



PRIVATE HOUSING ARCHITECTURE



CLASSIC LINE

The electrical heating systems have been long and successfully used in industry and large building projects. We offer the solution for people living in private houses. This is the heating systems on turn-key basis that can be mounted not only by a professional. We offer the ready-made solutions for de-icing of roofs and drainage systems, heating of open areas and domestic pipelines and small vessels. Now the fatigable work on snow removal from footways, roofs and roads is unessential for private houses owners not requiring great efforts from their part. The effective

solution for winter problems is the electrical heating systems based on heating cable.

Such systems save people's health and life, keep the roofs and building faces, relieve from the necessity of mechanical cleaning and snow and icicles removal. The systems provide the trouble-free operation of water pipes and drainage at home the whole year, make your life safe and comfortable in the summer house protecting roofs and water pipes from ice mound and icicles formation.

In this section we offer the de-icing systems for:

- water and sewer pipes;
- roof and drainage system;
- open areas.

Usually, the thermal insulation is used for freeze protection of pipelines or the pipes are laid below the depth of ground freezing. But the thermal insulation is unable to provide the efficient protection against freezing and the pipe installation to a depth of frostline is difficult to accomplish. Besides, a pipe section, which goes to the basement of a house, is overland and more vulnerable when it is freezing. The modern and effective solution of the pipe freezing problem is the pipes heating system (the cable electrical heating). The line of pipeline heating systems under the «Froststop» brand name by the Company protects domestic pipelines reliably during all cold period and ensures their preservation and qualitative and reliable operation.

One of popular solutions is the electrical cable de-icing system in form of a heating mat intended for prevention of ice mound formation and ice and snow layer removal from open areas, roads, ramps, stairs and driveways.

The primary function of these systems is to assure safety at movement in winter period. The usage of heating mat designed for open areas heating will extend the area of comfort movement during the winter period around the house, save you the trouble of removing snow and ice mound and makes you and your family safe from injuries. The heating mats are easy to install, operate and maintain.

One more solution to winter problems is the de-icing system for roof and drainage systems of your house. Almost all owners of country estate just for once have met the problems related to roof leak, very dangerous fall of icicles and ice mound from the roof, breaking drainage systems away by snow pack.

The reason is in clogging of outside and inside drains carrying water off the roof by ice and snow. Wide fluctuations in air temperature during the day caused by atmospheric processes, complicated shape of the roof or arrangement of living premises in attic and mansard floors, lead to formation and storage of ice.

The cable heating system installed on the roof will ensure timely melt water drainage from the roof, prevent ice mound formation and exclude all related problems.

SOLUTIONS FOR ANY APPLICATIONS

	Pipes				Open areas				Roofs
	Froststop Pipe Plug & Play Lite	Froststop Pipe Plug & Play Medium	Froststop Pipe Plug & Play Advanced	Froststop Pipe Inside	Froststop Ground Basic	Froststop Ground Advanced	Froststop Universal Basic	Froststop Universal Advanced	Froststop Roof
Catalogue page	12	13	14–15	16–17	18–19	20–21	22–23	24–25	26–27
Applications									
Concrete (Sand embedding)					+	+	+	+	
Roof							+	+	+
Gutter & Drain pipe							+	+	+
Freeze protection Pipe & Tanks	+	+	+	+					+
Freeze protection Pipe (inside installation)				+					
Special Applications									
Open areas					+	+	+	+	
UV resistance	+	+	+		+	+	+	+	+

Froststop Pipe Plug & Play Lite

FEATURES

- ✓ Heat output is automatically adjusted in response to the pipe temperature variation
- ✓ Ready-to-use unit
- ✓ Operating voltage 230 VAC
- ✓ Double-core heating cable

DESCRIPTION

Froststop Pipe Plug & Play Lite is the heating section based on double-core heating cable that maintains the required pipe temperature during the whole cold season ensuring its proper and reliable operation.

The heating section consists of a segment of double-core heating cable equipped with 2-meter cold lead with electric plug at one end and with end termination coupling at the other end. Bimetal thermostat is installed in the connection coupling.

The factory made connection and end termination couplings are reliable and tightly sealed.

