

The logo consists of the letters 'OHUG' in a bold, black, sans-serif font. The letters are positioned on a bright yellow rectangular background. This yellow background is partially obscured by a white, torn-paper-like border that runs vertically down the left side of the image.

The power behind electricity

OHUG Product Catalogue

Edition 01

Section 18

Heating Cables

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Heating cables

Heating cables are used for frost protection of pipes, tanks, ramps and walkways, gutters, etc., or for maintaining process temperatures, especially in industrial environments.

There are 2 types:

- > **CONSTANT POWER CABLES**, in which the heating element is the conductor through which the current passes, and serves as filament.
- > **SELF-REGULATING CABLES**, whose heating element is the conductive core, powered by 2 conductors.

CONSTANT POWER CABLES

Raytech cables are composed of 2 conductors that are shielded and in the case of Stop Ice are supplied with a suitable thermostat for anti-freeze maintenance.

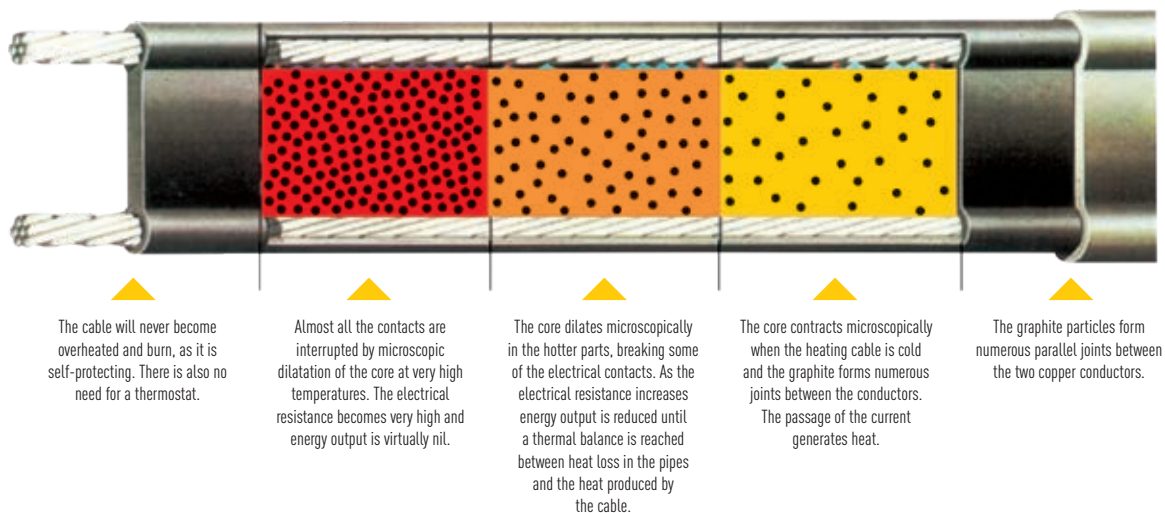
ADVANTAGES

CONSTANT POWER CABLE

- Ready for use, without requiring the installation of accessories.
- Already equipped with a thermostat, in the case of Stop Ice.
- Completely reliable.



SELF-REGULATING HEATING CABLES



The self-regulation technology and the parallel circuit present the following advantages:

- > The heating cables can be cut at the right length, jointed and terminated on site.
- > They can be supplied at 230 V without transformers.
- > They can be overlapped without over heating risks.
- > They reduce automatically their power output as the required temperature is reached.
- > They are easy designed and can be easily handled on site.

ADVANTAGES

SELF-REGULATING HEATING CABLES

- A reduction in overall installation costs
- Reduction in operating cost
- Very easy to install
- Simple design
- Uniform temperature
- Complete reliability

Domestic Use

Anti-freeze for Piping

CONSTANT POWER



Stop Ice

Constant power anti-freeze kit complete with thermostat and plug



Linus

Self-adhesive thermal insulating tape



Stop Ice Plus

Constant power anti-freeze kit complete with thermostat, connection plug and insulation tape

Anti-freeze for Ramps

CONSTANT POWER



Easy Cable

Constant power heating cable for access ramps to boxes, walkways, etc.



Easy Ramp

Heating mat

SELF-REGULATING



MCA Ramp

Self-regulating heating cable for tracing ramps and stairways

**MCA**

Self-regulating cable for anti-freeze use or for maintaining temperatures for general use

**MCA Compact**

Compact size self-regulating cables for use as anti-freeze or to maintain temperature

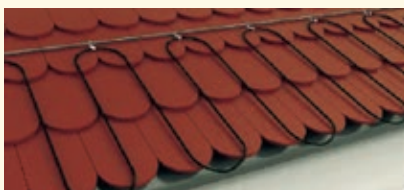
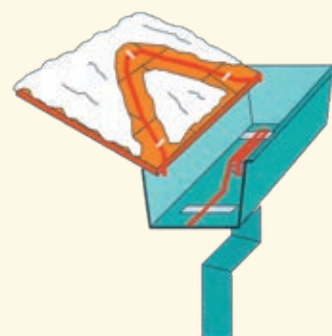
**Ice Killer**

Cut and install self-regulating cable kit, complete with connection side and termination kit

Anti-freeze for Gutters

CONSTANT POWER**Easy Frost**

Constant power heating cable for roofs, gutters and downpipes

**SELF-REGULATING****MCA 8**

Self-regulating cable for tracking roofs, gutters and/or downpipes

Anti-Freeze for piping

To keep pipes, tanks, basins, valves and taps, meters, etc. from freezing. Available both in the constant power and in the self-regulating versions.

Stop Ice

Constant power anti-freeze kit complete with thermostat and plug.

Raytech Stop Ice is an innovative pre-assembled kit consisting of a constant wattage heating cable of 12 W/m, complete with contact thermostat (installed on the end of the heating cable) and power cable with plug. Stop-Ice is particularly suitable for frost protection, and prevention of possible damages caused by low temperatures on pipes, valves, faucets, water meters, troughs, bowls and small tanks.

