

# Control devices

## Temperature under control



### Compact thermostats (adjustable)

**NO (blue button):** with normally open contact, when the temperature increases, the contact closes, activating the fan to extract the heat.

**NC (red button):** with normally closed contact, when the temperature falls below the preset value, the contact closes, activating the resistance heater to prevent condensation.

- Broad range of temperature control.
- Small size.
- Simple fixing by clip onto the 35 mm DIN rail.
- Easy access terminals.
- High-power connection.



### 24 V DC electronic thermostat (adjustable)

It can control 24 V direct-current electrical equipment by means of a potential-free inverter contact. Resistors, fan, etc. may be connected.

They have a PTC temperature probe for more precise control and low hysteresis.

- High DC switching capacity.
- Low hysteresis (greater temperature precision).
- Switching by means of an inverter contact.
- Simple fixing by clip onto the 35 mm DIN/EN rail.



### Dual thermostat (adjustable)

To control two units independently and simultaneously: a resistance heater and a fan.

**NC (red button):** normally closed contact (NC) for resistance heater control.

**NO (blue button):** normally open contact (NO) for fan control.

- Double thermostats in the same housing, with separate adjustment and operation.
- Easy access terminals.
- Simple fixing by clip onto the 35 mm DIN rail.



### NO/NC Thermostat (adjustable)

Its NO/NC inverter contact controls a resistance heater or a fan.

- Switching by means of two NO/NC contacts.
- Simple fixing by clip onto the 35 mm DIN rail.
- Easy access terminals.
- High-power connection.



#### Hygrometer (adjustable)

Combination of thermostat and hygostat in the same unit to control relative humidity.

The resistance heaters or fans are switched on when the two limit values are exceeded.

- Adjustable temperature and relative humidity of the air.
- High switching capacity.
- Visual operation indication.
- Simple fixing by clip onto the 35 mm DIN rail.
- Easy access terminals.



#### Compact fixed thermostats

- Preset factory temperature:
  - **Red button:** 5, 10 and 15 °C.
  - **Blue button:** 25, 30 and 35 °C.
- Small size.
- Simple fixing by clip onto the 35 mm DIN rail.
- Easy access terminals.
- High-power connection.



#### Fixed dual thermostat

- To control two units independently and simultaneously:
  - **NO/NC:** fan and resistor.
  - **NO/NO:** fan and alarm.
  - **NC /NC: resistance and alarm.**
- Preset factory values.
- Double thermostats in the same housing, with separate operation.
- Easy access terminals.
- Simple fixing by clip onto the 35 mm DIN rail.



#### Fixed hygrometer

- Factory-adjusted relative humidity: 60% RH.
- Switching by means of an NO contact.
- Simple fixing by clip onto the 35 mm DIN rail.
- Easy access terminals.
- High-power connection.



#### Hygrometer (adjustable)

It is used to adjust the relative humidity in the enclosure by controlling resistance heaters or fans.

The hygrometer prevents condensation and the corrosion of components.

- Adjustable relative humidity.
- Switching by means of an inverter contact.
- Simple fixing by clip onto the 35 mm DIN rail.
- Easy access terminals.
- High-power connection.



**THERMOSTATS**

References	Power supply voltage (V)	Control	Contact type	Application	Control element	Switching power (ohmic load)
<b>TS140</b>	-	°C	NC	Resistance heaters	Bimetal	30 W DC 250 V AC 10 A 120 V AC 15 A
<b>TS140F</b>		°F	NC			
<b>TS141</b>		°C	NO	Ventilation systems		
<b>TS141F</b>		°F	NO			
<b>TS170</b>		°C	Switch	Resistance heaters or ventilation systems		



**DOUBLE THERMOSTAT**

References	Power supply voltage (V)	Control	Contact type	Application	Control element	Switching power (ohmic load)
<b>TDS1401</b>	-	°C	NC+NO	Resistance heaters and ventilation systems	Bimetal	250 V AC 10 A 120 V AC 15 A



**ELECTRONIC THERMOSTAT**

References	Power supply voltage (V)	Control	Contact type	Application	Control element	Switching power (ohmic load)
<b>TSE200</b>	24 DC	°C	2 × NO	Resistance heaters and ventilation systems	Electronic	NO or NC: 24 V DC 2 × 8 A



