OJ Thermostat Range
ETO2

ETO2-4550

ETF-744/99

ETO2-BOX
ETO2 Mounting box

ETOG-56
ETOK-1

ETOG-55

ETOR-55

GREEN COMFORT
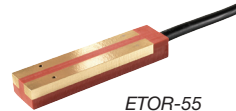
Intelligent Control
Maximum comfort with
low energy consumption

Save up to 66% CO_2*

CONTROLLER FOR HYDRONIC OR ELECTRIC SNOW MELTING

Energy-efficient control of ice and snow melting

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.

- Control of hydronic or electric ice and snow melting systems
- Up to two individually controlled zones
  Control of supply water temperatures by motorized mixing valve
- Control of idle water temperature for faster heat-up times in hydronic mode
- Economical control via measurement of both temperature and moisture.
- Display and selector knob for easy programming
- Alarm relay for external signal
- Several language options

PRODUCT PROGRAMME

TYPE	PRODUCT
ETO2-4550	Thermostat incl. cover for wall surface mounting
ACCESSORIES	
ETOG-55	Ground sensor for measuring temperature and moisture, 10 m cable
ETOG-56/ETOK-1	Ground sensor for embedding in outdoor surfaces, e.g. asphalt or concrete, 25 m cable
ETOR-55	Gutter sensor for measuring moisture, 32' 9.7" cable
ETF-744/99	Outdoor sensor for measuring temperature
ETO2-BOX	UL mounting box for ETO2
ETTB	Spacer plate for ETO2-4550

WE CANNOT CHANGE THE WEATHER
- BUT WE CAN CONTROL THE CONSEQUENCES
OJ has developed the ETO2 controller for ice and snow melting. Using readings from temperature and moisture sensors, the controller ensures economical control of energy consumption while keeping areas free of ice and snow.
The moisture sensor should be installed in the surface of the outdoor area.
As soon as moisture is detected when temperature is below the critical level, the ETO2 controller activates the snow melting system.
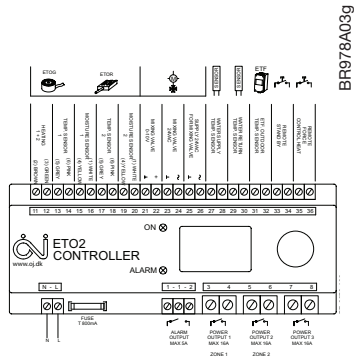Once the sensor has dried out, the controller switches off the heating system.

CONTROLLER FUNCTIONS
ENSURING MINIMAL ENERGY CONSUMPTION
The ETOG senor is designed for embedding in the surface of the outdoor area. The ETOG sensor measures ground temperature and moisture. It can also be combined with an ETF-744/99 air temperature sensor, which can measure rapid air temperature changes.
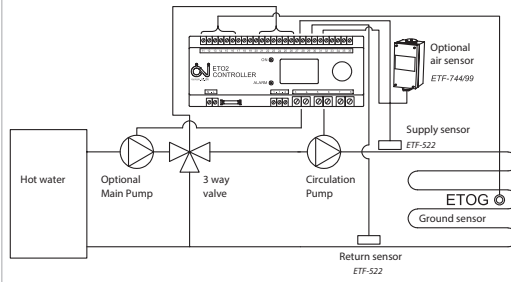
In electric mode, the ETO2 can control up to two zones by activating an individual output for each zone. In 2-zone hydronic applications, these outputs are connected directly to circulation pumps.

In 1-zone hydronic mode, the ETO2-4550 ensures the required supply water temperature by regulating a motorized mixing valve in response to supply water temperature.
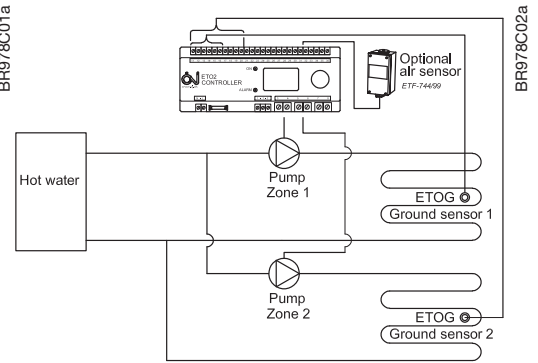At the same time, a return water sensor keeps water temperature at a set minimum (idle temp.) to ensure faster melting times when the need arises.

