Thermostats
Wide range of thermostats for every application and environment

Application
Frico's thermostats create great comfort and save energy in public and commercial premises as well as in home environments. They control electrical and water borne floor heating, heat pumps, direct effect electric radiators/convectors and air conditioning. They are also extremely suitable for use with electrically or water heated radiant heaters, fan heaters and air curtains. We offer everything from processor controlled wireless thermostats with advanced functions to the simplest bimetal thermostats.

Comfort
Our precise thermostats create an even temperature and good indoor environment. Processor controlled thermostats also offer many variable functions in the same thermostat. A great advantage is the opportunity to control room and floor heating in integration. By limiting the temperature (min/max) of the floor heating, one has a pleasant floor temperature regardless of the season or selected room temperature.

Operation and economy
The thermostats can be used to control either slow systems such as floor heating or faster systems such as electric radiators/convectors. Correct control gives a longer service life of the system and lower energy consumption.

Precise thermostats provide economical heating. With save reduction and weekly program functions one can choose to have lower temperatures, for example at night to give further savings.

A wireless installation is faster, cheaper and especially advantageous for renovation or rebuilding. Thanks to the high protection class of the receiver unit, the wireless thermostats can also be used in more demanding environments.

Design
Timeless and discreet design, which blends in with all environments and gives the possibility of recessed installation. Wireless fitting gives a neater installation.

Product specifications – functions within the range*:
- Programmable function with holiday program for energy saving.
- Wireless function with IP44 classification for the receiver section and triac on the transmitter section for quiet control.
- Digital display for exact setting and reading off.
- Internal and/or external sensors. Possibility of selecting the sensor function and limiting external sensors (min/max).
- Save reduction.
- 2-pole switch, easy to switch off/on.
- Possible to control heat or cooling.
- Protection class up to IP55.
- DIN rail thermostat.
- On/off control (for slow systems) or proportional control (for faster systems) in the same thermostat.
- Temperature range down to -35 °C.

*) See following pages for detailed information or separate product sheet/manual.

T10 TK10 TKS16(400) TD10 TRS16 TRD16 TRDP16

T, TK, TD, basic offer thermostats
Processor controlled thermostats for room/floor heating. Available with concealed/visible knob or digital display. Model with visible knob also available with 2-pole switch and in 400 V. External sensor (RTS01) available as an accessory. CE compliant.

TR, recessed thermostats
Processor controlled thermostats for room/floor heating. For recessed mounting, supplied with front and cover frame for both Eljo and Elko. Available with knob or digital display. All models have a 2-pole switch. External sensor (RTS01) included. TRDP16 has an integrated clock with preset weekly program, which simplifies programming the save reduction functions.
CE compliant.

TFK12 TFD12 TFP12 TP8

TF, wireless thermostats
Processor controlled wireless thermostats for room heating (TFD12 also for floor heating). Available with knob or digital display.High protection class (IP44) for the receiver section with triac control (quiet control). Radio controlled on frequency 433.92 MHz, range 30 metres indoors. External sensor (RTS01) is available for TFD12 as an accessory. TFP12 has an integrated clock with preset weekly program, which simplifies programming the save reduction functions.
CE compliant.

TP8, programmable thermostats
Processor controlled programmable thermostat for room heating. Digital display and integrated clock. A number of pre-set weekly programs simplifies programming. Several advanced functions such as save reduction and frost protection. CE compliant.

| RTI2 | RTI2V | TBK10 | TBKS10 | TDIN10 | RTS01 |
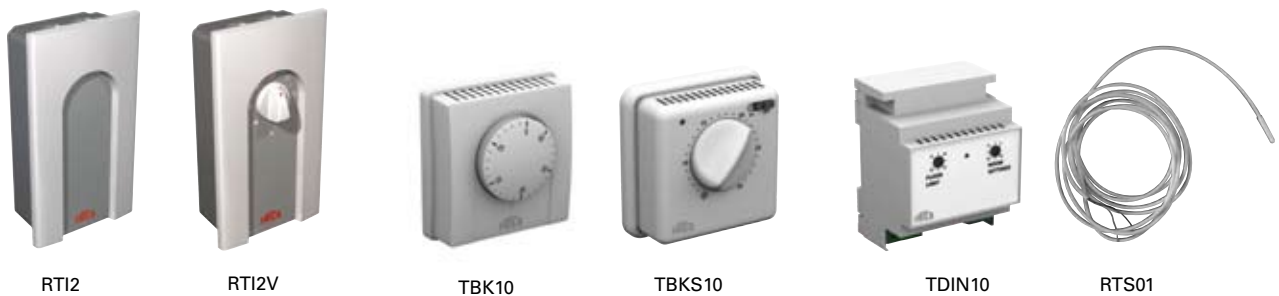
RTI, electronic 2-step thermostats
Processor controlled 2-step thermostats for room heating /cooling. Available with concealed or visible knob. Adjustable temperature difference between the steps (1–10 degrees). Save reduction function via external connection timer (1–10 degrees). External sensor (RTS01) available as an accessory. High protection class (IP44). CE compliant.