**FIXED THERMOSTAT**

References	Fixed adjustment	Contact type	Application	Switching power (ohmic load)
<b>TS140F5</b>	5 °C/41 °F	NC	Resistance heaters	250 V AC 10 A 120 V AC 15 A DC 30 W
<b>TS140F10</b>	10 °C/50 °F	NC		
<b>TS140F15</b>	15 °C/59 °F	NC		
<b>TS141F25</b>	25 °C/77 °F	NO	Ventilation systems	250 V AC 10 A 120 V AC 15 A DC 30 W
<b>TS141F30</b>	30 °C/86 °F	NO		
<b>TS141F35</b>	35 °C/95 °F	NO		



**FIXED DUAL THERMOSTAT**

References	Fixed adjustment	Contact type	Switching power (ohmic load)
<b>TSD1401F10/35</b>	10 °C/50 °F 35 °C/95 °F	NC NO	250 V AC 10 A 120 V AC 15 A DC 30 W
<b>TSD1401F35/45</b>	35 °C/95 °F 45 °C/113 °F	NO NO	
<b>TSD1401F5/15</b>	5 °C/41 °F 15 °C/59 °F	NC NC	



**HYGROMETER**

References	Power supply voltage (V)	Control	Contact type	Application	Control element	Switching power (ohmic load)
<b>THS3000</b>	230 CA	% RH, °C	Switch	Resistance heaters and ventilation systems	Bimetal	240 V AC 8 A 120 V AC 8 A



**HYGROSTAT**

References	Power supply voltage (V)	Control	Contact type	Application	Control element	Switching power (ohmic load)
<b>HS300</b>	-	% RH	Switch	Resistance heaters and ventilation systems	Bimetal	230 V AC 5 A



**FIXED HYGROSTAT**

References	Fixed adjustment	Contact type	Max. control current
<b>HS300F60</b>	60% RH	Switch	250 V AC 5 A DC 20 W

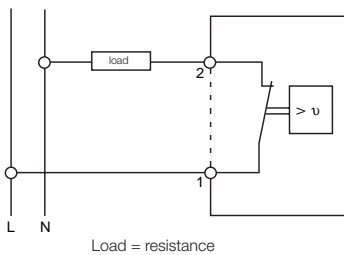
## Thermostat TS140



- Thermostat (normally closed contact (NC)) for the control of resistance heaters.
- Thermostat use increases service life of resistors, switching them only when required by the temperature.
- Fixing onto a DIN rail.
- IP20.
- V0 self-extinguishing thermoplastic as per UL94.
- Adjustable temperature from 0 to 60 °C.
- Connection: 2 x 2.5 mm<sup>2</sup> terminals.

Reference	Dimensions (mm)	Max. control current
<b>TS140</b>	60 × 33 × 43	250 V 10 A
<b>TS140F</b>	60 × 33 × 43	250 V 10 A

FIG. 1



Technical specifications	
Sensor element	Bimetal
Contact type	Normally closed (NC), snap action contact
Contact resistance	< 10 mΩ
Service life	> 100000 cycles
Max. switching capacity	250 V AC 10 A (ohmic load) 120 V AC 15 A (ohmic load) 250/120 V AC 2 A (inductive load cos φ = 0.6) DC 30 W
Connection	Terminals with two 2.5 mm poles
Mounting	Clip for the 35 mm DIN rail , EN 50022
Cover	V0 thermoplastic UL94, light grey
Dimensions	60 × 33 × 43 mm
Weight	40 g
Fitting position	Non-defined
Operating temperature	-20 to +80 °C (-4 to +176 °F)
Degree of protection	IP20
Hysteresis	7 °K
Adjustable temperature	From 0 to 60 °C

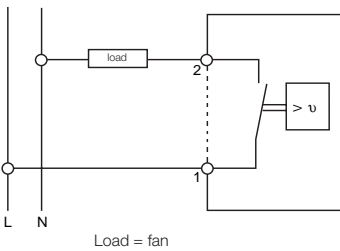
## Thermostat TS141



- Thermostat (normally open –NO contact) for control of fans.
- This thermostat allows the regulation of temperature in the enclosure, starting the fan only in case fresh air is required. As a result, service life of the fan is increased and its filter stays cleaner.
- DIN rail fixing.
- Degree of protection IP20.
- V0 self-extinguishing thermoplastic as per UL94.
- Adjustable temperature from 0 to 60 °C.
- Connection: 2 × 2.5 mm<sup>2</sup> terminals.