- > Easy and quick to install
- > No need for any external temperature control system, thanks to its built-in thermostat
- > Low energy consumption

Stop Ice

Product	Power (W/kit)	Specific power (W/m)	Length (m)
Stop Ice 2/12	24	12	2
Stop Ice 5/12	60	12	5
Stop Ice 10/12	120	12	10
Stop Ice 18/12	216	12	18



Power: 12 W/m

Power supply: 230 V – 50 Hz

Cable dimensions: ~ 5x7 mm

Min. installation temperature: +5°C

Max. working temperature: +70°C

Heating cable type: 2 conductors, screened cable

Insulation: XLPE

External sheath: PVC

Min. bending radius: 3,5 D

Protection degree: IP X7

Marking: CE



Integrated Bimetal Thermostat
(ON + 3°C - OFF +10°C)



Complete Connections and power cord (1,5 m - 3 x 0,75 mm²)

Linus

Self-adhesive thermal insulating tape.

To offer a complete solution in the field of electrical tracking, Raytech has developed a new product, LINUS, an insulation tape to maintain temperature. The product is a closed-cell expanded synthetic rubber, low thermal conductivity and extremely flexible tape. The rubber tape is coupled with an aluminium sheet to protect against tearing, for greater resistance to perforation and higher tensile resistance. It also protects very well against UV radiation. The tape is self-adhesive for easy application on tracked pipes. The closed cells and the special material type give the tape very high insulating properties and optimal behaviour in the presence of condensation.

Linus

Product	Width (mm)	Thickness (mm)	Length (m)
LINUS	50	3	10

LENGHT OF PIPE	Pipe Ø ¾" (DN 20)	Pipe Ø 1" (DN 25)	Pipe Ø 1 ¼" (DN 32)
I can insulate with 1 LINUS tape 50% overlapped	2,2 m	1,9 m	1,6 m

Stop Ice Plus

Constant power anti-freeze kit complete with thermostat, connection plug and insulation tape.

Stop Ice Plus is an innovative kit which combines the flexibility and reliability of the constant power Stop Ice heating cable with the practicality of the LINUS insulation tape. The installer can find everything necessary for tracking inside this kit:

- Stop Ice 12 W/m constant power cable, complete with connection plug and thermostat
- 3 mm LINUS insulation tape, for application on already tracked piping with a cable with 50% overlap

> As an example, with a 10 m long LINUS tape, about 2.2 m of ¾", traced with the Stop Ice cable, can be insulated.

Stop Ice Plus

Product	Power (W/kit)	Cable Length (m)
Stop Ice Plus 2	24	2
Stop Ice Plus 5	60	5

Heating Cable
Built-in Thermostat
Built-in Plug



Tape Insulation
to maintain
temperature



Density: 0,7

Temperature range: -50°C -105°C

Coefficient of thermal conductivity (λ): 0,039 W/mK a 50°C

Flame resistance: Bs3-d0 (DIN EN 13501-1)



CABLE

Specific power: 12 W/m

Power supply: 230 V- 50Hz

Cold cable: 3 x 0,75 mm² - L = 1,5 m

Temperature control: integrated bimetallic thermostat

ON / OFF: +3°C / +10°C

INSULATION TAPE

Temperature range: -50 / +105°C

Coefficient of thermal conductivity (λ): 0,039 W/mK at 50°C

Dimensions:

MCA

Self-regulating cable for anti-freeze use or for maintaining temperatures for general use.

For anti-freeze use on pipes or tanks or for maintaining process temperatures under 65°C, even in hazardous areas. Maintenance-free, reliable, easy to install. Suitable even in the presence of mild inorganic solutions.

How to Choose MCA Cable for Antifreeze Protection

The table gives the cable quantity for tube length unit (1st number) and the MCA cable code number (2nd number) versus tube diameter, thermal insulation thickness (for rockwool) and min outer temperature.

Product	Power voltage (V)	Min installation temp (°C)	Power at 10°C (W/m)	TEMPERATURE MAX	
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)
MCA3	220-240	-30	10	65	85
MCA5	220-240	-30	15	65	85
MCA8	220-240	-30	25	65	85
MCA5-SMALL	220-240	-30	15	65	85

Thermal insulation thickness											
Pipe Ø		10	20	30	40	50					
		Outer temperature (°C)									
inch	mm	-10	-20	-10	-20	-10	-20	-10	-20	-10	-20
1/2"	15	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
3/4"	20	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
1"	25	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
1¼"	32	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
1½"	40	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
2"	50	1-8	1-8	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3
2½"	65	1-8	1-8	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3
3"	80	1-8	2-8	1-3	1-8	1-3	1-5	1-3	1-3	1-3	1-3
4"	100	1-8	2-8	1-5	1-8	1-3	1-5	1-3	1-5	1-3	1-3
6"	150	2-8	2-8	1-8	2-8	1-8	1-8	1-3	1-8	1-3	1-8
8"	200	2-8	-	1-8	2-8	1-8	1-8	1-8	1-8	1-3	1-8
10"	250	2-8	-	2-8	-	1-8	2-8	1-8	1-8	1-8	1-8

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)					
		MCA3			MCA5		
Starting temperature		+10°C	-10°C	-20°C	+10°C	-10°C	-20°C
Switchgear protection (A), with C curve and 30mA* differential protection	10 A	-	-	-	103	71	62
	16 A	177	144	125	160	114	99
	20 A	-	149	139	-	133	124
	25 A	-	-	-	-	-	-
		MCA8			MCA5-SMALL		
Starting temperature		+10°C	-10°C	-20°C	+10°C	-15°C	-25°C
Switchgear protection (A), with C curve and 30mA* differential protection	10 A	64	47	37	104	69	59
	16 A	103	75	60	139	89	78
	20 A	126	94	75	-	-	-
	25 A	-	107	94	-	-	-

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.



MCA Compact

Compact size self-regulating cables for use as anti-freeze or to maintain temperature.

Product	Power voltage (V)	Min installation temp (°C)	Power at 10°C (W/m)	TEMPERATURE MAX		L cable (mm)	S cable (mm)
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)		
MCA2-Compact	230	-30	10	65	65	7,7	5,3
MCA6-Compact	230	-30	18	65	65	7,7	5,3

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)					
		MCA2-COMPACT			MCA6-COMPACT		
Starting temperature		+10°C	0°C	-20°C	+10°C	0°C	-20°C
Switchgear protection (A), with C curve and 30mA* differential protection	10 A	100	95	77	60	58	41

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.



MCA and MCA2-COMPACT connection accessories

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Branch Kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-Y
Thermal insulation pass-through kit	Cable gland	Warning label	
MCA-AL	MCA-PRESS	MCA-EA	
Fixing tape glass	Fixing tape Aluminum 25mm	Fixing tape Aluminum 75mm	
MCA-FV	MCA-ALL25	MCA-ALL75	



Ice Killer

Cut and install self-regulating cable kit, complete with connection side and termination kit.