TBK, bimetal thermostats
Mechanical bimetal thermostats with acceleration resistance for room heating/cooling. TBKS10 also has a 1-pole switch. CE compliant.

TDIN10, DIN-rail termostat
Electronic DIN rail thermostat for control of room/floor heating. Processor controlled. Room and floor sensor included. The desired value can be adjusted ±5 °C on the room sensor. CE compliant.

RTS01, external sensor (accessory)
External sensor of NTC-type 10 Kohm. 3 m cable included.

| KRT1900/1901 | KRT1900/1901 | KRT2800 | KRTV19 | ERP |

KRT, capillary tube thermostats
Capillary tube thermostats for room heating/cooling. Available with concealed and visible knob, and control in 1 or 2 steps. KRT2800 controls in 2 steps and has adjustable temperature difference between the steps (1–4 degrees). KRT1901 has a temperature range of -35–+10 °C. High protection class (IP44 resp. IP55). CE compliant.

ERP, electric heating control
Stepless pulse control intended for single phase (3600W/230V) or two phase (6000W/400V2~) electric heaters. Cannot control 3 phase loads. Pulse time 60 secs. Triac control (quiet control). Integrated temperature sensor. External sensors available as an accessory. Save reduction function via external connection timer (1–10 degrees). For larger power outputs a slave unit (ERPS) can be connected. Each ERPS can handle the same power as ERP. CE compliant.

Accessory ERP

Type	Description
ERPRG	Room sensor ERP
ERPGG	Floor/duct sensor ERP
ERPS	Slave unit ERP

Thermostats and controls

Technical specifications | Thermostats

Type	Voltage (supply) [V]	Max input [A]	Setting range [°C]	Limit floor heating [°C]	Save reduction [°C]	Proportional control*¹ [K/min]	Connection temperature difference [K]	Protection class	Dimensions HxWxD [mm]
T10	230V~	10	5–30	10–40	4	2K/10min	0,5	IP30	80x80x31
TK10	230V~	10	5–30	10–40	4	2K/10min	0,5	IP30	80x80x31
TKS16	230V~	16	5–30	10–40	4	2K/10min	0,5	IP30	80x80x39
TKS16400	400V2~	16	5–30	10–40	4	2K/10min	0,5	IP30	80x80x39
TD10	230V~	10	5–37	5–37	Adjustable	Adjustable	0,3	IP30	80x80x31
TRS16	230V~	16	5–35	15–30	4	2K/10min	0,5	IP21	81x81x27
TRD16	230V~	16	5–35	5–37	Adjustable	Adjustable	0,3	IP21	81x81x23
TRDP16	230V~	16	5–35	5–37	Adjustable	Adjustable	0,3	IP21	81x81x23
TFK12	Battery		5–30		4	2K/15min	0,5	IP30	80x80x31
Receiver	230V~	12						IP44	170x50x28
TFD12	Battery		5–37	5–37	Adjustable	Adjustable	0,3	IP30	80x80x31
Receiver	230V~	12						IP44	170x50x28
TFP12	Battery		5–35	-	Adjustable	2K/15min	0,5	IP30	87x125x34
Receiver	230V~	12						IP44	170x50x28
TP8	230V~	8	5–35	-	Adjustable	2K/15min	0,5	IP30	87x125x34
RTI2	230V~	16/10, 230/400V~	5–35	-	Adjustable	-	0,5	IP44	155x87x43
RTI2V	230V~	16/10, 230/400V~	5–35	-	Adjustable	-	0,5	IP44	155x87x43
TBK10	230V~	10	5–30	-	-	-	0,5	IP30	85x82x39
TBKS10	230V~	10	5–30	-	-	-	0,5	IP30	80x80x43
TDIN10	230V~	10	5–30	10–40	4	-	0,5	IP30	70x90x58
KRT1900	-	16/10, 230/400V~	0–40	-	-	-	1,0	IP55	165x57x60
KRT1901	-	16/10, 230/400V~	-35–+10	-	-	-	1,0	IP55	165x57x60
KRTV19	-	16/10, 230/400V~	0–40	-	-	-	1,0	IP44	165x57x60
KRT2800	-	16/10, 230/400V~	0–40	-	-	-	1,0	IP55	165x57x60
ERP	230/400V2~	16*², 230/400V~	0–30	15–30	Adjustable	Adaptive	-	IP20	153x93x40

