ICE & SNOW
UNDER CONTROL

ETI

WINTERLINE SOLUTIONS
Ice and snow melting system for small and large applications

Securing safe walking on public surfaces

Frost protection of pipelines

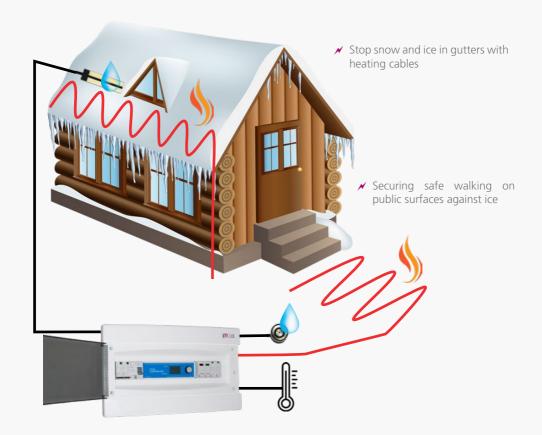**Stop snow and ice in gutters**

Thinking of safety - so you don't have to

WINTERLINE SOLUTIONS

ETI's ice and snow melting system is a perfect solution for roofs, driveways, home and business yards in winter time. You can even use it for frost protection of pipelines.

✗ Stop snow and ice in gutters with heating cables

✗ Securing safe walking on public surfaces against ice

Ice candles on gutters and roofs can be life-threatening. Same goes for slippery icy floors. Our system provides safety for people, cars and buildings. To solve deadly winter problems you basically have two options: the old fashion hands-on way or the new smart ice and snow melting system. One could of course go halfway and decide on an on/off solution implementing only heating cables without thermostats and controllers. Yet, while the installation may be less costly, this solution will prove to be inefficient and energy consuming in the long run, so we advise against it. Instead, we propose you choose the smart way, where the intelligent controller with special sensors will do the job for you.

Take control of the heating cables with ETI winterline solution.

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SAVE ENERGY WITH INTELLIGENT SENSING

Our ice and snow melting system will set in only when the outdoor temperature drops below the selected setting and the sensors actually detect snow or ice. So it will only use energy when it is needed.

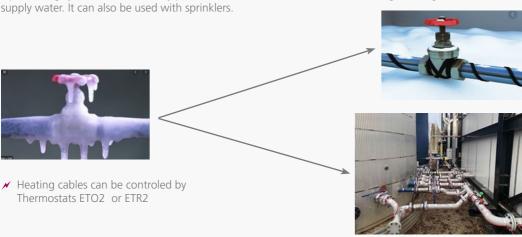## CAN HANDLE ONE or TWO ZONES SIMULTANEOUSLY

The system can also handle two zones at the same time. For example, you can use it to ensure efficient melting in gutters and at a carpark area at the same time.

FROST PROTECTION OF PIPELINES

Pipe heating system can solve many problems in winter or cold times like: freezing drinking water, waste and supply water. It can also be used with sprinklers.
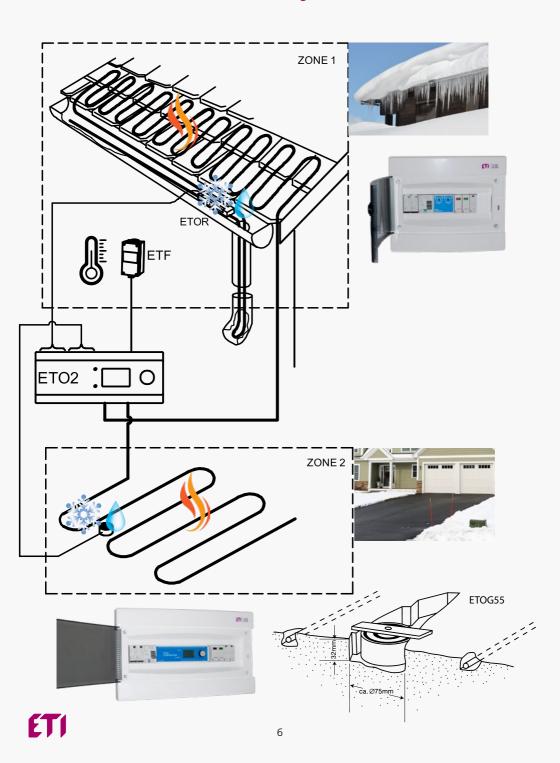

⚡ Heating cables can be controled by
   Thermostats ETO2 or ETR2

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Ice and snow melting systems PRODUCT SELECTOR