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OJ ELECTRONICS
KNOW-HOW CREATES

Connections

Example: Advanced 1-zone hydronic application

Example: Simple 2-zone hydronic application

Remote control possibilities:

The ETO2 can be controlled by external signals from a day/week timer, a GSM module or other signal source.
It can be switched into standby mode (off) and the system can be temporarily forced to provide heat even when no snow is present for the period of time set in the afterrun menu.

SENSORS

ETOG ground sensor:
Designed for embedding in the surface of the outdoor area.
Measures temperature and moisture.
Up to two ETOG sensors can be installed.

ETF outdoor temperature sensor:
The ETF outdoor temperature sensor can be used in combination with ETOG ground sensors for outdoor areas.
The ETF sensor can detect rapid drops in air temperature, thus avoiding icy areas.

INSTALLATION

ETO2 installation:
DIN-rail mounting in electrical cabinet, OJ mounting box or on a wall surface.

ETOG ground sensor installation:
The ETOG ground sensor must be installed in level position where the worst problems with ice and snow normally occur.
The sensor should be embedded in a concrete base on a hard surface with the top of the sensor flush with the surface.
Where an asphalt surface is used, or where easy installation is desired, installing ETOG-56 together with ETOK-1 is the obvious choice.

Hydronic mode:
In hydronic mode, the supply sensor ensures the required supply water temperature when the system is active.
When heat is demanded, the circulation pump is activated and the valve is opened 20% for 1 minute to allow the system to stabilize. The main pump is then activated (the main pump can thus also be used as a demand signal for a boiler or heat pump).
When there is no need for snow and ice melting, the system activates the circulation pump for 1 minute every 15 minutes to check whether the return water has dropped below the required "idle temp.". If it has, the system activates fully to increase the return water temperature to the required level.

TECHNICAL DATA

ETO2-4550:

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	1-zone, connectors for supply and return water sensors, control of 3 or 4 way valve, primary pump, secondary pump
Mixing valve output	24 VAC, 6 VA, 0-10 VDC
Water sensor input	ETF-1899A (strap-on type)
Display	Graphic, backlit
Temperature range (ambient)	0/+40°C
Temperature range (storage)	-50/+70°C
Housing / incl. cover	IP20
Weight	495 g
Dimensions excl. cover	(H/W/D) 90/156/45 mm
Dimensions incl. cover	(H/W/D) 170/162/45 mm
LED indication:	
ON/Green	Thermostat energised
Error/Red	Fault

ETOG-55 ground sensor:

Measurement	Moisture and temperature
Installation	Outdoor area
Housing	IP68
Temperature range (ambient)	-50/+70°C
Dimensions (H/Ø)	32/60 mm

ETOG-56/ETOK-1 embedded ground sensor:

Measurement	Moisture and temperature
Installation	Outdoor surface
Housing	IP68
Temperature range (ambient)	-50/+70°C
Dimensions, sensor (H/Ø)	32/60 mm
Dimensions, tube (H/Ø)	78/63.5 mm

ETOR-55 Gutter sensor:

Detecting	Moisture
Mounting	Gutter and down pipe
Housing	NEMA 6P
Temperature range (ambient)	-58/+158 °F (-50/+70 °C)
Dimensions (H/W/D)	4.13 / 1.18 / 0.51 Inches (105 / 30 / 13 mm)

ETF-744/99 outdoor temperature sensor:

Measurement	Air temperature
Installation	Wall surface
Housing	IP54
Temperature range (ambient)	-50/+70°C
Dimensions	(H/W/D) 86/45/35 mm

All products: 3-year warranty from production date

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*Source: DMI, Moscow 2010