*¹) P-band [K]/time of cycle [min]
*²) Only resistive loads, no contactors.

Products beginning with T can be read as follows: K=knob, S=switch, D= digital display, R=recessed, P=programmable, F=wireless, B=bimetal.

Functions | Thermostats

	Basic offer				Recessed			Wireless			Prog	Electronic 2-step		Bimetal		DIN	Capillary tube			ERP
	T10	TK10	TKS16(400)	TD10	TRS16	TRD16	TRDP16	TFK12	TFD12	TFP12	TP8	RTI2	RTI2V	TBK10	TBKS10	TDIN10	KRT1900/1901	KRTV19	KRT2800	ERP
Internal sensor	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
External sensor	X*¹	X*¹	X*¹	X*¹	X	X	X		X*¹			X*¹	X*¹			X				X*¹
Save reduction	X*²	X*²	X*²	X*²	X*²	X*²	X	X	X	X	X	X*²	X*²			X*²				X*²
1-pole switch															X					
2-pole switch			X		X	X	X													
Volt free contact	X	X	X	X				X	X	X	X	X	X			X	X	X	X	
Contact, 1-pole closing	X	X		X	X	X	X									X				
Contact, 1-pole alternating			X					X	X	X	X	X		X	X		X	X	X	
Digital display				X		X	X		X	X	X									
Advanced extra functions*³				X		X	X		X											
Programmable							X			X	X									
Internal setting	X											X						X	X	
Processor controlled	X	X	X	X	X	X	X	X	X	X	X	X	X			X				X
Bimetal acc.resistor														X	X					
Capillary tube																	X	X	X	
Fits dos system	X	X	X	X	X	X	X	X	X	X	X			X	X					X
Heating or cooling function			X	X		X	X		X	X		X	X	X	X		X	X	X	
Pulse control																				X
2-step												X	X						X	
Adjustable temp.diff. between the steps												X	X						X	

*¹) External sensor (RTS01) as accessory. For ERP, room sensor ERPRG and floor/duct sensor ERPGG are available as accessories.
*²) Can be used with an external timer.
*³) See manuals on www.frico.se.

CIRT   S123   CZ3   KUR   CBT

Other controls

CIRT, stepless output control with timer

Stepless output control with timer, primarily intended for infrared heaters and other radiant heaters. Intended for single phase (3600W/230V~) or two phase (6000W/400V2~) electric heaters. Especially suited for spot amd zone heating. The heat contribution is regulated for best comfort (25-100 %). The built-in timer can be set for 0.5 to 4 or 4 to 24 hours. High protection class (IP44). CE compliant.

S123, manual switch for 1-2-3 steps

Manual switch controls the output in three steps 0-1/3-2/3-3/3. CE compliant.

CZ3, digital time switch

Digital time switch with a weekly program for separate connection of 4 zones. CE compliant.

KUR, digital time switch

Digital weekly time switch with 8 program steps (36 storage positions). Alternating contact. High protection class (IP44). CE compliant.

CBT, electronic timer

Electronic timer with alternating contact. Setting range 1/2-1-2-4 or 4-8-16-24 hours respectively. The setting range can be limited down to a maximum time of 1/2 hours. Hög kapslingsklass (IP44). CE compliant.

Type	Voltage (supply) [V]	Max input [A]	Protection class	Dimensions HxWxD [mm]
CIRT	230/400V2~	16	IP44	155x87x43
S123	230/400V3V~	20	IP42	72x64x46
CZ3	230V~	3	IP30	87x125x34
KUR	230V~	10	IP44	175x85x105
CBT	230V~	16	IP44	155x87x43

ERC, control and regulator centre

The centre includes a main switch, group fuses, and a weekly timer for night temperatures (for energy saving). The heat output can be divided into groups adapted for 2.5 mm2 cables, fused 16 A, or for 4 mm2 cables, fused 20 A. Each group or zone can be separated from the outside of the box. A time delay between the groups prevents the simultaneous activation of large outputs. For each group, there is a contactor that can be controlled by thermostats.