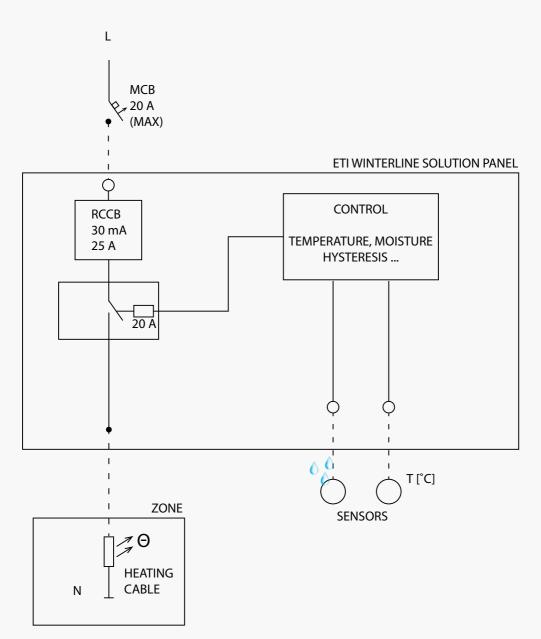|	1 ZONE APPLICATION			
	For outdoor surfaces (driveways, home yards)		For gutters (on roofs)	
1 Phase or 3 Phase version	1 Phase	3 Phase	1 Phase	3 Phase
Thermostats				
Thermostat with 16A potential-free output relay	x		x	
Thermostat (Two-zone control)				
"All-in-one" thermostat				
Sensors				
Ground sensor for measuring temperature and moisture, 10 m cable included	x			
Outdoor sensor for measuring temperature			x	
Gutter sensor for measuring moisture, 10 m cable			x	
Temperature sensor for pipes				
Residual current circuit breaker - Safety				
EFI-2 Type A, 25A, 30mA, ETI code: 002062522	x		x	
EFI-4 Type A, 25A, 30mA, ETI code: 002062542		x		x
Modular contactors				
Modular contactor R 25-20 230V, ETI code: 002463502	x		x	
Modular contactors, R 25-40 230 V, ETI code: 002462310		x		x
Distribution boards				
Wall mounted distribution board - ECH, ECH-24PT, ETI code: 001101063	x		x	
Wall mounted distribution board - ECH, ECH-36PT, ETI code: 001101064				
Accesories				

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Frost protection of pipe-lines		For outdoor surfaces (zone 1)		For gutters (zone 2)	
1 Phase	3 Phase	1 Phase	3 Phase	1 Phase	1 Phase
				x	
x					
		x			
				x	
					x
x					
x		x (one for both zones)		x (one for both zones)	
	x		x (one for both zones)		x (one for both zones)
x		x		x	
	x		x		x
x		x (one for both zones)		x (one for both zones)	
			x (one for both zones)		x (one for both zones)
Line-up terminals etc.					

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1 ZONE and 2 ZONE APPLICATIONS for roofs/gutters and outside floors

ZONE 1

ETOR

ETF

ETO2

ZONE 2

ETOG55

32mm

ca. Ø75mm

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Main supply connections
Wiring diagram:

L

MCB
20 A
(MAX)

ETI WINTERLINE SOLUTION PANEL

RCCB
30 mA
25 A

CONTROL

TEMPERATURE, MOISTURE
HYSTERESIS ...

20 A

T [°C]

SENSORS

ZONE

Θ

HEATING
CABLE

N

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PRODUCTS for PROJECTS

Thermostat with 16A potential-free output relay ETR2-1550

The ETR2 gives an economical control of ice-and snow melting for all smaller applications. With focus on power consumption and easy installation, the ETR2 keeps gutters and small ground areas free of ice and snow.

- ✗ Economical control of ice and snow melting in the outdoor area and gutters
- ✗ Detection of temperature and moisture
- ✗ Electronic on/off control up to 3,600W
- ✗ For roof or gutter applications
- ✗ Easy to install
- ✗ Adjustable moisture sensitivity
- ✗ Possibility to activate forced heat

THERMOSTAT FUNCTIONS

For Gutters - ETR2-4550, ETOR-55 and ETF-744/99: The sensor type ETOR is designed for mounting in gutters and down pipes etc. ETOR detects moisture, while ETF detects temperature. The snow melting system will be energized only when the outdoor temperature is below the selected setting and snow or ice occurs on the ETOR. For Outdoor areas - ETR2-4550 and ETOG-55 is used: The sensor type ETOG is designed for embedding into the surface of the outdoor area. ETOG detects ground temperature and moisture. The air sensor type ETF-744/99 can be used for measuring rapidly temperature decreases.

