

eltherm®  
innovations in heat tracing



Self-regulating heating cable technology  
**Safety in hazardous areas**

eltherm



Innovations in  
**heat tracing**



## Table of contents

<b>Introduction</b> .....	2.02
<b>Type ELSR-N</b> <i>up to 80 °C</i> .....	2.05
<b>Type ELSR-L</b> <i>up to 80 °C</i> .....	2.07
<b>Type ELSR-M</b> <i>up to 65 °C</i> .....	2.09
<b>Type ELSR-R</b> <i>up to 55 °C</i> .....	2.11
<b>Type ELSR-W</b> <i>up to 100 °C</i> .....	2.13
<b>Type ELSR-H</b> <i>up to 200 °C</i> .....	2.15
<b>Design guide</b> .....	2.17
<b>Accessories</b> .....	2.19
<b>Measurement and control technique</b> .....	2.22



Coil ware



Gost: Approval for the Russian market



NEMKO: Approval for the Norwegian market



SEMKO: Approval for the Swedish market



Suitable for contact with foodstuff/Suitable for use in drinking water



CSTB Approval for the French market



FIMKO: Approval for the Finnish market



DEMKO: Approval for the Danish market

### Important information

Products marked with the Ⓢ-symbol can be used in explosive areas. The temperatures allocated to the products are the maximum permissible exposure temperatures. Our project engineers will be glad to assist you to design and dimension electrical heating systems. A project design guide is included on page 2.17, helping you to collect operating data as well as making correct dimensioning and allocation possible. You can use the tables and the example for application to make your own design. We have summarised the accessories, fasteners and termination sets available on pages 2.19 to 2.20 of the catalogue.

All products listed in the catalogue are available ex-works (subject to prior sale).

#### Furthermore, we request you to observe the following:

- All products we supply which are listed in this catalogue may only be connected and commissioned by a qualified electrician.
- All locally applicable electrical and safety regulations must be observed during installation and operation.
- For economic reasons and for precise maintenance of a constant temperature, we recommend the use of a temperature control unit.
- According to EN 62395-1, residual current devices (RCD's) shall be used with each heating circuit.

Specifications and advertising messages in this products and services catalogue, irrespective of their nature, in particular descriptions, illustrations, drawings, samples, information pertaining to quality, condition, composition performance, consumption and usability as well as dimensions and weights of the product range remain subject to change in as far as they are not expressly declared as binding. They do not denote any assurance or guarantee whatsoever. Slight deviations from the product specifications shall be deemed approved in as far as they are not unreasonable for the buyer.

We explicitly reserve the right to amend errors and alter technical data.

# Self-regulating parallel heating cables

## Advantages:

- Self-regulating with adaptable output
- Various temperature range applications
- Demand-orientated output grading
- High chemical resistance
- No temperature limitation required
- Can be cut to length from the roll

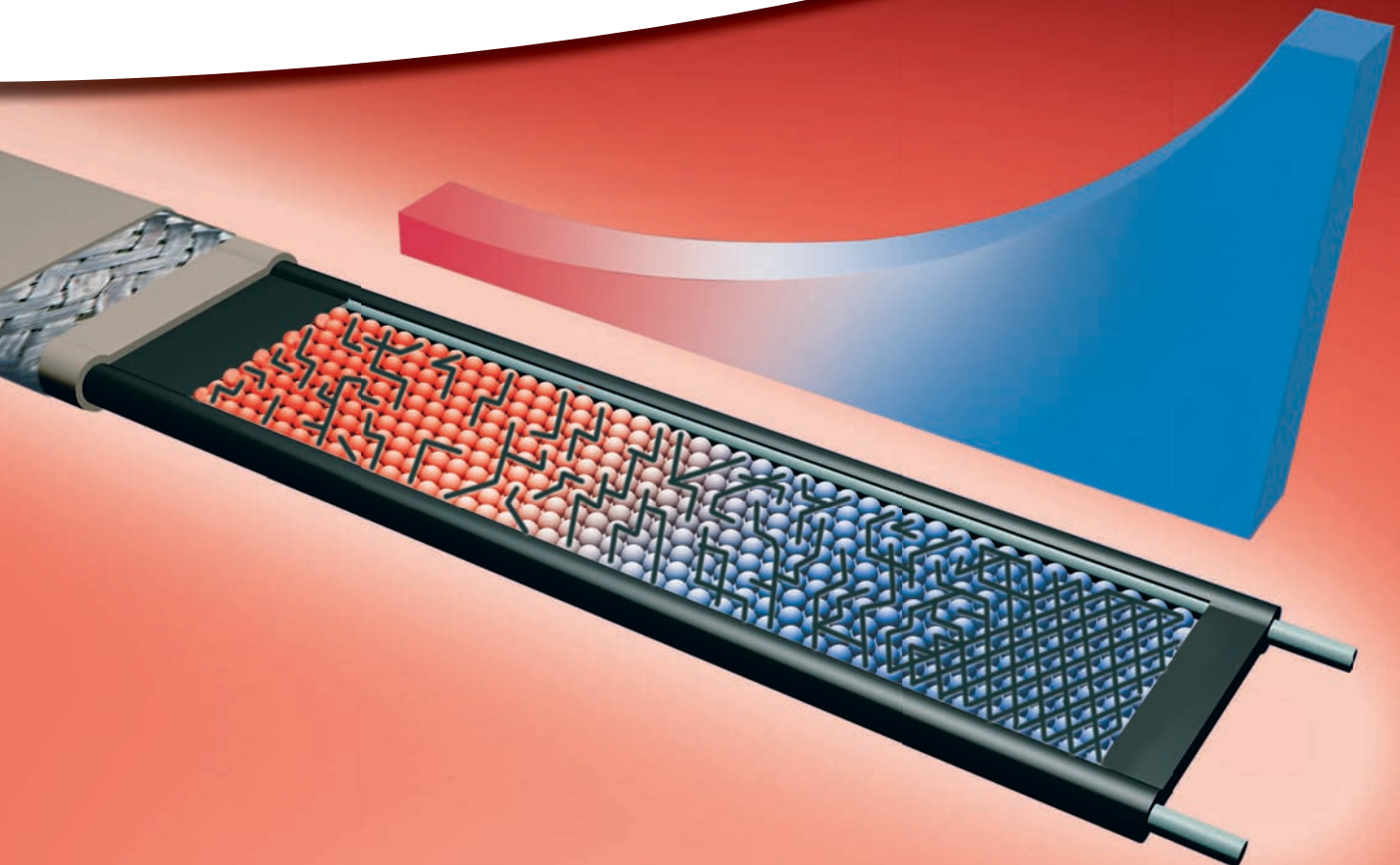
## Application:

The ELSR heating cable (eltherm® self-regulating) can be used for frost protection and maintaining constant temperatures for receptacles, pipes, valves and gutters etc. Except for the connections, the heating cable may be immersed to fluids. If used in an aggressive environment (the Chemicals or Petrochemicals industry), we lag the heating cable with a special chemically resistant outer jacket (fluoropolymer), option "BOT".