Reference	Dimensions (mm)	Max. control current
<b>TS141</b>	60 × 33 × 43	250 V 10 A
<b>TS141F</b>	60 × 33 × 43	250 V 10 A

FIG. 1



Technical specifications	
Sensor element	Bimetal
Contact type	Normally open (NO), snap action contact
Contact resistance	< 10 mΩ
Service life	> 100000 cycles
Max. switching capacity	250 V AC 10 A (ohmic load) 120 V AC 15 A (ohmic load) 250/120 V AC 2 A (inductive load cos φ = 0.6) DC 30 W
Connection	Terminals with two 2.5 mm <sup>2</sup> poles
Mounting	Clip for the 35 mm DIN rail, EN 50022
Cover	V0 UL94 thermoplastic, light grey
Dimensions	60 × 33 × 43 mm
Weight	40 g
Fitting position	Non-defined
Operating temperature	-20 to +80 °C (-4 to +176 °F)
Degree of protection	IP20
Hysteresis	7 °K
Adjustable temperature	From 0 to 60 °C

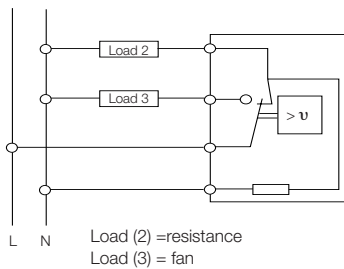
## Thermostat TS170



- Thermostat (contact switch) to control the fan or resistance heaters.
- With this device, the internal temperature of the panel may be regulated by switching on a resistor or a fan.
- Fixing on a DIN rail.
- IP20.
- V0 self-extinguishing thermoplastic as per UL94.
- Adjustable temperature from 10 to 60 °C.
- Connection: 4 × 2.5 mm<sup>2</sup> terminals.

Reference	Dimensions (mm)	Max. control current
TS170	67 × 50 × 44	(NA) 5 A/(NC) 10 A

FIG. 1



Technical specifications	
Sensor element	Bimetal
Contact type	Switch contact, snap action
Contact resistance	< 10 mΩ
Service life	> 100000 cycles
Max. switching capacity	250 V AC 10 A (ohmic load)
Max. opening contact	250 V AC 4 A (inductive load cos φ = 0.6) DC 30 W
Connection	Terminals with four 2.5 mm <sup>2</sup> poles
Mounting	Clip for the 35 mm DIN rail, EN 50022
Cover	V0 UL94 thermoplastic, light grey
Dimensions	67 × 50 × 44 mm
Weight	100 g
Fitting position	Non-defined
Operating temperature	-20 to +80 °C (-4 to +176 °F)
Degree of protection	IP20
Hysteresis	7 °K
Adjustable temperature	From 5 to 60 °C

## Dual thermostat TSD1401

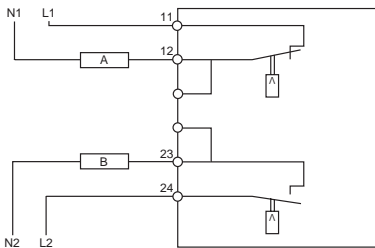


- Dual temperature regulator.
- Two thermostats in one single enclosure.
- Separate control and operation.
- Fixing clip for the 35 mm DIN rail.
- IP20.
- Dual thermostat (two thermostats in one single box). With the red button (normally closed contact- NC), the resistance heater can be regulated. A fan, signalling system or alarm can be controlled with the blue button (normally open contact- NO).

This thermostat allows the simultaneous control of a resistance heater and a fan, making an independent temperature adjustment possible.