The Ice Killer kit is composed of a 30 m self-regulating cable coil, complete with connection side and termination accessories. The cable can be cut to the desired length, installed on the pipe or tank, connected to the mains and terminated at the opposite end.

The economic and compact Ice Killer kit is sold in an attractive, easy to carry, easy to handle on-site package, is small in size, very flexible and can be easily adapted to bends in piping.

The Ice Killer cable is laid linearly or wound in piping, depending on the specific necessary power. It is then fastened to the same by means of inextensible tape (Raytech MCA-FV or MCA-ALL75 type tapes), terminated with accessories contained in the kit and then clad with the insulation. Operating temperature is reached very quickly and is maintained almost constant even with room temperature variations.

Supply voltage: 230 V

Min installation temperature:
-30°C

Cable dimensions: 7,7 x 5,3 mm

Max temperature with powered
cable: 65°C

Max exposure temperature with
non-powered cable: 65°C



Product	Specific power at 10°C (W/m)	Kit composition
Ice Killer 2	10	30 m cable Connection accessory Termination accessory
Ice Killer 6	18	30 m cable Connection accessory Termination accessory

ELECTRICAL SIZING	Maximum circuit length (m)			
	Ice Killer 2		Ice Killer 6	
Starting temperature	0°C	-20°C	0°C	-20°C
10 A electrical protection, characteristic C switch with differential 30 mA protection	95	77	58	41



Tracking Systems

Anti-freeze for gutters and piping.

Easy Cable

Constant, versatile power heating cable complete with termination accessory and power cable.

Especially suitable for solving anti-freeze problems: snow or ice accumulation on access ramps, walkways and stairs, or for frost protection of pipes or tanks, under adequate insulation. 3 standard lengths are available, with a specific power of 25 W/m, covering all possible tracking types. Complete with termination accessory and power cable, Easy cable is a shielded heating cable under a protective sheath with two conductors, with extremely simple and quick installation and connection. Please note that the cable should never be cut, spliced or overlapped.

Power supply: 230 V, 50/60 Hz

Cable dimensions: ~ 5x7 mm

Min. installation temperature: +5°C

Max. working temperature: +80°C

Heating cable type: 2 conductors, screened cable

Specific power: 25 W/m

Insulation: XLPE

External sheath: PVC

Marking: CE

FOR RAMPS - installation depth about 50 mm with respect to the surface.

Product	Specific Power (W/n)	Length (m)	Rated Power (W/m)	Maximum length for each individual wheel passage	
				40 cm (A) 4 passages	50 cm (B) 5 passages
Easy Cable 26/25	25	26,5	655	6 m	5 m
Easy Cable 44/25	25	44	1120	10,5 m	8,5 m
Easy Cable 92/25	25	92	2270	22,5 m	18 m

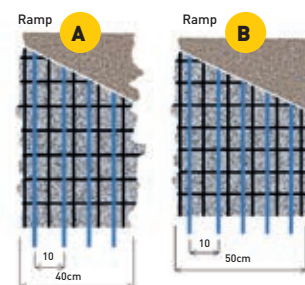
FOR PIPES - anti-freeze tracking for piping, longitudinal linear installation 1 m cable/m pipe.

Product	Specific Power (W/n)	Total rated power (W)	Anti-freeze for pipes up to 2 1/2" (Dn 65 mm), for minimum temperatures up to -15°C, with rock wool thickness	Anti-freeze for pipes from 3" (Dn 80 mm) up to 6" (Dn 200 mm), for minimum temperatures up to -15°C, with rock wool thickness
Easy Cable 26/25	25	655	10 m	20 m
Easy Cable 44/25	25	1120	10 m	20 m
Easy Cable 92/25	25	2270	10 m	20 m

Control unit for Easy Cable for ramps.

The C 2000 control unit, to be completed with the C2000-SR temperature, snow and humidity sensor (sensor to be placed flush with the ramp and to be ordered separately from the control unit), activating the power contactor, gives consent to start the system only when low temperature and snow or ice are present simultaneously, optimising energy consumption.

Control unit	Temperature, snow and humidity sensor
C2000	C2000-SR



Pipe with longitudinal passage to the pipe

Tracking Systems

Anti-freeze for Ramps, Steps and Walkways.

To keep garage access ramps, parking areas, outdoor stands and walkways free of snow and ice.

Available in both the constant power and in the self-regulating versions.

Easy Ramp

Constant wattage heating mat.

Raytech Easy Ramp consists of a constant wattage heating cable assembled with tape to form a heating mat, which is easily and quickly spread on the surfaces to be protected. Easy Ramp is ideal for solving the problems caused by ice formation and the accumulation of snow on the access ramps to garages, pathways, outdoor parking areas, footpaths, etc. It can be installed in concrete, asphalt, and interlocking bricks or under porphyry paving or other paving materials blocked with cement and sand. The standard width of Easy Ramp pads is 60 cm; a sufficient width to free the track of vehicle wheels from ice and snow or to create an extremely safe pedestrian pathway.

The power density developed by Easy Ramp is 300 W/m². The mat is available in various lengths which are easily adaptable to the size of the area to track and where the size of the mat is larger than that of the ramp, the excess part of mat can be easily folded 90 degrees. The mat is supplied completely finished and ready for installation, complete with 4 meters of cold cable (3x1.5 mm² or 3x2.5 mm²) for connection to the power supply. The constant wattage heating cable, which constitutes the mat, is a 2 conductor heating cable, which is shielded; this allows one end only to be powered, making installation even faster and easier.

Mat specific power: 300 W/m²

Power supply: 230 V ~ 50/60 Hz

Mat thickness: 7,5 mm

Min. installation temperature:
+ 5°C

Max. working temperature:
+ 80°C

Cold cable (supply): length 4 meters - 3 x 1,5 mm² or 3x2,5 mm²

Heating cable type: 2 conductors, screened cable

Heating cable dimensions:
~ 5 x 7 mm

Heating cable power: 25 W/m

Insulation: XLPE

External sheath: PVC

Marking: CE

Product	Power (W)	Specific power (W/m ²)	Width (m)	Length (m)
Easy Ramp 4/300	670	300	0,6	4
Easy Ramp 7/300	1140	300	0,6	7
Easy Ramp 13/300	2560	300	0,6	13
Easy Ramp 21/300	3730	300	0,6	21



MCA Ramp

Self-regulating heating cable.