ADVANTAGES

Cost effectiveness

The heating section Froststop Pipe Plug & Play Lite features low power consumption, reliable protection of water supply and sewerage lines against frost and damage, and prevention of condensed moisture creation on the pipe and therefore it extends the service life and reduces repair and operational costs.

Easy installation and power connection

It is easy to install heating section Froststop Pipe Plug & Play Lite on the pipe. Simply fix the heating tape to the pipe and plug it in the electrical outlet.

APPLICATION

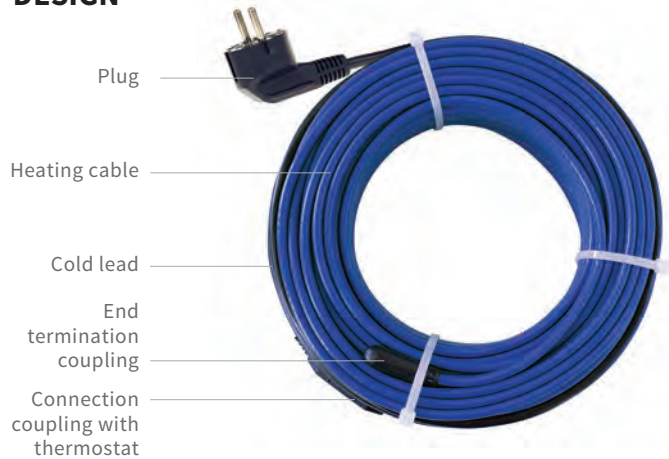
Application	Installation		
Open Area	<input type="checkbox"/>	Concrete (Sand embedding)	<input type="checkbox"/>
Roof	<input type="checkbox"/>	Under Hot Asphalt (short time)	<input type="checkbox"/>
Gutter & Drain pipe	<input type="checkbox"/>	Open (UV resistant)	<input checked="" type="checkbox"/>
Freeze Protection	<input checked="" type="checkbox"/>		

ORDERING INFORMATION

Heating section

Heating section type _____ **ETM-2.0-33**
 Length of heating cable, m _____
 Section power, W _____

DESIGN



TECHNICAL DATA

Rated voltage	230 VAC, 50 Hz
Linear output	~15–18 W/m
Temperature range *	
switch on	+5 °C
switch off	+15 °C
Maximum operation temperature	+90 °C
Minimum operation temperature	-30 °C
Minimum storage temperature	-30 °C
Minimum installation temperature	-20 °C
Minimum bending radius at installation	30 mm
Cold lead length	2 m
Schuko plug type	CEE 7/4
IP protection level	IP67
Cable colour	Light blue

* bimetal thermostat (included in the connection coupling)

PRODUCT REFERENCES

Froststop Pipe Plug & Play Lite		
Type	Length, m	Power, W
ETM-2.0-33	2	33
ETM-4.0-60	4	60
ETM-8.0-120	8	120
ETM-12.0-180	12	180
ETM-14.0-215	14	215
ETM-18.0-245	18	245
ETM-19.0-265	19	265
ETM-25.0-365	25	365
ETM-36.0-600	36	600
ETM-48.0-790	48	790
ETM-61.0-1010	61	1010

APPROVAL DETAILS



FEATURES

- ✓ High corrosion stability
- ✓ Enhanced overheating stability
- ✓ High stability to transversal and longitudinal mechanical load
- ✓ Improved flexibility
- ✓ Double-core construction
- ✓ Wide range of product references types

DESCRIPTION

The factory-made sections are reliable products equipped with couplings and cold leads, ready-to-install.

The double-core cable construction enables one-end powering that significantly simplifies heating system design and onsite installation.

For the use with roof de-icing systems, the standard heating sections should have the linear power output of 20 W/m. For the use with open area de-icing systems sections with increased output, 30 W/m, are used.