Most of the electrical connection points are accessible through a plinth, which allows for several control options. It is also possible to connect a load guard so that the electrical input is used to the full.
Colour: white.
CE compliant.

Type	Number of groups	Max load [kW]	Group fuses [A]	Main switch [A]	Voltage (supply) [V]	Max input [A]	Protection class	Dimensions HxWxD [mm]
ERC11	1	11	16	20			IP30	400x300x150
ERC22	2	22	16	35			IP30	400x400x200
ERC33	3	33	16	63			IP30	500x500x200
ERC44	4	44	16	100			IP30	500x500x200
ERC55	5	55	16	100			IP30	600x600x200
ERC66	6	66	16	100			IP30	600x600x200
ERC14	1	14	20	20			IP30	400x300x150
ERC28	2	28	20	63			IP30	400x400x200
ERC42	3	42	20	100			IP30	500x500x200
ERC56	4	56	20	100			IP30	600x600x200

Wiring diagrams thermostats

Internal wiring diagrams, basic offer

T10

TK10

T10/TK10   10A / 230V~ (AC1)

LOAD
Sensor
N L 230V~

TD10

TD10   10A / 230V~ (AC1)

LOAD
Sensor
N L 230V~

TKS16

TKS16/   16A / 230V~ (AC1)
TKS16400   16A / 400V2~ (AC1)

LOAD
Sensor
N L1 L2
230V~/ 400V2~

TKS16400

2-polig brytning /
2-pole switching

TKS16/   16A / 230V~ (AC1)
TKS16400   16A / 400V2~ (AC1)

LOAD
Sensor
N L1 L2
230V~/ 400V2~
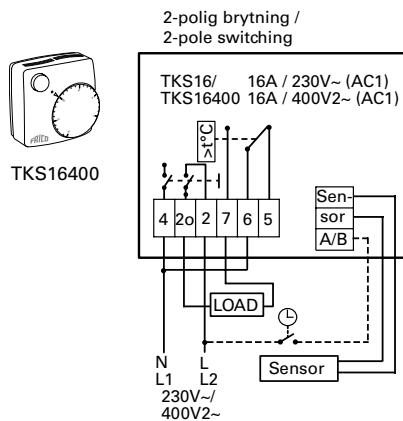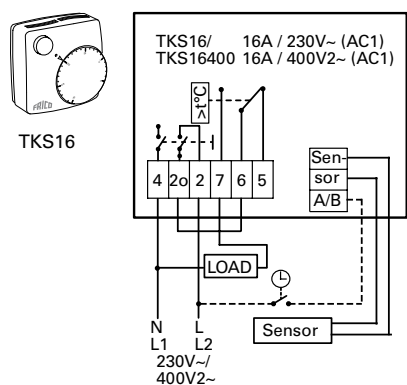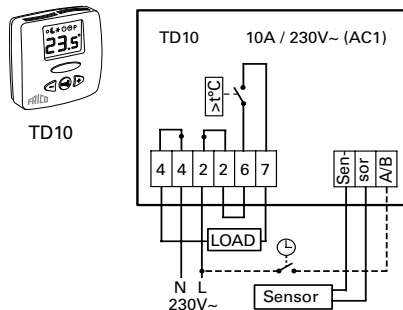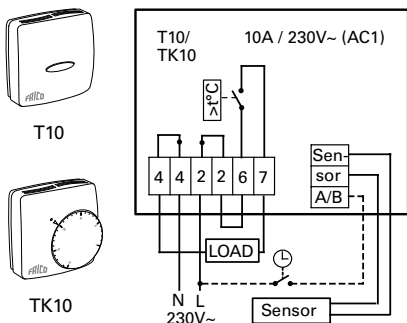
Internal wiring diagrams, recessed thermostats