The cable is used, buried in concrete, to prevent the accumulation of ice and its formation on access ramps, stairs, sidewalks, parking lots, walkways, etc. Suitable for ramps covered in concrete, interlocking brick or asphalt, both for light and heavy traffic. The cable can be installed on ramps under construction, securing the electrowelded mesh prior to pouring of the concrete, or else on already completed ramps by cutting the concrete surfaces to then fill with plastic cement after installation of the cable, or simply by laying the cable on the surface of the ramp and throwing another layer of cement.



Cable roofing cement or interlocking, asphalt, gneiss, and any other material

Product	Power at 0°C in concrete (W/m)	Max working temperature (°C)	Cable length	
			Switchgear*	Max length (m)
MCA 20-I-GF	90	120	40 A	64
MCA 10**	50	65	40 A	90

* Differential protection 30 mA

**For ramps, stairs etc. with ambient temperature not lower than -15°C; for lower temperatures use only MCA 20-I-GF cable. For draining trenches tracing MCA8 cable shall be used.

Note: to trace drain outlets, use the MCA8 cable installed on the bottom of the outlets under the grate.

MCA Ramp connection accessories

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Cable gland
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-PRESS

Control unit for Easy Ramp and MCA Ramp

The C 2000 control unit, to be completed with the C2000-SR temperature, snow and humidity sensor (sensor to be placed flush with the ramp and to be ordered separately from the control unit), activating the power contactor, gives consent to start the system only when low temperature and snow or ice are present simultaneously, optimising energy consumption.



Control unit	Temperature, snow and humidity sensor
C2000	C2000-SR



Tracking Systems

Anti-freeze for gutters. Contact and self-regulating power cables to prevent the formation of ice and snow accumulation in gutters, downspouts and roof pitches.

Easy Frost

Constant power heating cable for roofs, gutters and downpipes.

Raytech Easy Frost is a 20 W/m constant power cable especially designed for roofs, gutters and downpipe protection from damage due to snow accumulation and ice formation. Easy Frost is supplied terminated and ready for installation, with 4 metres of cold cable (3 x 1,0 mm² o 3 x 1,5 mm²) for supply connection.

Power: 20 W/m

Power supply: 230 V ~ 50/60 Hz

Heating cable dimensions:

~ 5 x 7 mm

Min. installation temperature:

+ 5°C

Max. working temperature: +

80°C

Cold cable (power supply): length

4 meters - 3 x 1,0 mm² or 3 x 1,5 mm²

Heating cable type: 2 conductors, screened cable

Insulation: XLPE

External sheath: PVC

Min. bending radius: 3,5 D

Marking: CE

Product	Power (W)	Specific power (W/m ²)	Resistance Ω	Length (m)
Easy Frost 50/20	1000	20	52,9	50
Easy Frost 102/20	2040	20	29,9	102



Control unit for MCA 8 and Easy Frost

ON/OFF type control unit C 2000 to activate the power switch, to be completed with C 2000-STG temperature detection sensor and C 2000-SUG wet surfaces sensor: activates the system only when low temperature and water, ice or snow is present. (C 2000-STG and C 2000-SUG sensors are to be ordered and purchased separately from the control unit).

Control unit	Temperature sensor	Ice and snow sensor
C2000	C2000-STG	C2000-SUG



MCA 8

Self-regulating cable for tracing roofs, gutters and/or downpipes.

Prevents the formation of ice inside gutters and downspouts, snow accumulation and ice on roofs, the development of infiltrations along façades, the development of ice sticks along gutters and roof ends.

Avoiding gutter breaking under the weight of snow, bursting and fracturing of drainpipes due to water freezing, damaged caused by a lack of draining caused by drain clogging, damage to persons or property caused by falling ice sticks, damage to persons or property caused by possible snow slides off rooves from roof edges.

Power supply: 230 V, 50/60 Hz

Cable dimensions: ~ 5x7 mm

Min. installation temperature: +5°C

Max. working temperature: +80°C

Heating cable type: 2 conductors, screened cable

Specific power: 25 W/m

Insulation: XLPE

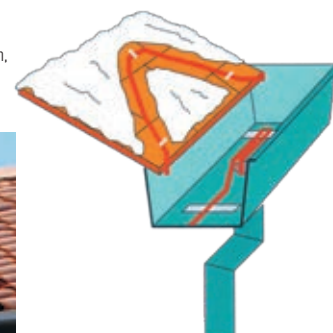
External sheath: PVC

Marking: CE

Product	In air 0°C Power (W/n)	In chilly water Power (W/n)	Maximum cable length with starting temperature of -10°C through a switchgear (*) of		
			16 A	20 A	30 A
MCA8	24	40	40 m	50 m	90 m

*Switchgear with "C" characteristic, having a differential protection of 30 mA

Note: the gutter cable is suspended along the down side of the drain pipes with accessory MCA-SUP. The cable is self-supporting up to 25 m vertical sections; in addition, an extra MCA-SUP accessory is provided for every 25 m, to which the cable is secured.



The image shows gutter installation, the input of cable in a downpipe and tracing of a roof pitch.

MCA 8 connection accessories

Connection kit integrated with the terminal box	Termination Kit	Joint Kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68

Branch Kit	Support device
MCA Universal	MCA-SUP





Industrial Use

Anti-freeze maintenance and heating
up to 65°C continuous 85°C intermittent

ATEX



MCA3
MCA5
MCA7-I-PF
MCA8
MCA10
MCA13-I

Anti-freeze maintenance and heating
up to 120°C continuous 120°C intermittent



MCA3-I-GF
MCA5-I-GF
MCA8-I-GF
MCA10-I-GF
MCA20-I-GF

Anti-freeze maintenance and heating
and washing **up to 120°C continuous 190°C intermittent**

ATEX



MCA3-I-FF
MCA5-I-FF
MCA7-I-FF
MCA8-I-FF
MCA10-I-FF
MCA15-I-FF
MCA20-I-FF

MCA

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to mild inorganic solutions.

Suitable for anti-freeze and process temperature maintenance use up to 65°C on piping and tanks. Cannot be used when washing with steam or continuous exposure to strong corrosive and organic acids.