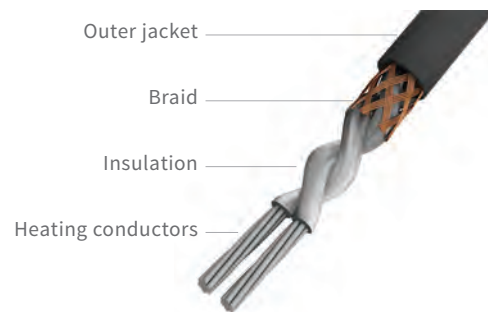
APPLICATION

Application	Installation		
Open Area	<input checked="" type="checkbox"/>	Concrete (Sand embedding)	<input checked="" type="checkbox"/>
Roof	<input checked="" type="checkbox"/>	Under Hot Asphalt (short time)	<input type="checkbox"/>
Gutter & Drain pipe	<input checked="" type="checkbox"/>	Open (UV resistant)	<input checked="" type="checkbox"/>
Freeze Protection	<input type="checkbox"/>		

DESIGN



Double-core heating cable SNTL



TECHNICAL DATA

Rated voltage	230 VAC, 50 Hz
Linear output	20 W/m, 30 W/m
Maximum operation temperature	+90 °C
Minimum operation temperature	-30 °C
Minimum storage temperature	-40 °C
Minimum installation temperature	-30 °C
Minimum bending radius at installation	35 mm
IP protection level	IP67
Cable diameter	5,80–7,12 mm

PRODUCT REFERENCES

Froststop Universal Advanced 20 W/m, 230 VAC			
Type	Power, W	Length, m	Resistance at 20°C, Ohm
SHTL-7,5-150	150	7.5	332,9 - 385,6
SHTL-12,5-250	250	12.5	203,5 - 235,3
SHTL-19-390	390	19.0	128,8 - 149,2
SHTL-25-500	500	25.0	94,5 - 109,3
SHTL-31-620	620	31.0	78,1 - 90,7
SHTL-40-790	790	40.0	60,0 - 70,2
SHTL-50-1000	1000	50.0	48,0 - 56,1
SHTL-60-1180	1180	60.0	39,6 - 46,9
SHTL-70-1400	1400	70.0	33,6 - 39,3
SHTL-85-1740	1740	85.0	26,3 - 30,4
SHTL-100-2000	2000	100.0	22,9 - 26,5
SHTL-120-2420	2420	120.0	18,9 - 21,9
SHTL-135-2810	2810	135.0	16,3 - 18,8
SHTL-150-3140	3140	150.0	14,6 - 16,9
SHTL-170-3470	3470	170.0	13,2 - 15,2
SHTL-195-3960	3960	195.0	11,6 - 13,1

Froststop Universal Advanced 30 W/m, 230 VAC			
Type	Power, W	Length, m	Resistance at 20°C, Ohm
SHTL-6.0-180	180	6.00	266,3 - 308,1
SHTL-10-300	300	10.00	162,8 - 188,5
SHTL-16-480	480	16.00	108,5 - 125,7
SHTL-21-630	630	21.00	79,4 - 92,2
SHTL-25-750	750	25.00	63,0 - 73,2
SHTL-32-960	960	32.00	48,0 - 56,2
SHTL-41-1220	1220	41.00	39,4 - 46,0
SHTL-49-1470	1470	49.00	32,3 - 38,3
SHTL-57-1710	1710	57.00	27,4 - 32,0
SHTL-70-2100	2100	70.00	21,7 - 25,1
SHTL-82-2460	2460	82.00	18,8 - 21,7
SHTL-98-2940	2940	98.00	15,4 - 17,8
SHTL-112-3360	3360	112.00	13,5 - 15,6
SHTL-125-3750	3750	125.00	12,1 - 14,1
SHTL-140-4200	4200	140.00	10,8 - 12,5
SHTL-160-4800	4800	160.00	9,5 - 11,0

ORDERING INFORMATION

Double-core heating section **SHTL-7.5-150**
 Product reference: type of the heating section _____
 Length of the heating section, m _____
 Power, W _____

APPROVAL DETAILS



FEATURES

- ✓ An extremely low-temperature solution
- ✓ Self-limiting heating cable
- ✓ Heat output is automatically adjusted in response to temperature variation
- ✓ Will not overheat or burn out even in case of overlapping
- ✓ Ready-to-use unit
- ✓ Heat output: 25 W/m
- ✓ Factory made connection and end termination couplings are reliable and tightly sealed

DESCRIPTION

Froststop Roof is the heating section based on self-limiting heating cable that prevents ice mound formation on roofs of buildings. It can also be used for maintaining the required temperature of a pipeline during the whole cold season thus ensuring its good performance, uninterrupted operation and safe condition.