The snow melting system will be energized only when the outdoor temperature is below the selected setting and snow or ice occurs on the ETOG.

Easy startup:

Adjust the temperature and the afterrun time. The thermostat is now working when the outdoor temperature is below the set temperature.

Technical data	
	ETR2-1550
Supply voltage	230V ±10, 50/60 Hz
Output relay	16A potential-free 3600W
On / off differential	0,4℃
Setting of temperature	0 ... 10℃
Setting of afterruntime	0 ... 5 hours
LEDS indicates:	Green - Power on Red - moist - moisture is detected Red - temp - Outdoor temperature is below setpoint Red - relay - Output is on
Power consumption	3VA
Ambient temperature	0 ... +50 ℃
Housing	IP20

ETO2-4550 (Thermostat incl. cover for wall surface mounting, Two-zone control)

An intelligent all-in-one solution for ice and snow melting suitable for any application which uses hydronic or electric heating. Optimal operation is ensured through output control, making the system both effective and economical. ETO2 offers the possibility of snow melting - the green way.

- Electronic on/off control of up to 11 KW
- Two-zone control, individually controlled
- Economical control - minimised energy consumption
- Adjustable moisture sensitivity
- Measurement of both temperature and moisture
- Display and selector knob for easy programming
- Control of hydronic or electric ice and snow melting systems
- Several language options

ETO2 is controller for ice and snow melting on the ground and in gutters. Using readings from temperature and moisture sensors, the controller ensures economical control of power consumption while keeping outdoor areas and roofs free of ice and snow. The moisture sensor should be installed in the ground surface or placed in the gutter. As soon as moisture is detected in conjunction with low temperature, the ETO2 controller activates the snow-melting system.

Once the sensor has dried out, the thermostat immediately goes into afterrun and the system continues to provide heat for a set time.

THERMOSTAT FUNCTIONS ENSURING MINIMAL ENERGY CONSUMPTION

The snow melting system is only energized when the outdoor temperature drops below the selected setting and snow or ice is detected by the sensors. Energy is thus only used when absolutely needed.

For gutters - ETO2-4550, ETOR-55 and ETF-744/99 The ETOR sensor is designed for installation in gutters, downpipes, etc. ETOR sensors detect moisture, while ETF sensors measure temperature.
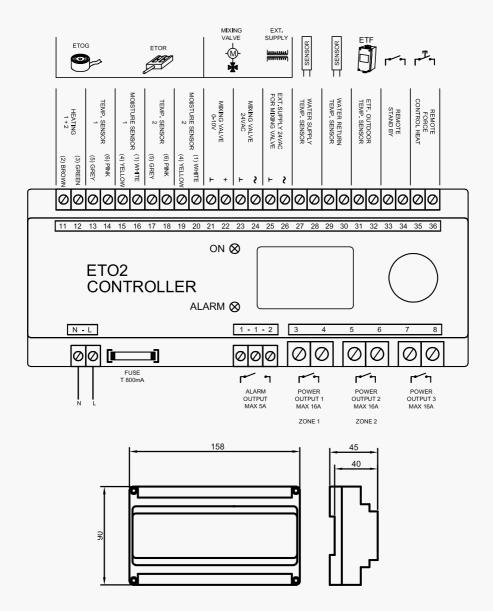
For outdoor surfaces - ETO2-4550, ETOG-55

The ETOG sensor is designed for embedding in the surface of the outdoor area. ETOG sensors measure ground temperature and moisture. The ETF-744/99 sensor can be used for measuring rapid temperature drops.

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Technical data

	ETO2-4550 thermostat
Supply voltage	120-240 V ±10%, 50-60 Hz
Temperature range (control)	-20/+50°C
Built-in timer for manual snow melting / afterrun	0-18 hours
Output relays	3 x 16 A potential-free relays
2-zone application	Via 2 x 16 A potential-free output relays
Hydronic system	Control of 3 or 4 way valve, primary pump, secondary pump
Display	Graphic, backlit
Temperature range (ambient)	0/+40°C
Temperature range (storage)	-50/+70°C
Housing / incl. cover	IP20
LED indication: ON/Green Error/Red	Thermostat energised Fault
Setting of afterruntime	0 ... 5 hours
ETOG-55 ground sensor: Measurement Installation Housing Temperature range (ambient) Dimensions (H/Ø)	Moisture and temperature Outdoor surface IP68 -50/+70°C 32/60 mm
ETOG-56/ETOK-1 embedded ground sensor: Measurement Installation Housing Temperature range (ambient) Dimensions, sensor (H/Ø) Dimensions, tube (H/Ø)	Moisture and temperature Outdoor surface IP68 -50/+70°C 32/60 mm 78/63.5 mm
ETOR-55 gutter sensor: Measurement Installation Housing Temperature range (ambient) Dimensions (H/W/D)	Moisture Gutter or downpipe IP68 -50/+70°C 105/30/13 mm
ETF-744/99 outdoor temperature sensor: Measurement Installation Housing Temperature range (ambient) Dimensions (H/W/D)	Temperature Wall surface IP54 -50/+70°C 86/45/35 mm