Cables certified for classified zones

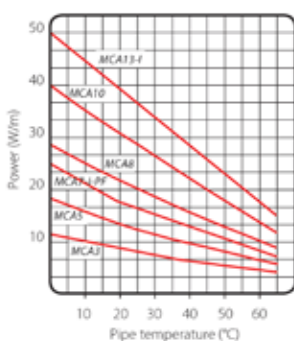
Ex II 2G Ex e IIC Gb
Ex II 2D Ex tb IIIC Db

In accordance:

EN 60079-0 :2009

EN 60079-31 :2009

EN 60079-30-1 :2007



Constitution of the cable

Copper conductors

Self regulating conductive core

Modified polyolefine insulation

Copper screen

Modified polyolefine or fluoropolymer (I-PF) outer sheath

Type of surface to be tracked:

Steel - Painted - Stainless Steel
- Plastic.

Chemical resistance:

Suitable for exposure to mild inorganic solutions.

Product	Power voltage (V)	Power at 10°C (W/m)	Min installation temp (°C)	TEMPERATURE MAX		Bending radius min. (mm)	Temperature classification EN50014
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)		
MCA3*	230	10	-45	65	80	25	T6
MCA5*	230	15	-45	65	80	25	T6
MCA7-I-PF	230	20	-45	65	80	25	T6
MCA8*	230	25	-45	65	80	25	T6
MCA10*	230	30	-45	65	80	25	T6
MCA13-I	230	40	-45	65	80	25	T6

Add the abbreviation I-PF for external fluoropolymer sheaths

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)																	
		MCA3			MCA5			MCA7-I-PF			MCA8			MCA10			MCA13-I		
Starting temperature		+10°C	-10°C	-20°C	+10°C	-10°C	-20°C	+10°C	-10°C	-20°C	+10°C	-10°C	-20°C	+10°C	-10°C	-20°C	+10°C	-10°C	-20°C
Switchgear protection (A), with C curve and 30mA* differential protection*	10 A	-	-	-	103	71	62	-	-	-	64	47	37	49	38	33	-	-	-
	16 A	177	144	125	160	114	99	109	79	70	103	75	60	78	61	53	57	44	40
	20 A	-	149	139	-	133	124	129	99	87	126	94	75	97	76	66	71	55	50
	25 A	-	-	-	-	-	-	-	111	104	-	107	94	112	95	83	89	69	62

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

MCA 8 connection accessories

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Branch Kit	Thermal insulation pass-through kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-Y	MCA-AL
Cable gland	Warning label	Fixing tape glass	Fixing tape Aluminum 25mm	Fixing tape Aluminum 75mm
MCA-PRESS	MCA-EA	MCA-FV	MCA-ALL25	MCA-ALL75

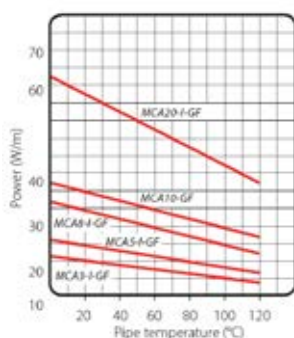
MCA-I-GF

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to corrosives and acids.

Suitable for maintaining process temperatures up to 120°C on piping and tanks, even in the presence of acids and corrosives, or for anti-freeze use where acids and corrosives are present, in safe areas. Not suitable for use in the presence of steam washing.

Type of surface to be tracked:
Steel - Painted - Stainless Steel.

Chemical resistance:
Suitable for exposure to corrosive and organic acids.



Constitution of the cable

- Copper conductors
- Self regulating conductive core
- Fluoropolymer insulation
- Copper screen
- Modified polyolefine outer sheath

Product	Power voltage (V)	Power at 10°C (W/m)	Min installation temp (°C)	TEMPERATURE MAX		Bending radius min. (mm)	Temperature classification EN50014
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)		
MCA3-I-GF	230	10	-30	120	120	25	T3
MCA5-I-GF	230	15	-30	120	120	25	T3
MCA8-I-GF	230	25	-30	120	120	25	T3
MCA10-I-GF	230	30	-30	120	120	25	T3
MCA20-I-GF	230	60	-30	120	120	25	T3

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)														
		MCA3-I-GF			MCA5-I-GF			MCA8-I-GF			MCA10-I-GF			MCA20-I-GF		
Starting temperature		+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C
Switchgear protection (A), with C curve and 30mA* differential protection	16 A	200	180	175	165	130	117	120	97	88	85	73	69	50	41	38
	20 A	235	235	235	189	162	152	140	125	120	114	98	92	64	55	52
	30 A	-	-	-	-	-	189	-	-	140	-	-	114	-	-	64

*Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

Connection accessories for MCA-I-GF

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Branch Kit	Thermal insulation pass-through kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-Y	MCA-AL
Cable gland	Warning label	Fixing tape glass	Fixing tape Aluminum 25mm	Fixing tape Aluminum 75mm
MCA-PRESS	MCA-EA	MCA-FV	MCA-ALL25	MCA-ALL75

MCA-I-FF

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to corrosives and acids and high temperatures.

Suitable for maintaining process temperatures up to 120°C on piping and tanks, even in the presence of acids and corrosives, or for anti-freeze use even in the presence of acids and corrosives and where high temperature thermal treatment is foreseen, like steam washing, up to 190°C.

Cables certified for classified zones

Ex II 2G Ex e IIC Gb
Ex II 2D Ex tb IIIC Db

In accordance:

IEC 60079-0 :2009

EN 60079-31 :2009

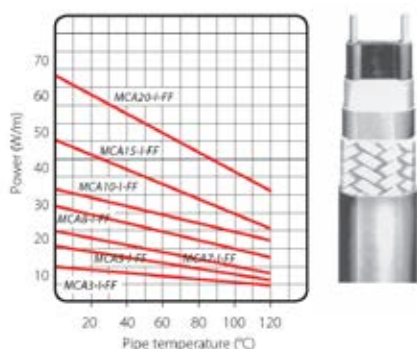
EN 60079-30-1 :2007

Type of surface to be tracked:

Steel - Painted - Stainless Steel
- Plastic.

Chemical resistance:

Suitable for exposure to corrosive and organic acids.