## Function:

Self-regulating heating cables consist of two parallel bus wires embedded in a networked plastic heating element, doped with surrounding carbon particles. If the temperature increases during operation, the plastic expands due to molecular expansion and the distances between the carbon particles increases. Resistance increases and output drops. When it cools down, this process is reversed and output increases.

This physical property not to exceed the specified temperatures also facilitates the cross-routing of self-regulating cables and managing without a temperature cut-out device.





## ELSR: What options are available?

The application options for the ELSR heating cables range from frost protection to temperature maintenance on pipes and receptacles. In addition to our classic ELSR-N, we offer further low-temperature range versions: the narrower L and M variants as well as the round heating cable ELSR-R.

In the medium-temperature range, we can supply you the ELSR-W, and we have the high temperature cable ELSR-H for temperatures up to 200 °C.

### Design: 5 different options

Our heating cables provide you a wide selection: we offer the right design for every application, every problem and all areas of use.

#### **AO: Aluminium foil with a thermoplastic outer jacket**

The heating cables with this design are especially easy to assemble. This design is available for all low-temperature and medium-temperature tapes.

#### **BO: Protective braiding with a thermoplastic outer jacket**

This design provides you with even better mechanical protection with its special tin-plated copper braiding. The BO design is available for all low temperature and medium temperature tapes.

#### **BOT: Protective braiding with fluoropolymer outer jacket**

The fluoropolymer outer jacket (better known as Teflon) simply makes the heating cable indestructible: it even

Our programme is rounded off with matching accessories: connection sets, fixing materials and you can find plenty more below following the technical data sheets.

All eltherm<sup>®</sup> heating cables are approved by the VDE (German Association for Electrical, Electronic and Information Technologies). Moreover, the ELSR-N and ELSR-H cables are also ATEX-approved and therefore suitable for use in hazardous areas.

withstands aggressive chemicals, oil and fuel. You can find an exact list of the resistance to chemicals on our homepage. This outer jacket is available for the ELSR-N and the ELSR-H.


#### **BF: Protective braiding with food approved outer jacket, suitable for use in drinking water**

A heating cable with this design can be laid directly in drinking water pipes, for example. This design is only used for the ELSR-M version.

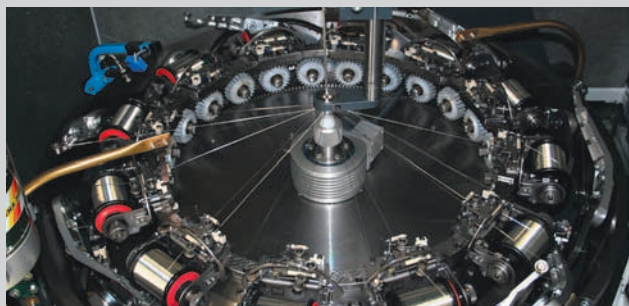
#### **B: Protective braiding (without an outer jacket)**

This design is appropriate for use in a closed system and can be used within confined spaces thanks to its small diameter. It is available for our round heating cable, the ELSR-R (upon request also possible for other ELSR heating cables).

# Cable properties

Type	Self-regulating	Moisture proof	UV-resistant	Highest chemical resistance	Suitable for contact with food stuff and for use in drinking water	Low temperature	Medium temperature	High temperature	Can be used in hazardous areas 
ELSR-N-AO	•	•	•			•			•
ELSR-N-BO	•	•	•			•			•
ELSR-N-BOT	•	•	•	•		•			•
ELSR-L-AO	•	•	•			•			•
ELSR-L-BO	•	•	•			•			•
ELSR-M-AO	•	•	•			•			
ELSR-M-BO	•	•	•			•			
ELSR-M-BF	•	•	•		•	•			
ELSR-R-AO	•	•	•			•			
ELSR-R-BO	•	•	•			•			
ELSR-R-B	•	•				•			
ELSR-R-OT	•	•	•	•		•			
ELSR-W-AO	•	•					•		
ELSR-W-BO	•	•					•		
ELSR-H-BOT	•	•	•	•				•	•

You can use the table above to determine which heating cable is appropriate for your application. Detailed information for the individual heating cables is available on the data sheets below.



## Production at eltherm®

The matrix is one of the most important quality aspects for self-regulating heating cables. In order to be able to exercise the greatest possible influence on this production process, we manufacture the granulate for the matrix ourselves. As a result of this, eltherm® is one of the top

manufacturers of self-regulating heating cables in the world. This is also influenced by the special pre-treatment of the components and our long-time experience with these parameters. We are therefore able to guarantee constant high quality.



- Self-regulating
- Four nominal outputs
- Can be cut to length from the roll
- Moisture proof
- UV-resistant



## Type **ELSR-N**

ELSR-N-30-2-80



### Application description

The ELSR-N is our “standard” self-regulating heating cable for use in industry and house construction market. The applications range from frost protection to temperature maintenance for pipes and receptacles. We also have suitable designs for the hazardous area.

We offer our “classic” in the ELSR-N-BOT variant, also with a fluoropolymer outer jacket (more commonly known

as Teflon). This heating cable even withstands aggressive chemicals, oil and fuel – simply indestructible!

For example, the ELSR-N heating cable is used to frost protection on emergency water tanks, to maintain constant temperatures for caustic soda and for heating liquid level displays. If you wish to get to know the diverse fields of application for this heating cable, ask us ...



# Type **ELSR-N** up to 80 °C

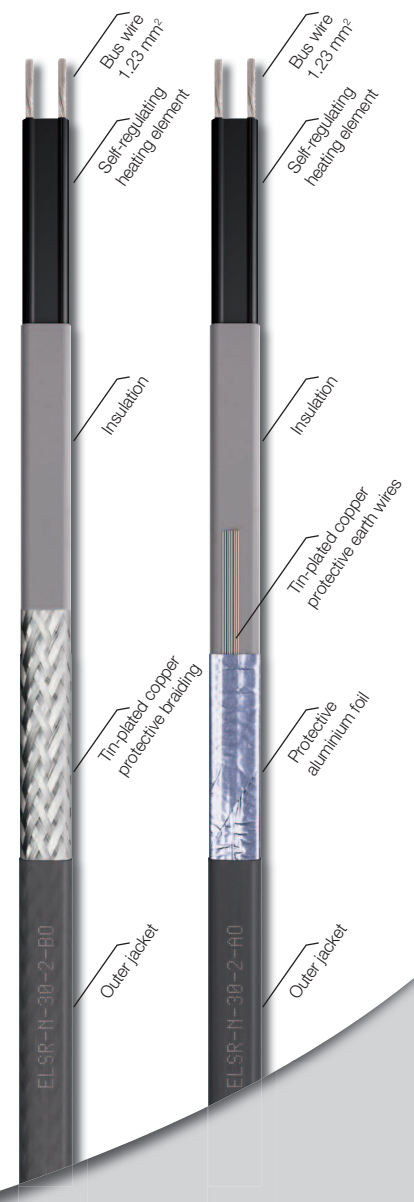
## Design:

- BO: Protective braiding and a thermoplastic outer jacket  
 AO: Aluminium foil and a thermoplastic outer jacket  
 BOT: Protective braiding and a fluoropolymer outer jacket

## Technical data:

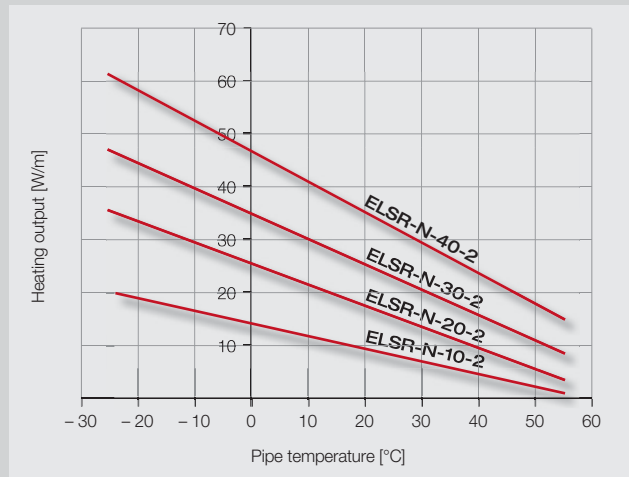
- Outer jacket . . . . . TPE-O  
 Bus wire . . . . . Cu nickel-plated  
 Maximum exposure temperature (deenergised) . . 80 °C  
 Maximum exposure temperature (energised) . . . . 65 °C  
 Nominal voltage . . . . . 230 V  
 Bending radius minimum . . . 25 mm  
 Minimum installation temperature . . . . . – 45 °C  
 ⓧ II 2 G Ex e II ⓧ 2 D Ex tD A21 T<sub>max</sub> 80 °C

Type	Nominal output	Dimensions approx. (mm)	Weight approx. (g/m)	Item number
ELSR-N-10-2-AO	10 W/m at 10 °C	13.6 x 5.5	91	B0200130
ELSR-N-10-2-BO	10 W/m at 10 °C	14.1 x 5.8	108	B0200110
ELSR-N-10-2-BOT	10 W/m at 10 °C	13.8 x 5.6	108	B0200120
ELSR-N-20-2-AO	20 W/m at 10 °C	13.6 x 5.5	91	B0200230
ELSR-N-20-2-BO	20 W/m at 10 °C	14.1 x 5.8	108	B0200210
ELSR-N-20-2-BOT	20 W/m at 10 °C	13.8 x 5.6	108	B0200220
ELSR-N-30-2-AO	30 W/m at 10 °C	13.6 x 5.5	91	B0200330
ELSR-N-30-2-BO	30 W/m at 10 °C	14.1 x 5.8	108	B0200310
ELSR-N-30-2-BOT	30 W/m at 10 °C	13.8 x 5.6	108	B0200320
ELSR-N-40-2-AO	40 W/m at 10 °C	13.6 x 5.5	91	B0200430
ELSR-N-40-2-BO	40 W/m at 10 °C	14.1 x 5.8	108	B0200410
ELSR-N-40-2-BOT	40 W/m at 10 °C	13.8 x 5.6	108	B0200420



## ELSR-N-...-2 output

(on insulated metallic pipes in accordance with EN 62395-1)



## Heating circuit lengths ELSR-N-...-2

considering

- 230 V nominal voltage
- Delayed action circuit breakers (C-characteristic) with 80 % maximum load
- Maximum 10 % line voltage drop on the heating cable bus wire
- A (1) single end power input heating cable into consideration

Switch-on temperature (°C)	Nominal cutout value (A)	Heating circuit length (m) for			
		ELSR-N-10-2	ELSR-N-20-2	ELSR-N-30-2	ELSR-N-40-2
10	16	177.0	109.0	83.0	57.0
	20	177.0	129.0	104.0	71.0
	25	177.0	129.0	113.0	89.0
0	16	160.0	92.0	71.0	50.0
	20	160.0	115.0	89.0	62.0
	25	160.0	119.0	105.0	78.0
-10	16	144.0	79.0	63.0	44.0
	20	149.0	99.0	78.0	55.0
	25	149.0	111.0	98.0	69.0
-20	16	125.0	70.0	56.0	40.0
	20	139.0	87.0	69.0	50.0
	25	139.0	104.0	87.0	62.0
-40	16	99.0	56.0	45.0	33.0
	20	124.0	71.0	57.0	42.0
	25	124.0	88.0	71.0	52.0

All rights reserved.

**eltherm**<sup>®</sup>  
innovations in heat tracing



- Self-regulating
- Three nominal outputs
- Can be cut to length from the roll
- Moisture proof
- UV-resistant



## Type **ELSR-L**

ELSR-L-30-2-80



### Application description

The self-regulating heating cable ELSR-L is our “light version” for temperatures of up to 80 °C. It is suitable for house and construction as well as for industrial applications as frost protection or for maintaining constant pipe and receptacle temperatures.

The bus wires are – for all our self-regulating heating cables – copper nickel-plated. Moreover, all the heating cables are moisture proof and UV-resistant.

You can simply cut our self-regulating heating cables to the desired length – and use them immediately. Our tailor-made accessories packages make them easy to use. That’s heating technology made easy – as simple as pie!





# Type **ELSR-L** up to 80 °C

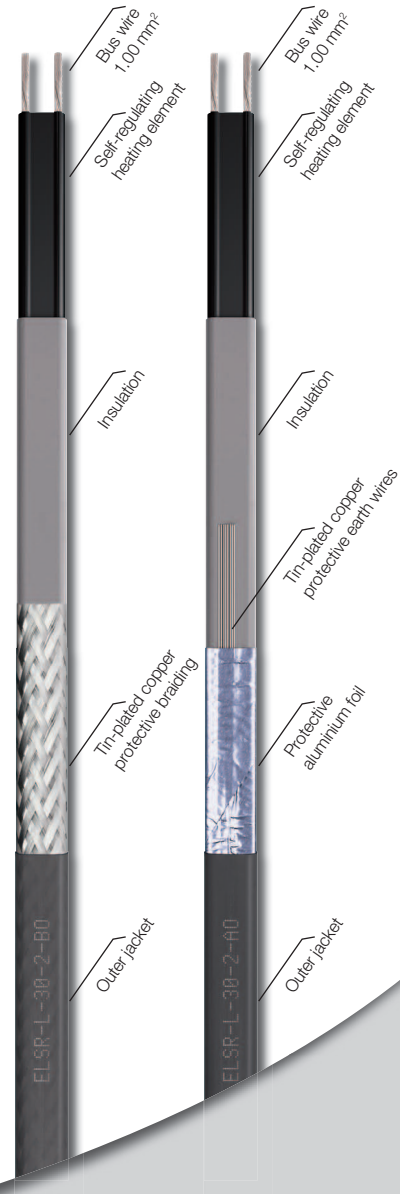
## Design:

- BO: Protective braiding and a thermoplastic outer jacket  
 AO: Aluminium foil and a thermoplastic outer jacket

## Technical data:

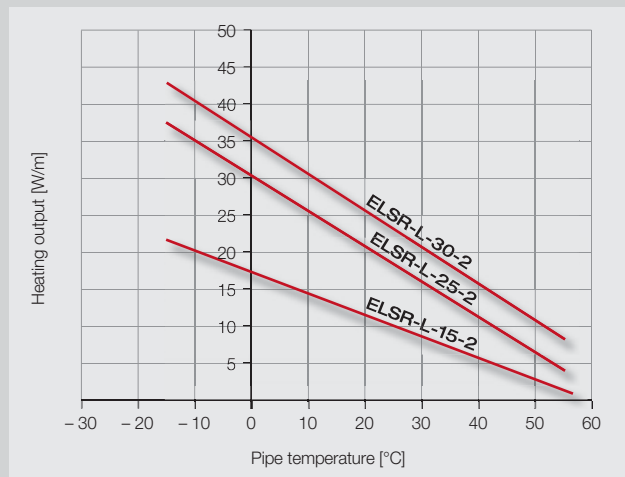
- Outer jacket . . . . . TPE-O  
 Bus wire . . . . . Cu nickel-plated  
 Maximum exposure temperature (deenergised) . . 80 °C  
 Maximum exposure temperature (energised) . . . . 65 °C  
 Nominal voltage . . . . . 230 V  
 Bending radius minimum . . . 25 mm  
 Minimum installation temperature . . . . . – 45 °C  
 Ⓢ II 2 G Ex e II Ⓢ II Ⓢ 2 D Ex tD A21 T<sub>max</sub> 80 °C

Type	Nominal output	Dimensions approx. (mm)	Weight approx. (g/m)	Item number
ELSR-L-15-2-AO	15 W/m at 10 °C	10.5 x 5.5	73	B0222154
ELSR-L-15-2-BO	15 W/m at 10 °C	11.0 x 5.6	81	B0222152
ELSR-L-25-2-AO	25 W/m at 10 °C	10.5 x 5.5	73	B0222254
ELSR-L-25-2-BO	25 W/m at 10 °C	11.0 x 5.6	81	B0222252
ELSR-L-30-2-AO	30 W/m at 10 °C	10.5 x 5.5	73	B0222304
ELSR-L-30-2-BO	30 W/m at 10 °C	11.0 x 5.6	81	B0222302



## ELSR-L-...-2 output

(on insulated metallic pipes in accordance with EN 62395-1)



## Heating circuit lengths ELSR-L-...-2

considering

- 230 V nominal voltage
- Delayed action circuit breakers (C-characteristic) with 80 % maximum load
- Maximum 10 % line voltage drop on the heating cable bus wire
- A (1) single end power input heating cable into consideration

Switch-on temperature (°C)	Nominal cutout value (A)	Heating circuit length (m) for		
		ELSR-L-15-2	ELSR-L-25-2	ELSR-L-30-2
10	16	143.5	103.0	82.0
	20	143.5	111.0	101.5
	25	143.5	111.0	101.5
0	16	130.0	87.0	70.0
	20	130.0	102.5	88.0
	25	130.0	102.5	94.0
-10	16	119.5	75.0	62.0
	20	119.5	94.0	77.0
	25	119.5	96.0	88.0
-20	16	99.0	66.0	55.0
	20	111.5	83.0	69.0
	25	111.5	90.5	83.0
-40	16	78.0	54.0	45.0
	20	98.0	67.0	56.0
	25	99.0	82.0	70.0

All rights reserved.

**eltherm**<sup>®</sup>  
innovations in heat tracing



- Self-regulating
- Two nominal outputs
- Can be cut to length from the roll
- Moisture proof
- UV-resistant



## Type **ELSR-M**

ELSR-M-15-2-80



### Application description

ELSR-M is a self-regulating heating cable with a light-weight ("micro") design, suitable for use in industry and house construction. The applications range from frost protection to temperature maintenance for pipes and receptacles. (Temperatures up to 65 °C). For example, the cable is used when heating tube bundle cables for water analysis.

The food approved outer jacket is a special highlight of the ELSR-M and you can order it as variant ELSR-M-BF. Alternatively, you can be provided with the M tape, also

with aluminium foil and a thermoplastic outer jacket (ELSR-M-AO) or with braiding and a thermoplastic outer jacket.

The ELSR-M heating cable offers you the smallest possible dimensions, is highly flexible in its application and perfectly suited to use for short heating circuits. A further feature: the ELSR-M-BF heating cable can be laid fully immersed in water, even its end contacts are moisture proof!



# Type **ELSR-M** up to 65 °C

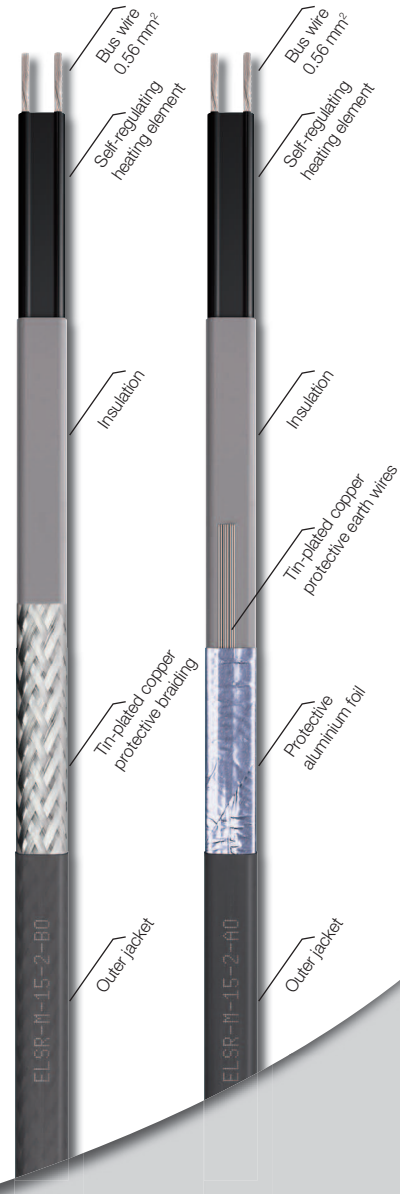
## Design:

- BO: Protective braiding and a thermoplastic outer jacket  
 AO: Aluminium foil and a thermoplastic outer jacket  
 BF: Protective braiding and food safe outer jacket, suitable for use with drinking water

## Technical data:

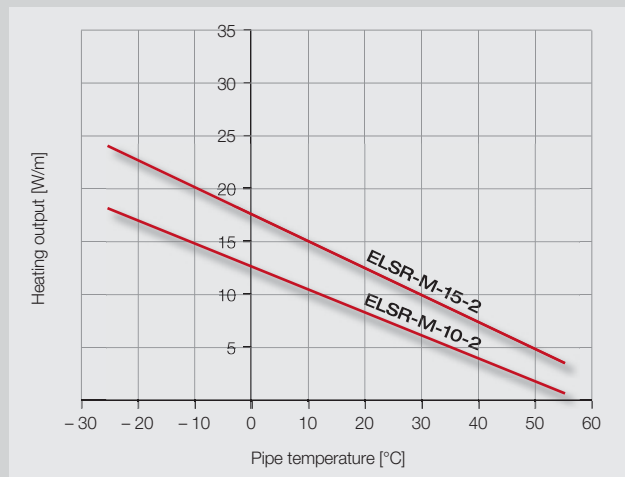
- Outer jacket . . . . . TPE-O  
 Bus wire . . . . . Cu nickel-plated  
 Maximum exposure temperature (deenergised) . . 65 °C  
 Maximum exposure temperature (energised) . . . 65 °C  
 Nominal voltage . . . . . 230 V  
 Bending radius minimum . . . 25 mm  
 Minimum installation temperature . . . . . – 45 °C

Type	Nominal output	Dimensions approx. (mm)	Weight approx. (g/m)	Item number
ELSR-M-10-2-AO	10 W/m at 10 °C	8.0 x 5.5	53	B0225110
ELSR-M-10-2-BO	10 W/m at 10 °C	8.5 x 5.8	62	B0225102
ELSR-M-15-2-AO	15 W/m at 10 °C	8.0 x 5.5	53	B0225160
ELSR-M-15-2-BO	15 W/m at 10 °C	8.5 x 5.8	62	B0225152
ELSR-M-10-2-BF	10 W/m at 10 °C	7.5 x 4.9	62	B0225104



## ELSR-M-...-2 output

(on insulated metallic pipes in accordance with EN 62395-1)



## Heating circuit lengths ELSR-M-...-2

considering

- 230 V nominal voltage
- Delayed action circuit breakers (C-characteristic) with 80 % maximum load
- Maximum 10 % line voltage drop on the heating cable bus wire
- A (1) single end power input heating cable into consideration

Switch-on temperature (°C)	Nominal cut-out value (A)	Heating circuit length (m) for	
		ELSR-M-10-2	ELSR-M-15-2
10	16	126.5	105.5
	20	126.5	105.5
0	16	115.5	97.5
	20	115.5	97.5
-10	16	106.5	91.0
	20	106.5	91.0
-20	16	99.5	85.5
	20	99.5	85.5
-40	16	88.5	77.0
	20	88.5	77.0

All rights reserved.



- Round cable form
- Self-regulating
- Can be cut to length from the roll
- Moisture proof
- UV-resistant



CSTB  
Certified construction

## Type **ELSR-R**

ELSR-R-19-2-B0

### Application description

The “R” in the name of our self-regulating heating cable ELSR-R is an abbreviation for “round”. This heating cable was specially developed to protect the doors and seals of refrigerating chambers against frost as well as all for applications requiring a round heating cable.

It is also often used in cold water lines by breweries and drinks manufacturers (as frost protection). The maximum exposure temperature is 55 °C.

Moreover, the heating cable ELSR-R is damp-protected and UV-resistant as are all eltherm<sup>®</sup> self-regulating heating cables.



# Type **ELSR-R** up to 55 °C

## Design:

- B: Protective braiding
- BO: Protective braiding and a thermoplastic outer jacket
- AO: Aluminium foil and a thermoplastic outer jacket
- OT: Fluoropolymer outer jacket

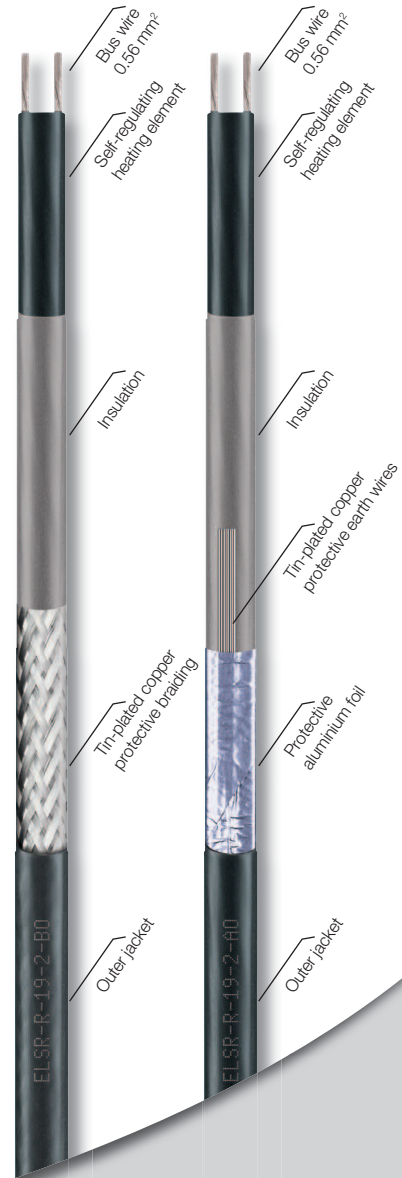
## Technical data:

- Outer jacket . . . . . TPE-O
- Bus wire . . . . . Cu nickel-plated
- Maximum exposure temperature (deenergised) . . 55 °C
- Maximum exposure temperature (energised) . . . 55 °C
- Nominal voltage . . . . . 230 V
- Bending radius minimum . . . 30 mm
- Minimum installation temperature . . . . . – 30 °C

Type	Nominal output	Dimensions approx. Ø (mm)	Weight approx. (g/m)	Item number
ELSR-R-19-2-B	19 W/m at 10 °C	7.4	63	B0200501
ELSR-R-19-2-BO	19 W/m at 10 °C	8.2	74	B0200503
ELSR-R-19-2-AO	19 W/m at 10 °C	8.0	82	B0200504
ELSR-R-19-2-OT*	19 W/m at 10 °C	7.5	63	B0200506