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Remote control

It is possible to control the ETO2 via an external signal (day/week timer, GSM module or other signal source). The ETO2 can be switched on/off (standby) and the system can be temporarily forced to provide heat during the period of time set in the afterrun menu.

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SENSORS

ETF-744/99, (Outdoor sensor for measuring temperature)

Outdoor sensor type ETF: Detects temperature. Is used in combination with gutter sensor ETOR, but can also be used separately only for temperature detection.

The outdoor sensor can also be used together with the ETOG sensor for outdoor areas. The outdoor sensor detects rapidly decrease in air temperatures avoiding icy areas. Is mounted under the roof eaves on the north side of the building.

ETOR-55 (Gutter sensor for measuring moisture, 10 m cable)
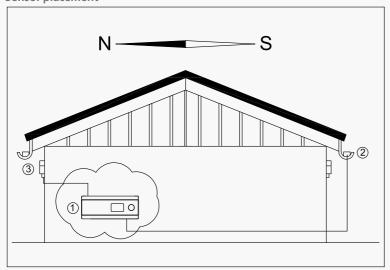
Designed for mounting in gutters and down pipes ect. Detects moisture and is mounted in combination with outdoor sensor ETF for temperature detection.

Mounting of sensor: To be mounted in the gutter or downpipe on the sunny side of the building. Contact points of the sensor must be placed towards the flow of the melting water. To be mounted where the melting water will often appear.

Mounting of sensor cable: The cable must be mounted in accordance with applicable local regulations. The cable must never be installed parallel to power cables as lectrical interference may distort the sensor signal. The sensor is supplied with 10 m cable which can be extended up to 200 m using standard installation cable: 6x1,5 mm^2. The total resistance of the cable must be less than 10 ohm.
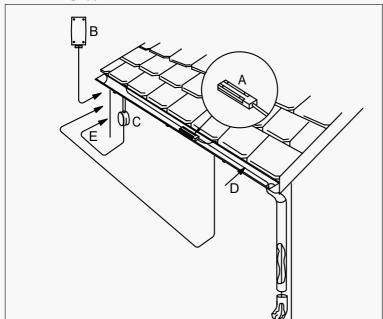
Sensor placement

1 = Snow melting thermostat ETO2 / ETR2.

2 = ETOR-55 sensor

3 = ETF sensor

Snow melting application

A = ETOR-55 sensor

B = ETF sensor

C = Junction box (Only if sensor cable is too short)

D = Heating cable

Ground sensor ETOG-55

Designed for embedding into the surface of the outdoor area. Detects both temperature and moisture.
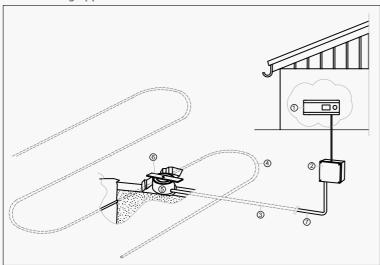
Mounting of sensor: To be mounted where snow and ice problems normally occur. The sensor must be embedded horizontally with its top flush with the surroundings with the help of the accompanying installation plate. To be mounted on a hard foundation, e.g. in a concrete base or asphalt.

Mounting of sensor cable: The cable must be mounted in accordance with applicable local regulations. The cable must never be installed parallel to power cables as electrical interference may distort the sensor signal. The sensor is supplied with 10 m cable which can be extended up to 200 m using standard installation cable: 6x1,5 mm². The total resistance of the cable must be less than 10 ohm.
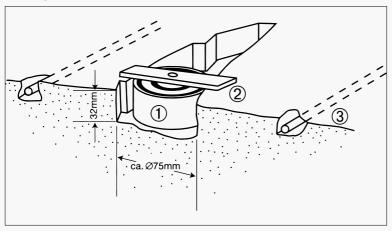
Snow melting application

1 = Snow melting thermostat ETO2 / ETR2.