Reference	Dimensions (mm)	Max. control current
<b>TSD1401</b>	67 × 50 × 44	250 V AC 10 A 120 V AC 15 A

FIG. 1



## Technical specifications

Sensor element	Bimetal
Contact type	1 normally open (NO), 1 normally closed (NC), snap action
Contact resistance	< 10 mΩ
Service life	> 100000 cycles
Max. switching capacity	250 V AC 10 A (ohmic load) 120 V AC 15 A (ohmic load) 250/120 V AC 2 A (inductive load cos φ = 0,6) DC 30 W
Connection	Terminals with six 2.5 mm <sup>2</sup> poles
Mounting	Clip for the 35 mm DIN rail, EN 50022
Cover	V0 UL94 thermoplastic, light grey
Dimensions	67 × 50 × 44 mm
Weight	90 g
Fitting position	Non-defined
Operating temperature	-20 to +80 °C (-4 to +176 °F)
Degree of protection	IP20
Hysteresis	7 °K
Adjustable temperature	From 0 to 60 °C

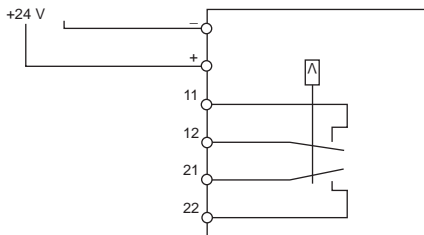
## Thermostat TSE200



- Electronic temperature regulator.
- 24 V DC supply.
- Fixing by clip for 35 mm DIN rail.
- IP20.
- Thermostat with volt-free 2 dry contact switching relay.
- Allows high number of switching operations with improved temperature accuracy ( $\pm 2\text{ }^\circ\text{K}$ ) thanks to its PTC probe.
- The miniature communication relays installed in the thermostat are powerful (230 A) and safe.
- Possibility of having a thermostat with open-contact switches or inverted switches.

Reference	Dimensions (mm)	Max. rated current
TSE200	67 × 50 × 44	NA o NC: 24 V DC 2 × 8 A

FIG. 1



Technical specifications	
Adjustable temperature	From 0 to +60 °C
Hysteresis	2 °K ± 2 °K
Sensor element	PTC probe
Connection	Terminals with six 2.5 mm <sup>2</sup> poles
Contact type	2 normally open (NO), snap action contact
Mounting	Clip for the 35 mm DIN rail, EN 50022
Cover	ABS according to UL94 V0
Operating temperature	0 to +60 °C (-32 to +140 °F)
Degree of protection	IP20
Dimensions	67 × 50 × 44 mm
Weight	80 g

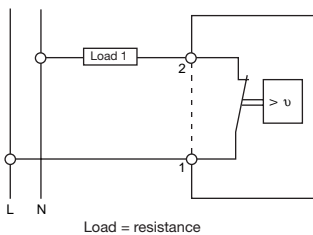
## Fixed thermostats TS140F



- Thermostat (normally closed contact - NC) to control resistance heaters.
- DIN rail fixing.
- Degree of protection IP20.
- V0 self-extinguishing thermoplastic material as per UL94.
- Factory-adjusted temperature.
- Connection:  $2 \times 2.5 \text{ mm}^2$  terminals.

Reference	Fixed adjustment	Max. control current
<b>TS140F5</b>	5 °C/41 °F	250 V AC 10 A 120 V AC 15 A DC 30 W
<b>TS140F10</b>	10 °C/50 °F	
<b>TS140F15</b>	15 °C/59 °F	

FIG. 1



Technical specifications	
Sensor element	Bimetal
Contact type	Normally closed (NC), snap action contact Normally closed (NC), snap action contact
Contact resistance	< 10 mΩ
Service life	> 100000 cycles
Max. switching capacity	250 V AC 10 A (ohmic load) 120 V AC 15 A (ohmic load) 250/120 V AC 2 A (inductive load $\cos \phi = 0.6$ ) DC 30 W
Connection	Terminals with two 2.5 mm <sup>2</sup> poles
Mounting	Clip for the 35 mm DIN rail 35 mm, EN 50022
Cover	V0 UL94 thermoplastic, light grey
Dimensions	60 × 33 × 43 mm
Weight	40 g
Fitting position	Non-defined
Operating temperature	-20 to +80 °C (-4 to +176 °F)
Degree of protection	IP20

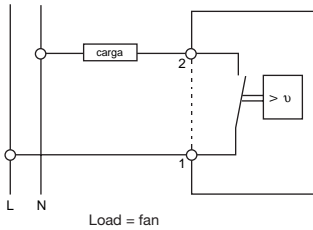
## Fixed thermostats TS141F



- Thermostat (normally open - NO contact) to control fans.
- Degree of protection IP20.
- V0 self-extinguishing thermoplastic as per UL94.
- Factory-adjusted temperature.
- Connection: 2 × 2.5 mm<sup>2</sup> terminals.
- DIN rail fixing.