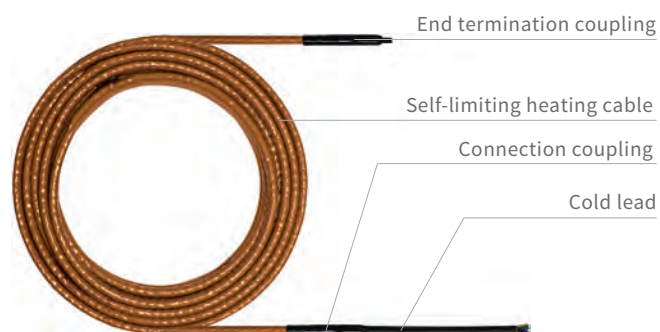
The heating section consists of a segment of self-limiting cable equipped with 3-meter cold lead at one end and with end termination coupling at the other end.

The factory made connection and end termination couplings are reliable and tightly sealed.

Electric power is applied from one end of the section. At the far end of the heating segment the end termination coupling is installed.

The heating section is designed for installation on the surface of the roof and of the pipe to be heated. Thermal insulation must be laid around the pipe with Froststop Roof section installed.

DESIGN



Terminal box photo



TECHNICAL DATA

Rated voltage	230 VAC, 50 Hz
Linear output	not less than 25 W/m
Maximum operation temperature	
switched on	+65 °C
switched off	+85 °C
Minimum storage temperature	-30 °C
Minimum installation temperature	-15 °C
Minimum bending radius at installation	35 mm
Cold lead length	3 m
IP protection level	IP67

HEATING CABLE CONSUMPTION PER 1 LINEAR METER OF THE PIPE

Thermal insulation thickness	Ambient temperature, °C	Pipe diameter, mm					
		25	32	57	76	89	108
20 mm	-10	1,0	1,0	1,0	1,0	1,0	1,2 (0,6)
	-20	1,0	1,0	x	x	2,0	2,0
	-30	1,0	x	x	x	x	x
	-40	x	x	x	x	x	x
30 mm	-10	1,0	1,0	1,0	1,0	1,0	1,0
	-20	1,0	1,0	1,0	x	1,2 (0,5)	1,5 (0,3)
	-30	1,0	1,0	x	x	2,0	2,0
	-40	1,0	x	x	x	x	x
40 mm	-10	1,0	1,0	1,0	1,0	1,0	1,0
	-20	1,0	1,0	1,0	1,0	1,0	1,2 (0,6)
	-30	1,0	1,0	1,0	x	1,5 (0,3)	2,0
	-40	1,0	1,0	x	x	2,0	2,0
50 mm	-10	1,0	1,0	1,0	1,0	1,0	1,0
	-20	1,0	1,0	1,0	1,0	1,0	1,0
	-30	1,0	1,0	1,0	1,0	1,1 (0,6)	1,5 (0,3)
	-40	1,0	1,0	x	x	1,5 (0,3)	2,0

IMPORTANT

- Cases marked by cross x are not recommended for cable winding to avoid the cable damage.
- The pipeline is obligatory to be thermal insulated.
- For pipe diameters for which the cable consumption is not indicated, thermal insulation of increased thickness must be used.
- The cable length indicated in the Table is to be installed on 1 linear meter of the pipe. In case spiral laying is required, the laying pitch in meters in indicated in brackets.
- The calculated heating section lengths are valid when thermal insulation having thermal conductivity no more than 0,05 W/(m•K) is used.