Constitution of the cable

Copper conductors

Self regulating conductive core

Fluoropolymer insulation

Copper screen

Fluoropolymer outer sheath

Product	Power voltage (V)	Power at 10°C (W/m)	Min installation temp (°C)	TEMPERATURE MAX		Bending radius min. (mm)	Temperature classification EN50014
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)		
MCA3-I-FF	230	10	-30	120	190	25	T3
MCA5-I-FF	230	15	-30	120	190	25	T3
MCA7-I-FF	230	20	-30	120	190	25	T3
MCA8-I-FF	230	25	-30	120	190	25	T3
MCA10-I-FF	230	30	-30	120	190	25	T3
MCA15-I-FF	230	45	-30	120	190	25	T3
MCA20-I-FF	230	60	-30	120	210	25	T3

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)																				
		MCA3-I-FF			MCA5-I-FF			MCA7-I-FF			MCA8-I-FF			MCA10-I-FF			MCA15-I-FF			MCA20-I-FF		
Starting temperature		+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C
Switchgear protection (A), with C curve and 30mA* differential	16 A	200	180	175	165	130	117	122	107	102	120	97	88	85	73	69	55	48	36	50	41	38
	20 A	235	235	235	189	162	152	136	127	124	140	125	120	114	98	92	68	60	57	64	55	52
	30 A	-	-	-	-	-	189	-	-	-	-	-	140	-	-	114	91	83	82	-	-	64

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

Connection accessories for MCA-I-FF

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Branch Kit	Thermal insulation pass-through kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-Y	MCA-AL
Cable gland	Warning label	Fixing tape glass	Fixing tape Aluminum 25mm	Fixing tape Aluminum 75mm
MCA-PRESS	MCA-EA	MCA-FV	MCA-ALL25	MCA-ALL75



Accessories



Electrical: EN 50393 and CEI 20-33 (Note: with testing under water head and water between the cable cores), in Class 2

Flame non propagation: IEC 60332-1 and HD 405-1 (as applicable)

MCA Universal IP68 and MCA-Y

Universal accessory for heating cable.

A revolutionary accessory is now available that is suitable for any type of self regulating heating cable either with or without screening. Its versatility provides a reliable unique solution unavailable elsewhere in the market. It has no shelf life and no tools are required during installation (including blow torches).

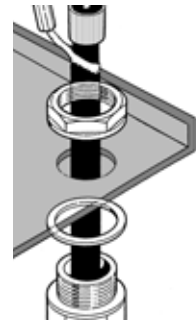
- > Versatile and ready to use
- > No need for tools
- > Without heating
- > Installable at any temperature
- > Can be used directly underground
- > Very compact
- > Re-enterable
- > Non toxic and flame retarded
- > The connections are automatically blocked when the joint is closed
- > Screw connectors available with the kit
- > Also for underwater use
- > Without shelf life

Control unit	Kit Composition	Dimension A x B x C (mm)
MCA Universal IP68	3 screw connectors to connect to the power cable or another heating cable	260 x 60 x 60
MCA-Y	3 screw connectors for branch connections between heating cables	150 x 30 x 56

MCA-PC, MCA-PC-Compact

Connection kit.

Supply side termination allowing connections to a terminal box. Made of cold-shrink components and also a dedicated cable gland. One for each cable.



MCA-PM, MCA-PM-Compact

Termination kit.

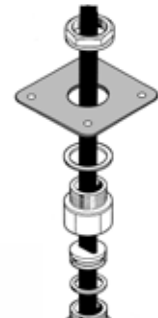
For insulating and matching the cable ends. Made from cold-shrink components. One kit for each termination.



MCA-AL

Thermal insulation pass-through.

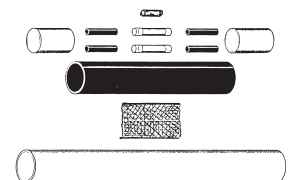
It allows the cable to pass through the metallic covering of the thermal insulation, avoiding abrasions and the moisture or water entry under the covering. It contains cable gland and fixing plate. One kit for each cable.



MCA-GL

Joint kit.

To joint cable ends or to repair damaged cables. It contains all the components required, including connectors. One kit for each cable.



MCA-PRESS

Cable gland.

To allow the cable to enter in boxes, to pass through walls etc. One kit per cable.



MCA-SUP

Support device for gutters and down pipes.

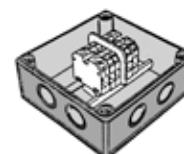
It supports and fixes the cable in gutters and downpipes. In large gutters, requiring 2 cables laid longitudinally, it maintains the cable at the right distance.



MCA-SG

Box.

Box with IP55 degree of protection, complete of terminals. It allows the entry of 1 or more heating cables, or to branch a cable from a main tracing, or to joint cable lengths. Cables inside the box shall be MCA-PC terminated.



MCA-FV

Glass fiber tape.

To fix the cable to the pipe, 3 turns every 0,3 m of pipe. Self adhesive, in 50 m rolls.



MCA-ALL75

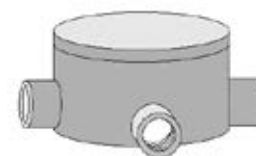
Aluminium self adhesive tape 75 mm width.

For cable fixing, in 50 m rolls.



GUAT 26

Connection kit for classified area.



MCA-EA

Warning label.

To be applied for warning over traced items.

WARNING
ELECTRICAL TRANCING

Control Unit C2000

C 2000 Control unit for temperature and humidity.

The C2000 control unit and relative sensors are suitable for the tracing with both self-regulating cables and constant power cables. The unit allows you to power the system only when low temperatures and humid surfaces (snow - ice, etc.) are present simultaneously.



Segnalling lamps

ON (green) voltage

RELAY (red) cable on power

MOIST (red) humidity presence

TEMP (red) the temperature is lower than the fixed

Voltage: 230V c.a. +/- 10% 50/60Hz

Output: N° 1 relays

Switching capacity: 16A (3600 W)

Differential ON/OFF: 0,4°C

Temperature Range: 0-10°C

After run time: 1-6 hours

Protection degree: IP20

Dimensions: 85 x 42 x 48,8 mm

Weight: 252 gr

Room temperature: 0/50°C

C2000 - SR

Humidity and temperature sensor for ramps and stairs.

Dimensions: h 32 mm - Ø 60 mm

Protection degree: IP68

Ambient temperature: -20°C / +70°C

Connecting cable: 6x1,5 mm², length. 10 m
(possible increase up to 200 m)



C2000 - SUG

Ice and snow sensor for gutters.

Dimensions: 105 x 30 x 10mm

Protection degree: IP68

Ambient temperature: -20°C / +70°C

Connecting cable: 4x1,5 mm², length. 10 m
(possible increase up to 200 m)



C2000 - STG

Temperature sensor for gutters.