Reference	Fixed adjustment	Max. control current
TS141F25	25 °C/77 °F	250 V AC 10 A 120 V AC 15 A DC 30 W
TS141F30	30 °C/86 °F	
TS141F35	35 °C/95 °F	

FIG. 1



## Technical specifications

Sensor element	Bimetal
Contact type	Normally open (NO), snap action contact
Contact resistance	< 10 mΩ
Service life	> 100000 cycles
Max. switching capacity	250 V AC 10 A (ohmic load) 120 V AC 15 A (ohmic load) 250/120 V AC 2 A (inductive load cos φ = 0.6) DC 30 W
Connection	Terminals with two 2.5 mm <sup>2</sup> poles
Mounting	Clip for the 35 mm DIN rail, EN 50022
Cover	V0 UL94 thermoplastic, light grey
Dimensions	60 × 33 × 43 mm
Weight	40 g
Fitting position	Non-defined
Operating temperature	-20 to + 80 °C (-4 to +176 °F)
Degree of protection	IP20
Hysteresis	7 °K

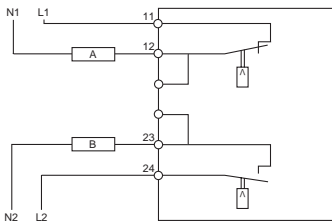
## Fixed dual thermostat TSD1401F



- Dual temperature regulator.
- Two thermostat in one enclosure with separated setting and operation.
- 35 mm DIN rail clip fixing.
- Factory-adjusted temperature.
- This unit allows trip control of a fan and a resistance heater, independent setting and operation.

Reference	Contact type	Fixed adjustment
TSD1401F10/35	NC:	10 °C/50 °F
	NO:	35 °C/95 °F
TSD1401F35/45	NO:	35 °C/95 °F
	NO:	45 °C/113 °F
TSD1401F5/15	NC:	5 °C/41 °F
	NC:	15 °C/59 °F

FIG. 1

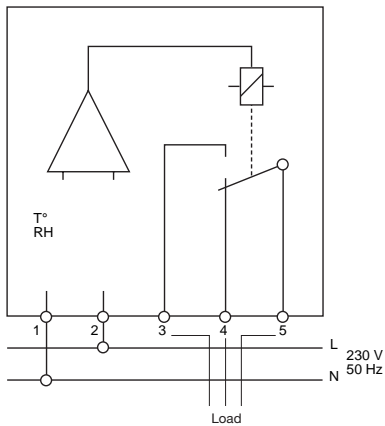


Technical specifications	
Sensor element	Bimetal
Contact type	Snap action
Contact resistance	< 10 mΩ
Service life	> 100000 cycles
Max. switching capacity	250 V AC 10 A (ohmic load) 120 V AC 15 A (ohmic load) 250/120 V AC 2 A (inductive load cos φ = 0.6) DC 30 W
Connection	Terminals with six 2.5 mm <sup>2</sup> poles
Mounting	Clip for the 35 mm DIN rail, EN 50022
Cover	V0 UL94 thermoplastic, light grey
Dimensions	67 × 50 × 44 mm
Weight	90 g
Fitting position	Non-defined
Operating temperature	-20 to +80 °C (-4 to +176 °F)
Degree of protection	IP20
Hysteresis	7 °K

## Hygrometer THS3000



FIG. 1



- The device independently measures the temperature and humidity within the electrical enclosure. The resistance heater is switched on when either of the limiting values set for the two parameters is exceeded: the temperature rises and the relative humidity RH falls. The hygrometer switch should be preferably be installed in the upper part of the enclosure at a minimum distance of 50 cm from the resistance heater.
- DIN rail fixing.
- Degree of protection IP20.
- V0 self-extinguishing thermoplastic as per UL94.
- Adjustable temperature from 0 to 60 °C.
- Adjustable relative humidity from 50 to 90%.
- Hysteresis: 2 °C, 3% RH.
- Service life: >100000 cycles.