PRODUCT REFERENCES

Froststop Roof		
Type	Length, m	Power, W
Froststop Roof-1	1	25
Froststop Roof-2	2	50
Froststop Roof-3	3	75
Froststop Roof-4	4	100
Froststop Roof-5	5	125
Froststop Roof-6	6	150
Froststop Roof-7	7	175
Froststop Roof-8	8	200
Froststop Roof-9	9	225
Froststop Roof-10	10	250
Froststop Roof-15	15	375
Froststop Roof-20	20	500

APPLICATION

Application	Installation	
Open Area	<input type="checkbox"/>	Concrete (Sand embedding) <input type="checkbox"/>
Roof	<input checked="" type="checkbox"/>	Under Hot Asphalt (short time) <input type="checkbox"/>
Gutter & Drain pipe	<input checked="" type="checkbox"/>	Open (UV resistant) <input checked="" type="checkbox"/>
Freeze Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>

ORDERING INFORMATION

Heating section

Heating section brand _____ **Froststop Roof - 2**

Heating section application _____

Length of heating cable, m _____

APPROVAL DETAILS





SOLUTIONS FOR COMMERCIAL APPLICATIONS

Various electrical heating systems, along with other building services, have forever found their level in architectural and building complex. These systems not only make our life more comfortable and convenient, but also ensure our safety.

The heating property of the cable and its ability spread heat is profitably applied in de-icing systems for roofs and open areas as well as in special systems where heating of soil, ground etc. is required.

De-icing heating systems, just after their appearance, have won recognition from designers, house and construction builders on the one part and from inexpert housewives on the other part.

Now no one is surprised by cable laid on a roof, snow retaining structures on the long pitch of a roof, dry steps at a supermarket entrance or grass growing on open playground in early spring.

ROOF DE-ICING SYSTEMS

Today this is the only efficient way of roof and drainage system protection against multitude of winter problems: ice mound, icicles, snowpack accumulation.

In winter frost period, with freezing, thaws and snowfalls the ice mound is formed on the roof that is a hazardous occurrence.

Double-core heating section SHTL

FEATURES

- ✓ High corrosion stability
- ✓ Enhanced overheating stability
- ✓ High stability to transversal and longitudinal mechanical load
- ✓ Improved flexibility
- ✓ Double-core construction
- ✓ Wide range of product reference types
- ✓ Preassembled sections for quick and easy installation

DESCRIPTION

Delivery of factory-made sections is possible. These are reliable products equipped with couplings and installation wires, ready-to-install according to project.

Double-core cable construction enables one-end powering that significantly simplifies heating system design and onsite installation.

For the use with roof de-icing systems, the standard heating sections should have the linear power output of 20 W/m. For the use with open area de-icing systems sections with increased output, 30 W/m, are used.

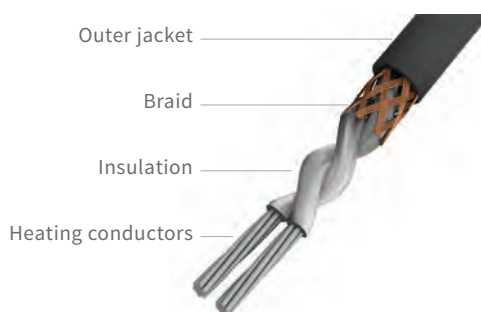
APPLICATION

Application		Installation	
Open Area	<input checked="" type="checkbox"/>	Concrete (Sand embedding)	<input checked="" type="checkbox"/>
Roof	<input checked="" type="checkbox"/>	Under Hot Asphalt (short time)	<input type="checkbox"/>
Gutter & Drain pipe	<input checked="" type="checkbox"/>	Open (UV resistant)	<input checked="" type="checkbox"/>
Freeze Protection	<input type="checkbox"/>		

DESIGN



Double-core heating cable SNTL



TECHNICAL DATA

Rated voltage	230 VAC, 50 Hz
Linear output	20; 30 W/m
Maximum operation temperature	90 °C
Minimum operation temperature	-30 °C
Minimum storage temperature	-40 °C
Minimum installation temperature	-30 °C
Minimum bending radius at installation	35 mm
IP protection level	IP67
Cable diameter	5,80–7,12 mm

