	
Control	-	ON/OFF			
Overall accuracy	%	+/- 0.5 full scale			
Display resolution	-	1			
Measurement range	°C	NTC -20 ~ +65°C probe on the controller / NTC -35 ~ +99°C external probe			
Sampling rate	Hz	12			
Display	-	2 red digit			
Parameters programming	-	by keyboard			
Operating temperature	°C (°F)	-20/+65 (-4/+149)			
Operating humidity (no condensate)	RH%	30 ~ 95			
Housing	-	self-extinguishing plastic			
Dimensions HxWxD	mm	17.5x64x98mm - 1 Din rail module		35x64x98mm - 2 Din rail module	
Connexions	-	2.5 mm² screw terminal block			
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022			
Conformity/Certifications	-	CE			
Weight (with packaging)	Kg	0,045 (0,055)		0,070 (0,090)	



DIMENSIONS (mm)



WIRING DIAGRAM



Specifications, values and drawings are subject to change without notice.



FSC

FAN SPEED CONTROLLER

Electronic temperature-regulated fan speed controller for DIN 35 mm. rail mounting.
Speed controller helps to reduce fan noise, air flow rate is reduced to the optimum speed required.

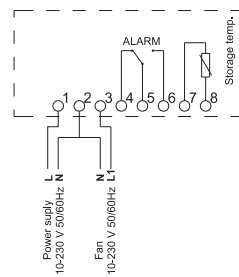
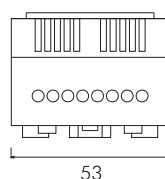
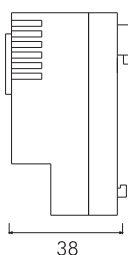
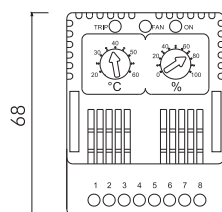


Features	Unit	FSC
Power supply	V/Hz	100-230/50-60
Temperature setting range	°C	+20 / +60
Fan speed setting range	%	0 - 100
Speed controller	-	partialization of wave
Input	-	NTC sensor
Max. output fan	-	300 W (100-230/50-60Hz)
Electrical connection	-	terminal for 2.5 mm ² wire
Optical signal	-	LED
Casing	-	PA6, UL94 V0 self-extinguishing, light grey RAL 7035
Protection degree EN60529	-	IP20
Operating / Storage temperature	°C (°F)	-10/+70 (+14/+158)
Mounting	-	Clip for mounting on DIN rail 35 mm EN50022
Installation position	-	Vertical
Conformity/Certifications	-	CE
Dimensions HxWxD	mm	68x53x38
Weight (with packaging)	kg	0.10 (0.11)

Accessories

DIN rail bracket

GUIDADINPL



Specifications, values and drawings are subject to change without notice.

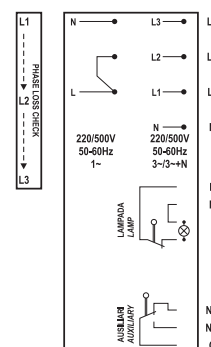
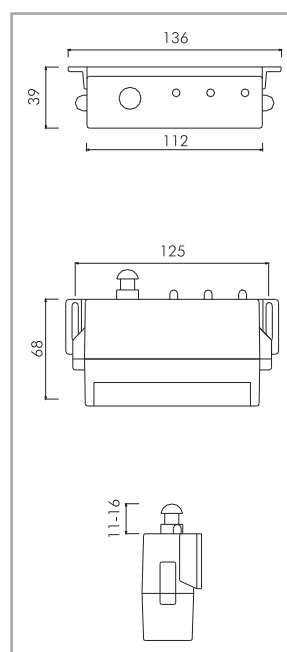
FS

FLASHING SAFETY DEVICE

The flashing safety devices series FS prevents accidents, alerting the operator that the electrical system is live. The FS devices are suitable for connection to three or single-phase lines. FS is also a phase-loss and phase-sequence control device: in case of failure, it points out the missing phase. The device functions can be increased with auxiliary contacts that allow to switch-on the lamp when opening the cabinet door or to control other equipment inside the cabinet (air conditioner, etc.)



Features		Unit	FS	FSL	FSLA
Power supply		V/Hz	1ph 115-230/50-60 or 3ph 400/50-60		
FUNCTIONS	Power on, Phase sequence, Phase loss	Yes/No	Yes	Yes	Yes
	Signal	-	n° 3 LEDs, red	n° 3 LEDs, red	n° 3 LEDs, red
	Contact for lamp	Yes/No	No	Yes	Yes
	Contact type	-	-	NC	NC
	Max current	A	-	5	5
	Service life	Cycles	-	> 25.000	> 25.000
	Auxiliary Contact	Yes/No	No	No	Yes
	Contact type	-	-	-	Change over
	Max current	A	-	-	5
	Service life	Cycles	-	-	> 25.000
Probe extension		mm	Adjustable 11-16		
Casing		-	Poly-carbonate, Yellow		
Connection on terminals		mm²	n. 6x4	n. 8x4	n. 11x4
Mounting		-	Adjustable fixing bracket 125 mm interlock		
Protection degree EN60529		-	IP20		
Protection class		-	I		
Operating/Storage temperature		°C(°F)	-10 +70 (+14 +158)/-20 +80(-4 +176)		
Installation position		-	Variable		
Dimensions HxWxD		mm	34x112x68 (+16)		
Weight (with packaging)		kg	0.15 (0.25)		
Package dimensions HxWxD		mm	46x145x88		
Conformity/Certifications		-	CE		



FIN

DOOR LIMIT SWITCH

Features	Unit	FINCOR	FINRIP
Contacts type	-	Zb type snap action (1NO+1NC)	
Rated current at 230V(400V) AC15	A	3.1(1.9)	
Protection degree EN60529	-	IP65	
Protection Class	-	II	
Operating temperature	°C(°F)	-25/+70 (-13/+158)	
Rated insulation voltage Ui	V	690	
Service life	Cycles	> 25.000	
Cable inlet	-	PG13,5 cable gland	
Mechanical lock	Yes/No	No	Yes
Dimensions HxWxD	mm	75x31x31	91x31x39
Weight (with packaging)	kg	0.04 (0.10)	0.05 (0.11)
Conformity/Certifications	-	CE EN60947-5-1, IEC 947-5-1	



Required on most enclosures for safety and operation of auxiliary circuits, such as switching on lamps or switching off ventilation/air conditioning when the door is open. FIN Limit switches can be equipped with the optional bracket FINSTAFF for fixing and positioning.

Specifications, values and drawings are subject to change without notice.

AELCATEN-18.00