Reference	Dimensions (mm)	Max. control current
<b>THS3000</b>	67 × 50 × 43	250 V AC 8 A 12 V DC 8 A 35 V DC 5 A

Technical specifications	
Power supply voltage	230 V AC 50/60 Hz
Switching precision	Temperature 2 °K (±1 °K)
Switching precision	Humidity 4% (±1%)
Response time	Approx. 160 sec.
Contact type	Switch
Contact resistance	< 10 mΩ
Service life	> 100000 cycles
Max. switching capacity	240 V AC 8 A (ohmic load) 240/120 V AC 4 A (inductive load cos φ = 0.6) 240 V DC 0.1 A 48 V DC 0.8 A 24 V DC 8 A
Connection	Terminals with five 2.5 mm <sup>2</sup> poles
Mounting	Clip for the 35 mm DIN rail, EN 50022
Cover	V0 UL94 thermoplastic, light grey
Dimensions	67 × 50 × 43 mm
Weight	200 g
Fitting position	Vertical
Operating temperature	-20 to +60 °C (-4 to +140 °F)
Degree of protection	IP20
Power-on indicator	LED

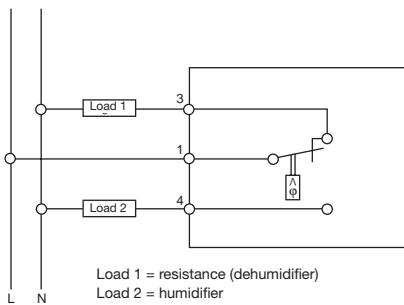
## Hygrostat HS300



- This device only measures the relative humidity inside the enclosure.
- It is used to switch on the resistance heater when the humidity rises above the set value.
- DIN rail fixing.
- Degree of protection IP20.
- V0 self-extinguishing thermoplastic as per UL94.
- Adjustable relative humidity from 30 to 90%.

Reference	Dimensions (mm)	Max. control current
HS300	67 × 50 × 37	250 V AC 5 A

FIG. 1



Technical specifications	
Control	35% to 95% RH
Switching precision	Humidity 4% ( $\pm 3\%$ )
Permissible air velocity	15 m/sec
Contact type	Switch
Contact resistance	< 10 m $\Omega$
Service life	50000 cycles
Min. switching power	20 V AC/DC 100 mA
Max. switching capacity	230 V AC 5 A (ohmic load) 230/120 V AC 0.2 A (inductive load $\cos \phi = 0.6$ ) 50 V DC 1 A/75 V DC 0.5 A (inductive load L/R = 3 ms)
Connection	Terminals with three 2.5 mm <sup>2</sup> poles
Mounting	Clip for the 35 mm DIN rail, EN 50022
Cover	V0 UL94 thermoplastic, light grey
Dimensions	67 × 50 × 37 mm
Weight	100 g
Fitting position	Non-defined
Operating temperature	-20 to +60 °C (-4 to +140 °F)
Degree of protection	IP20

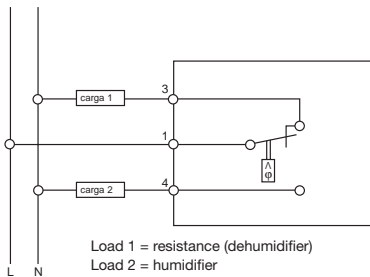
### Fixed hygrostat HS300F



- This device only measures the relative humidity inside the enclosure.
- It can be used to start up a resistance heater when this relative humidity exceeds the preset value.
- DIN rail fixing.
- Degree of protection IP20.
- V0 self-extinguishing thermoplastic as per UL94.
- Factory-adjusted relative humidity.

Reference	Fixed adjustment	Max. control current
<b>HS300F60</b>	60% RH	250 V AC 5 A DC 20 W

FIG. 1



Technical specifications	
Switching precision	Humidity 4% ( $\pm 3\%$ )
Permissible air velocity	15 m/sec
Contact type	Switch
Contact resistance	< 10 m $\Omega$
Service life	50000 cycles
Min. switching power	20 V AC/DC 100 mA
Max. switching capacity	250 V AC 5 A (ohmic load) 250 V AC 0,2 A (inductive load $\cos \phi = 0.6$ ) DC 20 W
Connection	Terminals with three 2.5 mm <sup>2</sup> poles
Mounting	Clip for the 35 mm DIN rail, EN 50022
Cover	V0 UL94 thermoplastic, light grey
Dimensions	67 × 50 × 37 mm
Weight	100 g
Fitting position	Non-defined
Operating temperature	-20 to +60 °C (-4 to +140 °F)
Degree of protection	IP20