Dimensions: 86 x 45 x 35 mm

Protection degree: IP55

Ambient temperature: -20°C / 70°C

Connecting cable: not included





Comfort House

Flooring

Primary, secondary or flooring comfort heating systems.



Easy Floor

For the intelligent tracing of tile, marble, etc. floors



Easy WOOD

For the intelligent tracing of wood or laminate flooring

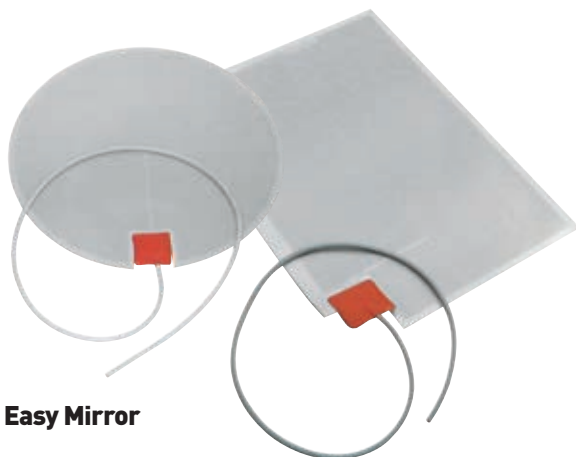


Raytech Intelligent Display

Intelligent room timed thermostat

Mirror

Self-adhesive heating sheet



Easy Mirror

Ceiling

Ceiling heating panels page



Warm Up

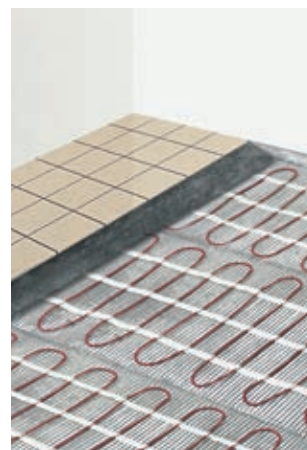
Comfort House

Primary, secondary or flooring comfort heating systems.

Heating mats and intelligent timed thermostat: Raytech intelligent systems for primary, secondary and flooring heating comfort for homes, offices, kindergartens, schools and hospitals.

Constant power heating mats for flooring

Combining the total reliability of the Raytech mat system with the RID microprocessor intelligent thermostat, it is possible to autonomously control all space heating parameters, as a primary means in less cold months and as a secondary means together with a more traditional system, and for comfort heating in bathrooms, kitchens, living rooms and children's bedrooms. After the first programming of the RID timed thermostat, you are free to forget about the system, which will run itself, ensuring optimal conditions.



Easy Floor

Heating mat for the intelligent tracing of tile, marble, floors, etc.

The Easy Floor mat is laid directly on a layer of thermal insulation that coats the floor finished with concrete, and then buried in self-levelling concrete and covered with tiles. The flooring tracing mats are supplied in standard widths of 50 cm, power 150 W/m².

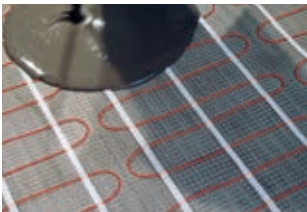
Product	Width (m)	Length (m)	Power (W)
Easy Floor 2	0,5	2	150
Easy Floor 3	0,5	3	225
Easy Floor 4	0,5	4	300
Easy Floor 2-ST	0,5	2	150
Easy Floor 3-ST	0,5	3	225
Easy Floor 4-ST	0,5	4	300



The kit is composed of:

- > Heating mat complete with cold tail
- > RID microprocessor intelligent room timed thermostat complete with sensor
- > Corrugated pipe for positioning

Note: -ST type kits are supplied without a RID room timed thermostat



Easy Wood

Heating mat for the intelligent tracing of wood or laminate floors.

Easy Wood is a very thin film (only 0.3 mm) controlled by a digital intelligent timed thermostat with RID microprocessor supplied with the kit. It is advisable not to exceed a temperature of 28°C. Suitable for secondary or comfort heating.



The kit is composed of:

- > Heating mat complete with connection wires and connectors, tapes and grippers for connection.
- > RID microprocessor intelligent room timed thermostat complete with sensor.
- > Corrugated pipe for sensor positioning

Note: provide for thermal insulation of at least 6 mm in thickness (e.g. sheet of polystyrene) under the heating sheet and a barrier against humidity (polythene sheet at least 0.1 mm) above.



Raytech Intelligent Display

Intelligent room timed thermostat.

The RID (Raytech Intelligent Display) microprocessor room timed thermostat is simple to use, thanks to its step-by-step programming guide. The easy to read display supplies a complete explanation of set parameters after 10 seconds.

It includes a wood floor function, which limits the temperature to 28°C for wood flooring.

The RID autonomously controls all room functions, with no need for extra operations. Weekly programming makes it possible to take into account the set temperature to be maintained, the type and thickness of the flooring, temperature limits not to be exceeded, modes for increasing temperature, etc.

This device is equipped with an anti-freeze function when the house is not inhabited, a block for untimely interventions (for example children) and communicates any operating failures to the appropriate alarms.



Sensor: Included with kit

Temperature range: +5 / +50 °C

Temperature limit: +5 / +55 °C

Startup programme: Automatic self learning

Manual: 0,1-10 °C

Room Temp: 0 / +40 °C

Differential On/Off:
Standard 0,4 °C
Adjustable 0,1-1 °C

Power Supply: 230 V / 50-60 Hz

Self-consumption: 5W

Max output current:
16 A (3400 W/220 V)

Product	Dimensions (mm)
RID room thermostat	85 x 85 x 45



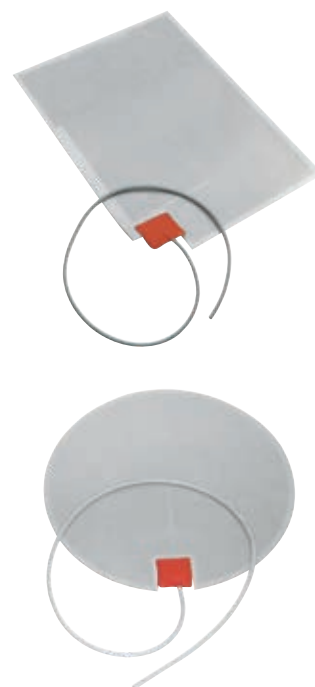
Easy Mirror

Self-adhesive heating sheet.