TRS16

TRS16
>t°C
L N L N
LOAD
Sensor
A/B
L N
230VAC

TRD16

TRD16
>t°C
L N L N
LOAD
Sensor
A/B
L N
230VAC

TRDP16

TRDP16
>t°C
L N L
LOAD
Sensor
L N
230VAC
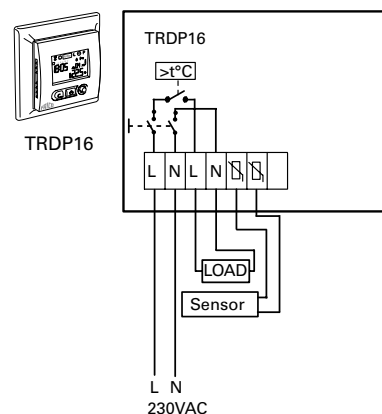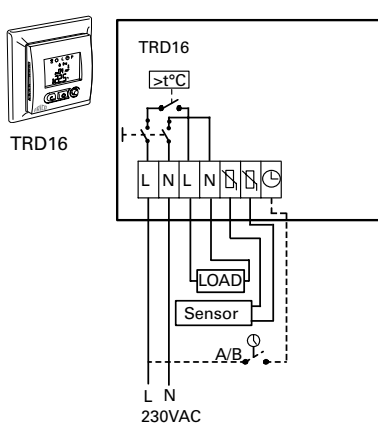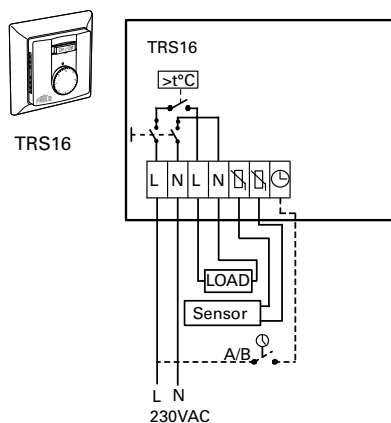
Wiring diagrams thermostats