2 = Junction box (Only if sensor cable is too short)

3 = Conduit for sensor cable

4 = Heating cable

5 = ETOG-55 sensor

6 = Metal bracket plate for alignment purposes

7 = Sensor cable

Sensor placement

ca. Ø75mm

32mm

1 = ETOG-55 sensor

2 = Metal bracket plate for alignment purposes

3 = Heating cable

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ETF-622 Temperature sensor for pipes

Designed for temperature control and monitoring in heating and cooling systems, and is suitable for pipe mounting (metal head).

Residual current circuit breakers EFI

EFI-P2 Type A, 25A, 30mA, ETI code: 002061111
EFI-P4 Type A, 25A, 30mA, ETI code: 002061511

Modular contactors for installation into distribution boards

Modular contactor R 25-20 230V, ETI code: 002463502
Modular contactors, R 25-40 230V, ETI code: 002462310

Flush mounted distribution board – ECH

ECM12PT, (12 modules), ETI code: 001101011
ECM18PT, (18 modules), ETI code: 001101018

ETI

ETI group

www.etigroup.eu

PARENT COMPANY

ETI D.O.O.
Obrezija 5, 1411 Izlake, Slovenia
Phone: +386 3 5657 570
E-mail: eti@eti.si
http://www.etigroup.eu
http://www.eti.si

ASSOCIATED COMPANIES

ITALWEBER S.P.A.
Via Enrico Fermi 40/42, 20090 Assago, Italy
Phone: +39 02 939 771
E-mail: info@italweber.it
http://www.italweber.it

SUBSIDIARIES

ETI PROPLAST D.O.O.
Obrezija 5, 1411 Izlake, Slovenia
Phone: +386 3 56 57 590
E-mail: etiproplast@eti.si
http://www.etiproplast.si

ETI ELEKTROTECHNIK GMBH
Dorfwiesenweg 13, 63828 Kleinkahl, Germany
Phone: +49 6024 6397-0
E-mail: contact@eti-de.de
http://www.eti-de.de

ETI POLAM SP. Z O.O.
Ul. Jana Pawla II 18, 06100 Pułtusk, Poland
Phone: +48 23 691 93 00
E-mail: etipolam@etipolam.com.pl
http://www.etipolam.com.pl

ETI SARAJEVO D.O.O.
Hifzi Bjelevca 13, 71 000 Sarajevo, BiH
Phone: +387 33 77 52 50
E-mail: etisa@bih.net.ba
http://www.eti.ba

ETI ELEKTROELEMENT S.R.O.
Paceřická 2773/1
9300 Praha - Horní Počernice
Phone: +420 777 950 203
E-mail: jan.tichy@etielektroelement.cz

ETI UKRAINE, LTD
Ul. Akademika Tupoleva 19,
04128 Kiev, Ukraine
Phone: +380 44 494 21 80
E-mail: office@eti.ua
http://www.eti.ua

ETIBALTUS, UAB
Tilzes 41a, 47187 Kaunas, Lithuania
Phone: +370 37 261 582
E-mail: eti@etibaltus.lt
http://www.etibaltus.lt

ETI B
Zvečanska 56/17
11000 Beograd,Serbia
Phone: +381 (0)11 3961 688
E-mail: miodrag.stojkovic@etib.rs
http://www.etib.rs

ETI HU ELEKTROTECHNIKAI, KFT.
Rokolya utca 25, 1131 Budapest, Hungary
Phone: +36 1 238 0784
E-mail: eti@eti-hu.hu
http://www.eti-hu.hu

ETI RUSSIA
St. Ugreshskaya d. 2, Moscow, Russia
Tel: +7 (495) 665-34-80
E-mail: info@etirus.ru
http://www.etimoskva.ru

ETI ROMANIA S.R.L.
Str. Doina, Nr. 17, Sector 5, Bucharest, Romania
Phone: +40 (0)21 317 1743
E-mail: eti.electrice@gmail.com
http://www.etigroup.ro

ETI ELEKTROELEMENT D.O.O.
For technical engineering and store of electrotechnical products
Ulica grada Vukovara 235/V,
10000 Zagreb, Croatia
http://www.eti.si/hr

ETI PROSTIK D.O.O.
Obrezija 5, 1411 Izlake,
Slovenia
Phone:+386 3 56 57 463
E-mail: etiprostik@eti.si