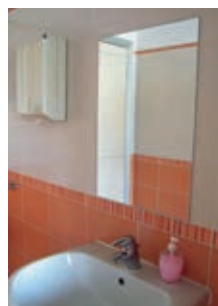
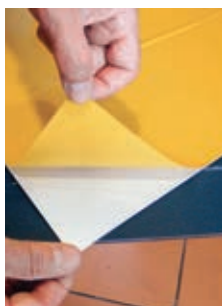
No more fogged mirrors after a shower or bath! Easy Mirror, the self-adhering heating sheet to be applied on the back of the mirror and connected to the mains, eliminates this problem! Powered 230V, double insulated in accordance with safety regulations. Brings the surface of the mirror to 30°C in about 3-5 minutes, removing the film of moisture. Easy Mirror sheets are packaged with a sheet of laminated aluminium on polyester, with double insulation made with 4 more sheets of vulcanised polyester, completely sealed against water.

Ideal for bathrooms, saunas, kitchens, private homes, Hotels, gyms and sports facilities

Product	Sheet Dimention (cm)	Power (W)
Easy Mirror 35	Ø 35	50
Easy Mirror 36/50	36 x 50	50



Installation steps



Warm-Up

Heat where you want it, when you want it.



The ideal solution for all low thermal comfort environments



Warm-Up

Ceiling heating panels.

WARM-UP ceiling heating panels by Raytech can be installed invisibly and built into the ceiling of any home, office, showroom, workshop, greenhouse, camper vans etc., maximising space and freeing up wall space. Their positioning does not require any invasive procedures on the walls of the room, and their electrical connection is extremely simple. They can be installed, possibly placing them at the points where maximum thermal efficiency is required, with any mounting system: hung with chains, flush mounted, or recessed in false ceilings, always easily and quickly. The type of heating, based on infrared radiation, which makes it similar to solar radiation, is safe and unharmed, quick, efficient and extremely comfortable.



Why choose the Warm-Up System?

- > It is installed without requiring any invasive procedures to be carried out on the structures of the house.
- > It is easily uninstalled for re-use in another context.
- > Its radiated heat is safe, with no air movement, and does not dirty the walls and room.
- > It is used for primary heating and for secondary heating as an integrative system, and optimises and reduces heating costs thanks to the RID-WL thermostat.

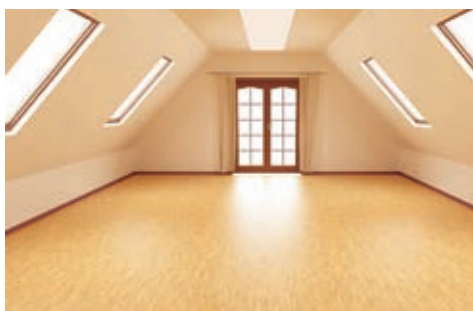
An ideally integrated invisible system that can also be decorative!



Verandas



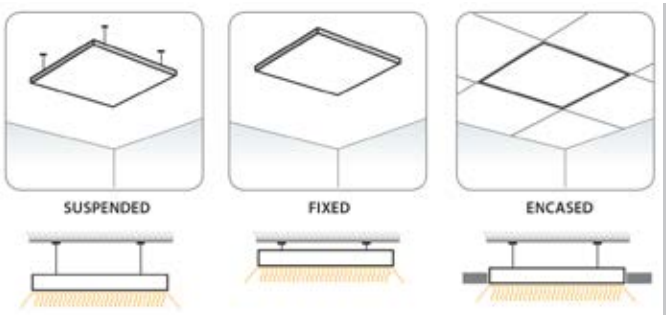
Prefabricated buildings



Exhibition spaces



Gazebos



What Are the Benefits to the System compared to others?

- > Heating is immediate, in just a few minutes.
- > It leaves room walls free because it is installed on the ceiling, flush mounted or recessed in false ceilings.
- > It does not pollute, as it does not use gas or hydrocarbons.
- > It optimises heating and reduces costs.
- > Unlike other types of heating systems, it does not require maintenance!
- > It uses the energy produced by photovoltaic systems, reducing heating costs.
- > It can be coloured, and is therefore easily camouflaged or used as a decorative element.

Product	Colour	Power	Dimensions (mm)
Warm Up 1	White, Paintable	300 W	590 x 590 x 40
Warm Up 2		600 W	1190 x 590 x 40



Controlled by a timed thermostat or a power regulator, they reduce consumption to a minimum

Class 2 degree of protection IP44

Power required for comfort heating: about 60W/m² (one Warm Up 1 panel every 5m²)

For primary heating with well-insulated walls: about 120W/m²



Stores



Offices



Warehouse - Garages



Homes

Warm Up Accessories

RID-WL

Digital wireless timed thermostat.

Raytech has established the innovative WIRELESS RID-WL TIMED ROOM THERMOSTAT for maximum efficiency and speed and ease of installation. This system combines well-known reliability and control of environmental parameters of the system RID with a wireless connection.

The RID-WL, which operates in radio frequency, allows non-invasive installation in any environment, both for new installations and those related to renovations, or to reinforce an existing primary system.

The RID-WL is coupled with its own receiver, tuned to the frequency of its own thermostat (exclusive signal), which is able to control an ampacity of 8 A.

RID-WL, since it is not wired, it can be moved within the range of use and positioned where controlling the parameters is important.

It is equipped with an easy to read backlit LCD screen and is programmable and provided with a built-in internal sensor, but can be connected to a separate sensor, for example on the floor.



Temperature accuracy: 0,1°C
Field of operation: from 0°C to +40°C
Field of temperature: from 5°C to +35°C
Power supply: 2 AAA 1.5 V batteries
Degree of protection: IP30
Frequency: 868 MHz
Powered receiver: 230 V, 50 Hz
Relay range: 8 A
Range in distance: 100 m outdoors, 30 m indoors.

- > Programmable in 30 minute blocks
- > 9 pre-installed programmes and 4 user-set programmes
- > "Self-learning" temperature control
- > Child lock
- > Low battery alarm
- > Unlimited programme memory in the case of discharged batteries

Additional relay device

Additional relay device, with a maximum of 6 devices which can be controlled by the same RID-WL timed thermostat



Degree of protection: IP30
Frequency: 868 MHz
Powered receiver: 230 V, 50 Hz
Relay range: 8 A
Range in distance: 100 m outdoors, 30 m indoors

Product	Description
RID-WL	Timed thermostat including receiver

Product	Description
RID-WL-R	Additional receiver for loads greater than 8 A



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