Internal wiring diagrams, wireless thermostats
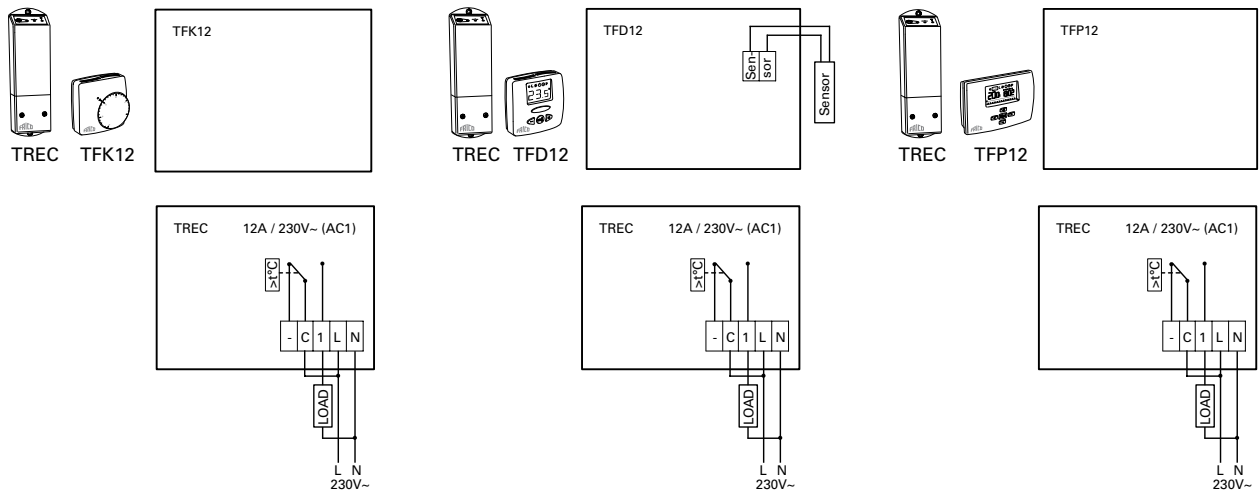
Internal wiring diagram, programmable thermostat
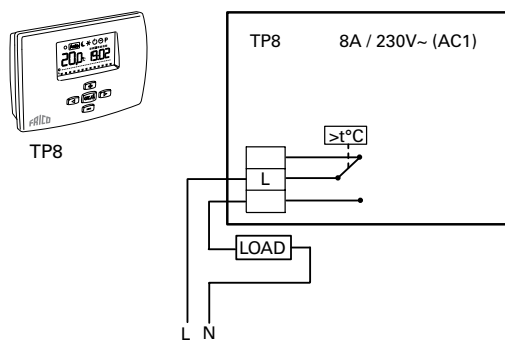
Internal wiring diagram, 2-step thermostat
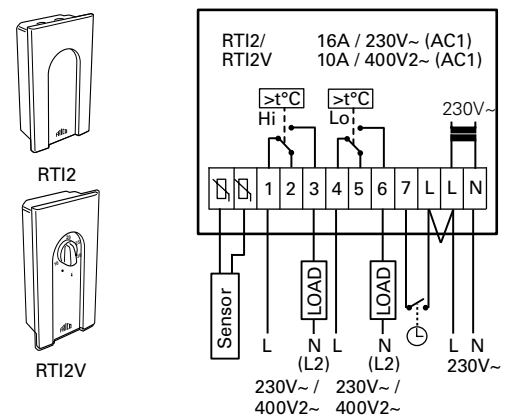
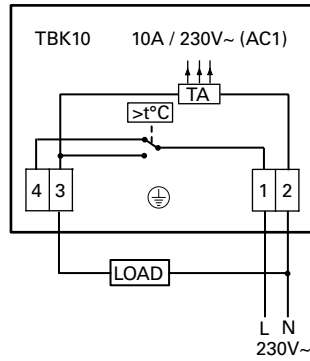### Internal wiring diagrams, DIN rail thermostat
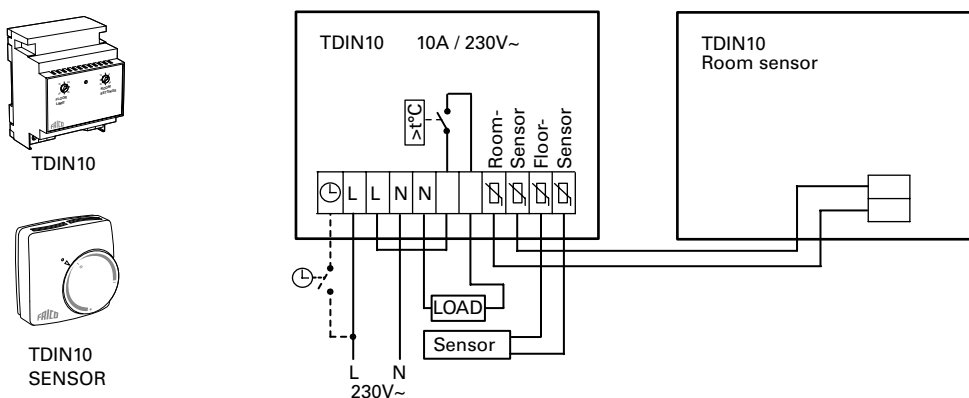
Wiring diagrams thermostats
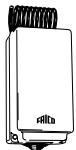
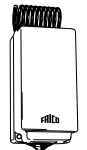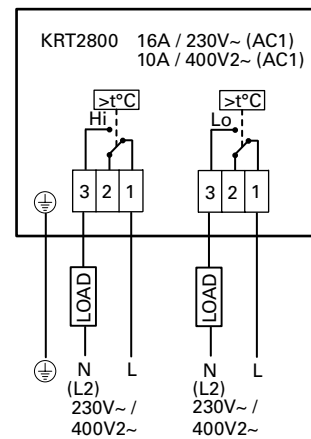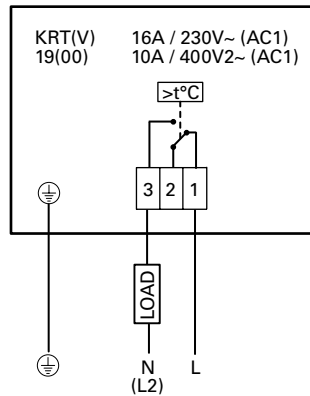### Internal wiring diagrams, bimetal thermostats

TBK10

TBK10   10A / 230V~ (AC1)

TA

>t°C

4 3   1 2

LOAD

L N
230V~

TBKS10   10A / 230V~ (AC1)

TA

>t°C

4 3   1 2

LOAD

L N
230V~
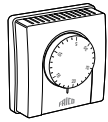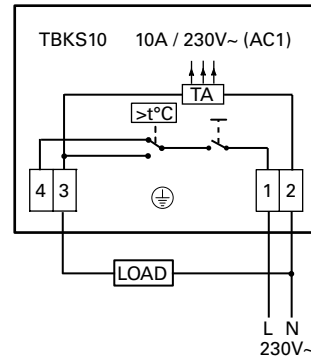
TBKS10