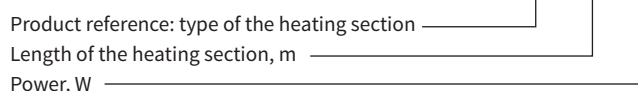
PRODUCT REFERENCES

Heating section SHTL 20 W/m, 230 V			
Type	Power, W	Length, m	Resistance at 20°C, Ohm
SHTL-7,5-150	150	7,5	332,9 - 385,6
SHTL-12,5-250	250	12,5	203,5 - 235,3
SHTL-19-390	390	19,0	128,8 - 149,2
SHTL-25-500	500	25,0	94,5 - 109,3
SHTL-31-620	620	31,0	78,1 - 90,7
SHTL-40-790	790	40,0	60,0 - 70,2
SHTL-50-1000	1000	50,0	48,0 - 56,1
SHTL-60-1180	1180	60,0	39,6 - 46,9
SHTL-70-1400	1400	70,0	33,6 - 39,3
SHTL-85-1740	1740	85,0	26,3 - 30,4
SHTL-100-2000	2000	100,0	22,9 - 26,5
SHTL-120-2420	2420	120,0	18,9 - 21,9
SHTL-135-2810	2810	135,0	16,3 - 18,8
SHTL-150-3140	3140	150,0	14,6 - 16,9
SHTL-170-3470	3470	170,0	13,2 - 15,2
SHTL-195-3960	3960	195,0	11,6 - 13,1

Heating section SHTL 30 W/m, 230 V			
Type	Power, W	Length, m	Resistance at 20°C, Ohm
SHTL-6,0-180	180	6,00	266,3 - 308,1
SHTL-10-300	300	10,00	162,8 - 188,5
SHTL-16-480	480	16,00	108,5 - 125,7
SHTL-21-630	630	21,00	79,4 - 92,2
SHTL-25-750	750	25,00	63,0 - 73,2
SHTL-32-960	960	32,00	48,0 - 56,2
SHTL-41-1220	1220	41,00	39,4 - 46,0
SHTL-49-1470	1470	49,00	32,3 - 38,3
SHTL-57-1710	1710	57,00	27,4 - 32,0
SHTL-70-2100	2100	70,00	21,7 - 25,1
SHTL-82-2460	2460	82,00	18,8 - 21,7
SHTL-98-2940	2940	98,00	15,4 - 17,8
SHTL-112-3360	3360	112,00	13,5 - 15,6
SHTL-125-3750	3750	125,00	12,1 - 14,1
SHTL-140-4200	4200	140,00	10,8 - 12,5
SHTL-160-4800	4800	160,00	9,5 - 11,0

ORDERING INFORMATION

Double-core heating section SHTL **SHTL-7.5-150**



APPROVAL DETAILS



FEATURES

- ✓ Heat output is automatically adjusted in response to the pipe temperature variation
- ✓ Ready-to-use unit
- ✓ Operating voltage 230 VAC
- ✓ Double-core heating cable

DESCRIPTION

ETM is the heating section based on double-core heating cable that maintains the required pipe temperature during the whole cold season ensuring its proper and reliable operation.

The heating section consists of a segment of double-core heating cable equipped with 2-meter cold lead with electric plug at one end and with end termination coupling at the other end. Bimetal thermostat is installed in the connection coupling.

The factory made connection and end termination couplings are reliable and tightly sealed.

ADVANTAGES

Cost effectiveness

The section ETM features low power consumption, reliable protection of water supply and sewerage lines against frost and damage, and prevention of condensed moisture creation on the pipe and therefore it extends the service life and reduces repair and operational costs.

Easy installation and power connection

It is easy to install section ETM on the pipe. Simply fix the heating tape to the pipe and plug it in the electrical outlet.

APPLICATION

Application		Installation	
Open Area	<input type="checkbox"/>	Concrete (Sand embedding)	<input type="checkbox"/>
Roof	<input type="checkbox"/>	Under Hot Asphalt (short time)	<input type="checkbox"/>
Gutter & Drain pipe	<input type="checkbox"/>	Open (UV resistant)	<input checked="" type="checkbox"/>
Freeze Protection	<input checked="" type="checkbox"/>		

ORDERING INFORMATION

Heating resistive section

Heating section type _____
 Length of heating cable, m _____
 Section power, W _____