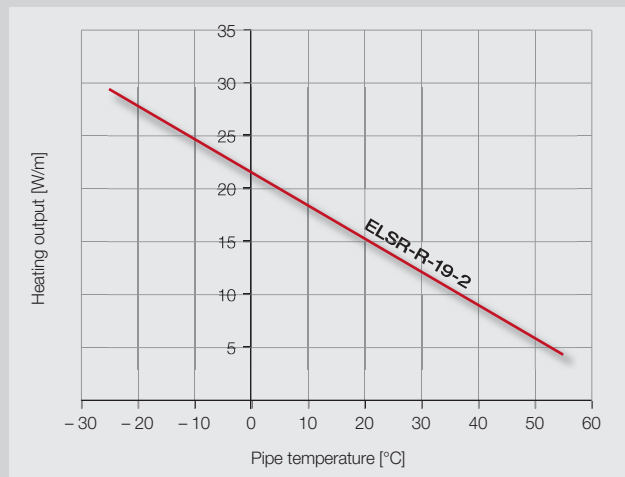
Further designs available upon request

\* This heating cable is explicitly developed for the operation in cold room doors. Please approach our sales engineers for advice on our ELSR-R-19-2-OT.



## ELSR-R-19-2 output

(on insulated metallic pipes in accordance with EN 62395-1)



## Heating circuit lengths ELSR-R-19-2

considering

- 230 V nominal voltage
- Delayed action circuit breakers (C-characteristic) with 80 % maximum load
- Maximum 10 % line voltage drop on the heating cable bus wire
- A (1) single end power input heating cable into consideration

Switch-on temperature (°C)	Nominal cut-out value (A)	Heating circuit length (m) for
		ELSR-R-19-2
10	16	95.5
	20	95.5
0	16	88
	20	88
-10	16	82.5
	20	82.5
-20	16	77.5
	20	77.5
-40	16	70
	20	70

All Rights Reserved.



- Self-regulating
- Two nominal outputs
- Can be cut to length from the roll
- Moisture proof



## Type **ELSR-W**

ELSR-W-65-2-AD



### Application description

The self-regulating heating cable ELSR-W (hot water) is used for receptacles, pipes, valves and several other applications with temperatures between 30 °C and approx. 80 °C.

Except for the connections, the heating cable may be fully immersed.

The ELSR-W self-regulating heating cables are frequently used to heat oil and fat lines, for example in the food-stuffs industry. But also its use for drainage lines in canteens and (large scale) kitchens makes good sense, avoiding fat and oil deposits by heating.



# Type **ELSR-W** up to 100 °C

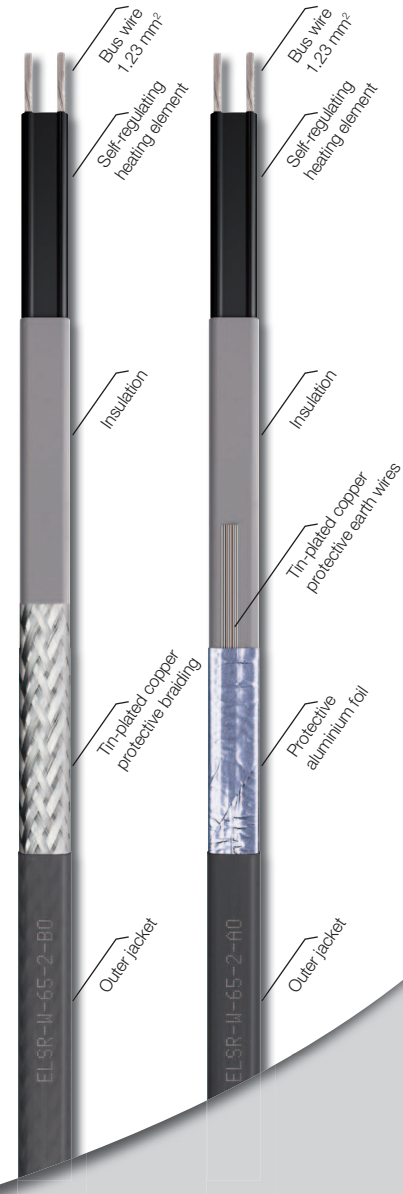
## Design:

- BO: Protective braiding and a thermoplastic outer jacket  
 AO: Aluminium foil and a thermoplastic outer jacket

## Technical data:

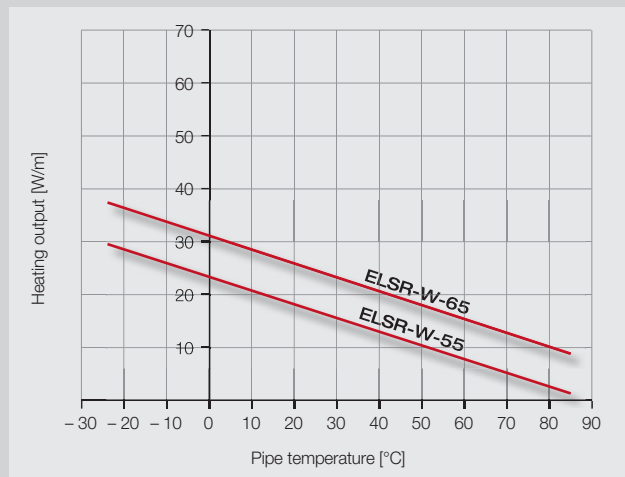
- Outer jacket . . . . . TPE-O  
 Bus wire . . . . . Cu nickel-plated  
 Maximum exposure temperature (deenergised) . . 100 °C  
 Maximum exposure temperature (energised) . . . . 80 °C  
 Nominal voltage . . . . . 230 V  
 Bending radius minimum . . . 20 mm  
 Minimum installation temperature . . . . . - 20 °C

Type	Nominal output	Dimensions approx. (mm)	Weight approx. (g/m)	Item number
ELSR-W-55-2-AO	9 W/m at 55 °C	12.9 x 5.0	86	0200360
ELSR-W-55-2-BO	9 W/m at 55 °C	12.9 x 5.0	105	0200350
ELSR-W-65-2-AO	13 W/m at 65 °C	12.9 x 5.0	86	0200455
ELSR-W-65-2-BO	13 W/m at 65 °C	12.9 x 5.0	105	0200450



## ELSR-W output

(on insulated metallic pipes in accordance with EN 62395-1)



## Heating circuit lengths ELSR-W

considering

- 230 V nominal voltage
- Delayed action circuit breakers (C-characteristic) with 80 % maximum load
- Maximum 10 % line voltage drop on the heating cable bus wire
- A (1) single end power input heating cable into consideration

Switch-on temperature (°C)	Nominal cut-out value (A)	Heating circuit length (m) for	
		ELSR-W-55	ELSR-W-65
50	16	158.0	110.0
	20	225.0	137.0
	25	285.0	171.0
20	16	121.0	76.0
	20	150.0	95.0
	25	189.0	118.0
0	16	106.0	63.0
	20	130.0	78.0
	25	166.0	98.0
-20	16	96.0	54.0
	20	120.0	67.0
	25	150.0	84.0

All rights reserved.