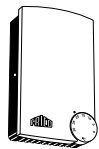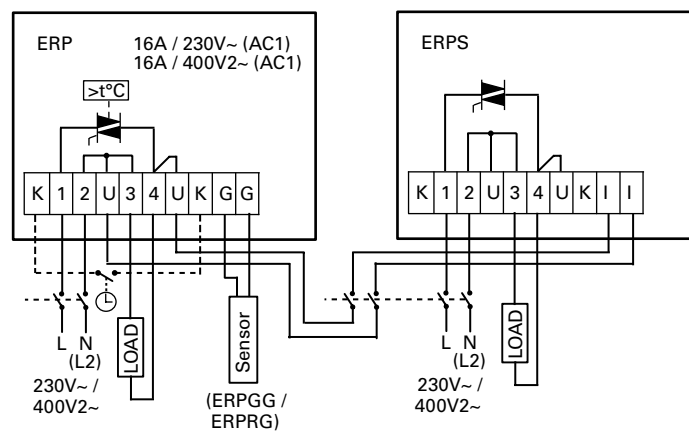### Internal wiring diagrams, capillary tube thermostats

KRT1900

KRTV19

KRT(V)   16A / 230V~ (AC1)
19(00)   10A / 400V2~ (AC1)

>t°C

3 2 1

LOAD

N   L
(L2)

KRT2800   16A / 230V~ (AC1)
10A / 400V2~ (AC1)

>t°C   >t°C
Hi   Lo

3 2 1   3 2 1

LOAD   LOAD

N   L   N   L
(L2)   (L2)
230V~ /   230V~ /
400V2~   400V2~

KRT2800

Internal wiring diagrams, electric heating control

ERP

ERPS

ERP   16A / 230V~ (AC1)
16A / 400V2~ (AC1)

>t°C

K 1 2 U 3 4 U K G G

L N   LOAD   Sensor
(L2)
230V~ /
400V2~
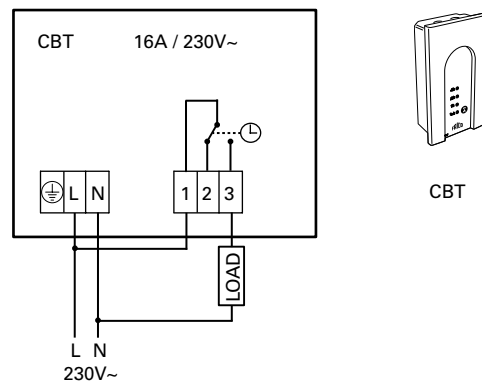
(ERPGG /
ERPRG)

ERPS

K 1 2 U 3 4 U K I I

L N   LOAD
(L2)
230V~ /
400V2~

Wiring diagrams other controls

Internal wiring diagram, stepless output control with timer

CIRT

CIRT   15A / 230V~ (AC1)
        15A / 400V2~ (AC1)

| L | N | 1 | 2 | S |

LOAD

L   N
(L2)
230V~ /
400V2~
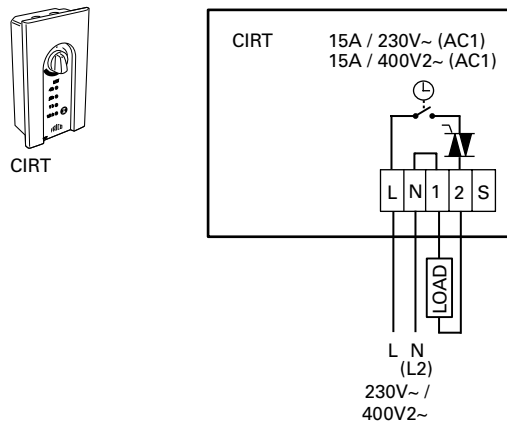
Internal wiring diagram, electronic timer

CBT   16A / 230V~

⏚ | L | N | 1 | 2 | 3 |

LOAD

L   N
230V~

CBT

Internal wiring diagram, digital time switch

CZ3

CZ3   3A/relay / 230V~
       (AC1)

| N | ⏚ | L | | 4 | 3 | 2 | 1 |

LOAD   LOAD   LOAD   LOAD

N   ⏚   L
230V~

Internal wiring diagram, digital time switch

KUR   16A / 230V~ (AC1)

⏚ | 1 | 2 | 3 | 4 | 5 |

LOAD

L   N
230V~

KUR

Wiring diagram, ERC