ETM-2.0-33

DESIGN



TECHNICAL DATA

Rated voltage	230 VAC, 50 Hz
Linear output	~15–18 W/m
Temperature range *	
switch on	+5 °C
switch off	+15 °C
Maximum operation temperature	+90 °C
Minimal operation temperature	-30 °C
Minimal storage temperature	-30 °C
Minimal installation temperature	-20 °C
Minimum bending radius at installation	30 mm
Cold lead length	2 m
Schuko plug type	CEE 7/4
IP protection level	IPX7
Cable colour	Light blue

* bimetal thermostate (included in the connection coupling)

PRODUCT REFERENCES

Heating section with plug ETM		
Type	Section length, m	Section power, W
ETM-2.0-33	2	33
ETM-4.0-60	4	60
ETM-8.0-120	8	120
ETM-12.0-180	12	180
ETM-14.0-215	14	215
ETM-18.0-245	18	245
ETM-19.0-265	19	265
ETM-25.0-365	25	365
ETM-36.0-600	36	600
ETM-48.0-790	48	790
ETM-61.0-1010	61	1010

APPROVAL DETAILS



For detailed information about our control systems please refer to our control equipment catalogue.

PRODUCT REFERENCES

Temperature controller TP-140	
for small open area de-icing systems	
Supply voltage	230 VAC, 50 Hz
Max. load current	16 A
Power consumption	not more than 0,5 W
Weight	90 g
Dimensions	80×80×52 mm
IP protection level	IP20
Type of temperature sensor	TST05; NTC 1 kOhm
Sensor installation wire length	2 m
Permissible ambient air temperature range	+5 °C ... + 45 °C
Temperature range	-15 °C ... + 5 °C
Low limit temperature settings range	-15 °C ... + 0 °C
Colour	white
Mounting type	in-wall



Temperature controller PT-330	
for simple roof and open area de-icing systems	
Supply voltage	230 VAC, 50 Hz
Max. load current	16 A
Power consumption	not more than 0,5 W
Weight	110 g
Dimensions	35×90×58 mm
IP protection level	IP20
Type of temperature sensor	TST05; NTC 1 kOhm
Sensor installation wire length	2 m
Permissible ambient air temperature range	+5 °C ... + 45 °C
Temperature range	-15 °C ... + 5 °C
Low limit temperature settings range	-15 °C ... + 0 °C
Colour	gray
Mounting type	DIN-rail, 2 modules



Slave relay unit RoomStat 190	
for extension of controlled electric heating capacities	
Supply voltage	230 VAC, 50 Hz
Max. load current	16 A
Power consumption	0,45 W
Weight	70 g
Dimensions	80×80×52 mm
IP protection level	IP20
Permissible ambient air temperature range	+5 °C ... + 40 °C
Colour	white
Mounting type	in-wall




Temperature controller PT-300	
for fixed temperature maintenance of pipeline and de-icing heating systems	
Supply voltage	230 VAC, 50 Hz
Max. load current	8 A
Power consumption	0,5 W
Weight	100 g
Dimensions	35×90×68 mm
IP protection level	IP20
Type of temperature sensor	TST04; Digital DS16S20
Permissible ambient air temperature range	+5 °C ... + 40 °C
Standard maintained temperature	+ 2 °C ... + 5 °C + 40 °C ... + 45 °C + 60 °C ... + 65 °C
Temperature range	-55 °C ... + 125 °C
Colour	gray
Mounting type	DIN-rail, 2 modules





Temperature controller PT-350	
for simple roof and open area de-icing systems	
Supply voltage	230 VAC, 50 Hz
Max. load current	16 A
Power consumption	not more than 0,5 W
Weight	250 g
Dimensions	90×90×50 mm
IP protection level	IP55
Type of temperature sensor	TST02; NTC 6.8 kOhm
Sensor installation wire length 2m	+5 °C ... + 40 °C
Permissible ambient air temperature range	+5 °C ... + 45 °C
Temperature range	+5 °C ... + 45 °C
Regulating range of the low temperature range limit	-20 °C ... +50 °C
Colour	white
Mounting type	in-wall