**eltherm**<sup>®</sup>  
innovations in heat tracing



- up to 120 °C/210 °C
- Self-regulating
- Four nominal outputs
- Can be cut to length from the roll
- Moisture proof
- Resistant to chemicals
- UV-resistant



## Type **ELSR-H**

ELSR-H-60-2-B0T



### Application description

The ELSR-H is our heating cable for the high temperature range. It is suitable for frost protection as well as maintaining constant temperatures for receptacles, pipes and valves. One important area of use is predominantly in the Chemicals or Petrochemicals industry.

ELSR-H is available with 4 different nominal outputs and with a special fluoropolymer outer jacket: this material which is better known as “Teflon” makes it resistant to aggressive chemicals, oil and fuel.





# Type **ELSR-H** up to 210 °C

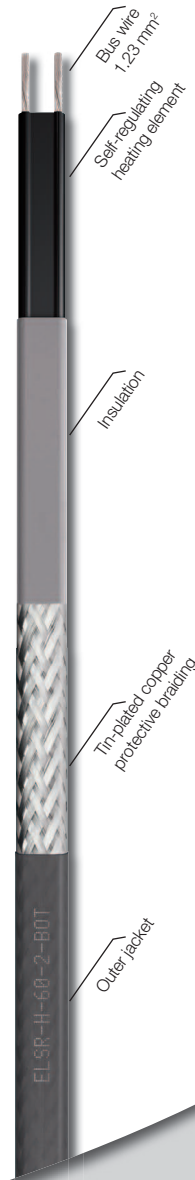
## Design:

BOT: Protective braiding and a fluoropolymer outer jacket

## Technical data:

Outer jacket . . . . . PFA  
 Bus wire . . . . . Cu nickel-plated  
 Maximum exposure temperature (deenergised) . . 210 °C  
 Maximum exposure temperature (energised) . . . . 120 °C  
 Nominal voltage . . . . . 230 V/120 V\*  
 Bending radius minimum . . . 25 mm  
 Minimum installation temperature . . . . . – 45 °C

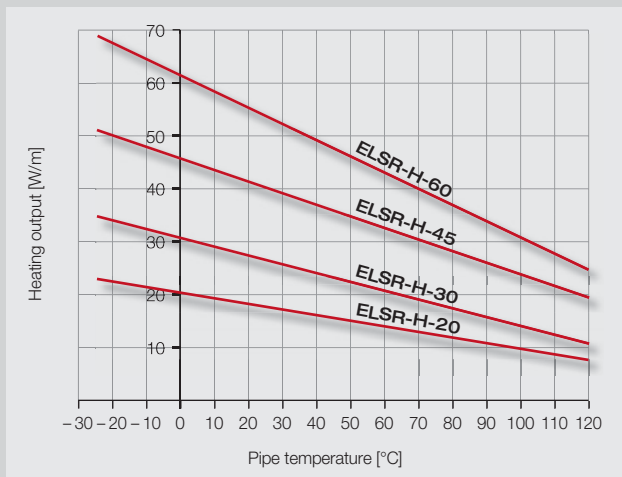
\* upon request



Type	Nominal output	Dimensions approx. (mm)	Weight approx. (g/m)	Item number
ELSR-H-20-2-BOT	20 W/m at 10 °C	12.4 x 5.0	120	B0221203
ELSR-H-30-2-BOT	30 W/m at 10 °C	12.4 x 5.0	120	B0221303
ELSR-H-45-2-BOT	45 W/m at 10 °C	12.4 x 5.0	120	B0221453
ELSR-H-60-2-BOT	60 W/m at 10 °C	12.4 x 5.0	120	B0221603

## ELSR-H output

(on insulated metallic pipes in accordance with EN 62395-1)



## Heating circuit lengths ELSR-H

considering

- 230 V nominal voltage
- Delayed action circuit breakers (C-characteristic) with 80 % maximum load
- Maximum 10 % line voltage drop on the heating cable bus wire
- A (1) single end power input heating cable into consideration

Switch-on temperature (°C)	Nominal cutout value (A)	Heating circuit length (m) for at 230 V			
		ELSR-H-20	ELSR-H-30	ELSR-H-45	ELSR-H-60
10	16	122.0	82.0	55.0	41.0
	20	136.0	102.0	68.0	51.0
	25	136.0	111.0	85.0	64.0
	32	136.0	111.0	91.0	79.0
0	16	116.0	77.0	52.0	39.0
	20	132.0	97.0	65.0	49.0
	25	132.0	108.0	81.0	61.0
	32	132.0	108.0	88.5	77.0
-10	16	110.0	73.0	50.0	37.0
	20	129.0	92.0	62.0	46.0
	25	129.0	105.5	77.0	58.0
	32	129.0	105.5	86.5	70.0
-20	16	104.0	70.0	47.0	36.0
	20	125.5	87.0	59.0	44.0
	25	125.5	103.0	74.0	56.0
	32	125.5	103.0	84.5	67.0
-40	16	95.0	64.0	43.0	33.0
	20	119.0	80.0	54.0	41.0
	25	120.0	98.0	68.0	51.0
	32	120.0	98.0	81.0	61.0

All rights reserved.



**Table 1: Design guide frost protection +5 °C  
for self-regulating parallel heating cables type series ELSR-N-10...40-2-BO(T)**