PRODUCT REFERENCES

Temperature controller PTM-2000		
multiprogram electronic temperature controller for pipeline, open area and roof de-icing heating systems		
Supply voltage	90 ... 250 VAC, 50–60 Hz, 12 VA	
Max. control relay current	6 A, 230 VAC	
Power consumption	12,0 W	
Weight	450 g	
Dimensions	160×90×60 mm	
IP protection level	IP20	
Types of sensors used (the type of the connected sensor is to be set in the device adjustment menu, separately for each channel)	TST01, TSP01, TSP02, TSW01 Normalized signal 4 ... 20 mA	
Maximal sensor distance from the controller	up to 1000 m for normalized signal 4...20 mA 100 m for temperature sensor TST01	
Permissible ambient air temperature range	+5 °C ... + 40 °C	
Temperature range	+5 °C ... + 40 °C	
Temperature setting range	–100 °C ... +600 °C for normalized signal 4...20 mA –55 °C ... +60 °C (+125 °C) for temperature sensor TST01	
Measurement channels number	4(8) channels	
Control channels number	4 channels	
Temperature measurement accuracy	0,5 %	
Temperature indication accuracy	0,1 °C	
Colour	grey	
Mounting type	DIN-rail, 9 modules	


TST01		
temperature sensor		
Temperature measurement range	–55 °C .. +60 °C (standard) –55 °C .. +125 °C (heat-resistant)	
Sensing element type	DS18S20 digital	
Dimensions (sensor diameter/cable diameter)	10/8 mm	
Number of cores in connection cable	2-core	
Compatibility with thermostat type	PTM-2000	


TST02		
temperature sensor		
Temperature measurement range	–20 °C ... +80 °C	
Sensing element type	NTC (6,8 kOhm/ 25 °C) heat-resistant	
Dimensions (sensor diameter/cable diameter)	10/8 mm	
Number of cores in connection cable	2-core	
Compatibility with thermostat type	PT-350	


TST04		
temperature sensor		
Temperature measurement range	–55 °C .. +60 °C (standard) –55 °C .. +125 °C (heat-resistant)	
Sensing element type	DS1620S digital	
Dimensions (sensor diameter/cable diameter)	20/8 mm	
Number of cores in connection cable	3-core	
Standard maintained temperature	+ 2 °C ... + 5 °C + 40 °C ... + 45 °C + 60 °C ... + 65 °C	
Compatibility with thermostat type	PT-300	


TST05		
temperature sensor		
Temperature measurement range	–50 °C ... +40 °C	
Sensing element type	NTC (1 kOhm/ 25 °C) heat-resistant	
Dimensions (sensor diameter/cable diameter)	10/8 mm	
Number of cores in connection cable	2-core	
Compatibility with thermostat type	PT-330 TP-140	

PRODUCT REFERENCES

TSP02		
precipitation sensor		
Dimensions with bracket (included in the delivery kit)	210×210×160 mm	
Weight	520 g	
Heater supply voltage	36 VAC ± 10 %	
Heating element resistance	360 Ohm ± 10 %	
Heater rated power	5 W ± 10 %	
Compatibility with thermostat type	PTM-2000	

TSP03-D		
precipitation sensor		
Dimensions (diameter/height)	100x95 mm	
Sensing element type	water closing contact	
Heater supply voltage	36 VAC ± 10 %	
Heater rated power	10 W ± 10 %	
Operating temperature range	from -40 °C to +50 °C	
Compatibility with thermostat type	PTM-2000	

TSW01		
water sensor		
Dimensions	160×40×15 mm	
Maximum diameter (sensor/cable)	10/3 mm	
Maximum distance from the controller	100 m	
Weight	50 g	
Operating temperature range	from -40 °C to +50 °C	
Compatibility with thermostat type	PTM-2000	

BPDO		
power supply unit for precipitation sensors		
Input voltage	230 VAC, 50 Hz	
Output voltage	36 VAC ±10 %, 50 Hz	
Rated output power	5 W	
Weight	450 g	
Dimensions (Height × Width × Depth)	89×70×65 mm	
Operating temperature	+5 °C ... +40 °C	
Ingress protection rating	IP20	
Mounting type	DIN-rail, 6 modules	
Compatibility with thermostat type	PTM-2000	