Pipe size	Inches: DN	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50	2 1/2 65	3 80	4 <b>100</b>	5 125	6 150	7 175	8 200	9 225	10 250	12 300
Insulation thickness (mm)	Minimum ambient temperature (°C)	Heating cable type ELSR-N-10...40-2-BO(T)															
10	-15	10	10	20	20	20	30	30	30	40	2x30	2x30	2x40	2x40	2x40	3x30	3x40
	-20	10	20	20	20	30	30	40	40	2x30	2x30	2x40	2x40	3x30	3x40	3x40	4x40
	-25	10	20	20	30	20	40	40	2x30	2x30	2x40	2x40	3x40	3x40	3x40	4x40	4x40
20	-15	10	10	10	10	10	20	20	20	30	30	30	40	40	40	2x30	2x30
	-20	10	10	10	10	20	20	20	30	30	30	40	2x30	2x30	2x30	2x30	2x40
	-25	10	10	20	20	30	30	30	30	40	40	2x30	2x30	2x30	2x30	2x40	2x40
30	-15	10	10	10	10	10	10	10	20	20	20	20	30	30	30	40	40
	-20	10	10	10	10	10	20	20	20	20	20	20	30	40	40	40	2x30
	-25	10	10	10	10	20	20	30	20	30	30	30	40	40	2x30	2x30	2x30
40	-15	10	10	10	10	10	10	10	10	20	20	20	20	20	30	30	30
	-20	10	10	10	10	10	10	20	20	20	20	20	30	30	30	30	40
	-25	10	10	10	10	10	20	20	20	20	20	20	30	30	40	40	2x30
<b>50</b>	-15	10	10	10	10	10	10	10	10	10	20	20	20	20	20	20	30
	-20	10	10	10	10	10	10	10	10	20	20	20	20	30	30	30	30
	<b>-25</b>	10	10	10	10	10	10	20	20	<b>20</b>	20	20	30	30	30	30	40
60	-15	10	10	10	10	10	10	10	10	10	10	20	20	20	20	20	20
	-20	10	10	10	10	10	10	10	10	20	20	20	20	20	20	30	30
	-25	10	10	10	10	10	10	10	20	20	20	20	20	30	30	30	30
80	-15	10	10	10	10	10	10	10	10	10	10	10	20	20	20	20	20
	-20	10	10	10	10	10	10	10	10	10	10	10	20	20	20	20	20
	-25	10	10	10	10	10	10	10	10	20	20	20	20	20	20	20	30
100	-15	10	10	10	10	10	10	10	10	10	10	10	10	10	20	20	20
	-20	10	10	10	10	10	10	10	10	10	10	10	20	20	20	20	20
	-25	10	10	10	10	10	10	10	10	10	20	20	20	20	20	20	20

Basis: Thermal conductivity of the insulation 0.04 W/mK; increased factor of safety 20 %.

**Table 2: Heating cable additions (m) for**

	DN	15	20	25	32	40	50	65	80	<b>100</b>	125	150	175	200	225	250	300
Pair of flanges		0.2	0.2	0.25	0.3	0.3	0.35	0.4	0.5	<b>0.6</b>	0.7	0.8	0.9	1.0	1.1	1.3	1.5
Flanged fitting		0.4	0.45	0.5	0.55	0.6	0.8	0.9	1.1	<b>1.5</b>	2.0	2.4	2.8	3.3	3.8	4.2	5.0
Pumps		1.5	1.5	2.0	2.0	2.5	2.5	3.0	4.0	<b>5.0</b>	5.0	6.0	6.0	6.5	6.5	7.0	8.0

For uninsulated pipe supports: Heating pipe allowance = **4 x support width**. Per heating pipe connection in the terminal box / thermostat: Heating pipe allowance **approx. 0.5 m**. **Attention:** If there is multiple laying of the heating pipes, the allowances above must be correspondingly multiplied.

### Example 1:

Task: Frost protection for a **DN 100, 25 m** long pipeline with **2 pairs of flanges, 1 ea. fitting, 1 ea. pump, 4 ea. 0.1 m wide support** at an ambient temperature of **-25 °C** and with a **50 mm** thick **heat insulation**, 230V voltage.

Design: **From Table 1:** Heating cable type ELSR-N-20-BO, single laying

Pipeline length: 25 m single laying = 25.0 m

**From Table 2:** Pair of flanges 2 x 0.6 m = 1.2 m

Fitting 1 ea. x 1.5 m = 1.5 m

Pump 1 ea. x 5.0 m = 5.0 m

Pipe support 4 ea. x 0.1 m x 4 = 1.6 m

Connection 1 ea. x 0.5 m = 0.5 m

**= 34.8 m = order 35 m ELSR-N-20-BO**

# Design guide

**Table 3: Heat loss from pipelines in W/m at 10 K temperature difference**

Pipe size	Inches: DN	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50	2 1/2 65	3 80	4 100	5 125	6 150	7 175	8 200	9 225	10 250	12 300
Insulation thickness (mm)	DELTA T																
10	10	4.4	5.2	6.1	7.8	8.7	10.5	12.9	14.8	18.6	22.3	26.6	30.3	34.1	37.8	41.9	49.3
20	10	2.9	3.3	3.7	4.5	5.0	5.9	7.1	8.1	10.0	11.9	14.1	16	17.8	19.7	21.9	25.6
30	10	2.2	2.6	2.9	3.4	3.7	4.2	5.2	5.8	7.1	8.4	9.8	11.1	12.4	13.7	15.1	17.6
<b>40</b>	10	1.9	2.2	2.5	2.8	3.1	<b>3.5</b>	4.2	4.7	5.7	6.6	7.7	8.7	9.6	10.6	11.7	13.6
50	10	1.7	2.0	2.2	2.5	2.7	3.0	3.6	4.0	4.8	5.6	6.4	7.2	8.0	8.8	9.6	11.2
60	10	1.6	1.8	2.0	2.2	2.4	2.7	3.2	3.6	4.2	4.9	5.6	6.2	6.9	7.5	8.2	9.5
80	10	1.4	1.6	1.7	1.9	2.1	2.3	2.7	3.0	3.4	3.9	4.5	5.0	5.5	6.0	6.5	7.5
100	10	1.3	1.4	1.5	1.7	1.8	2.0	2.4	2.6	3.0	3.4	3.8	4.2	4.6	5.1	5.5	6.3
120	10	1.2	1.3	1.4	1.6	1.7	1.9	2.2	2.3	2.7	3.0	3.4	3.7	4.1	4.4	4.8	5.4

Basis: Thermal conductivity of the insulation 0.04 W/mK; increased factor of safety 20%.

if there are other thermal conductivity figures, the values must be multiplied by a corresponding factor.

Example: Thermal conductivity of the insulation 0.045 W/mK  $\frac{0.045 \text{ W/mK}}{0.040 \text{ W/mK}} = 1.125$

## Example 2:

Task: Maintenance of a constant temperature for 15 m **DN 50** pipeline at 20 °C (caustic soda solution) at minimal ambient temperatures of - 10° C (total DELTA-T of 30 K) and a **40 mm** thick **heat insulation**. Installations: 2 pairs of flanges, 2 fittings, 230 V voltage.

If the heating is designed using type ELSR-N self-regulating heating cables, please proceed as follows to select the correct nominal output:

Design (from Table 3): DELTA-T 10 K heat loss = 3.5 W/m. As total DELTA-T is 30 K (that is to say is 3x higher than DELTA-T in the table), the value found is multiplied by 3: 3.5 W/m x a factor of 3 = 10.5 W/m

In the temperature output diagram on Page 2.06, the intersection of the two lines heating output W/m = 10.5 and temperature + 20° C is between the curves (ELSR-N-10) and (ELSR-N-20). Select the heating cable with the next highest power output (ELSR-N-20). You can now proceed with the heating pipe allowance for the installations as in Example 1.

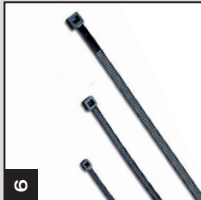
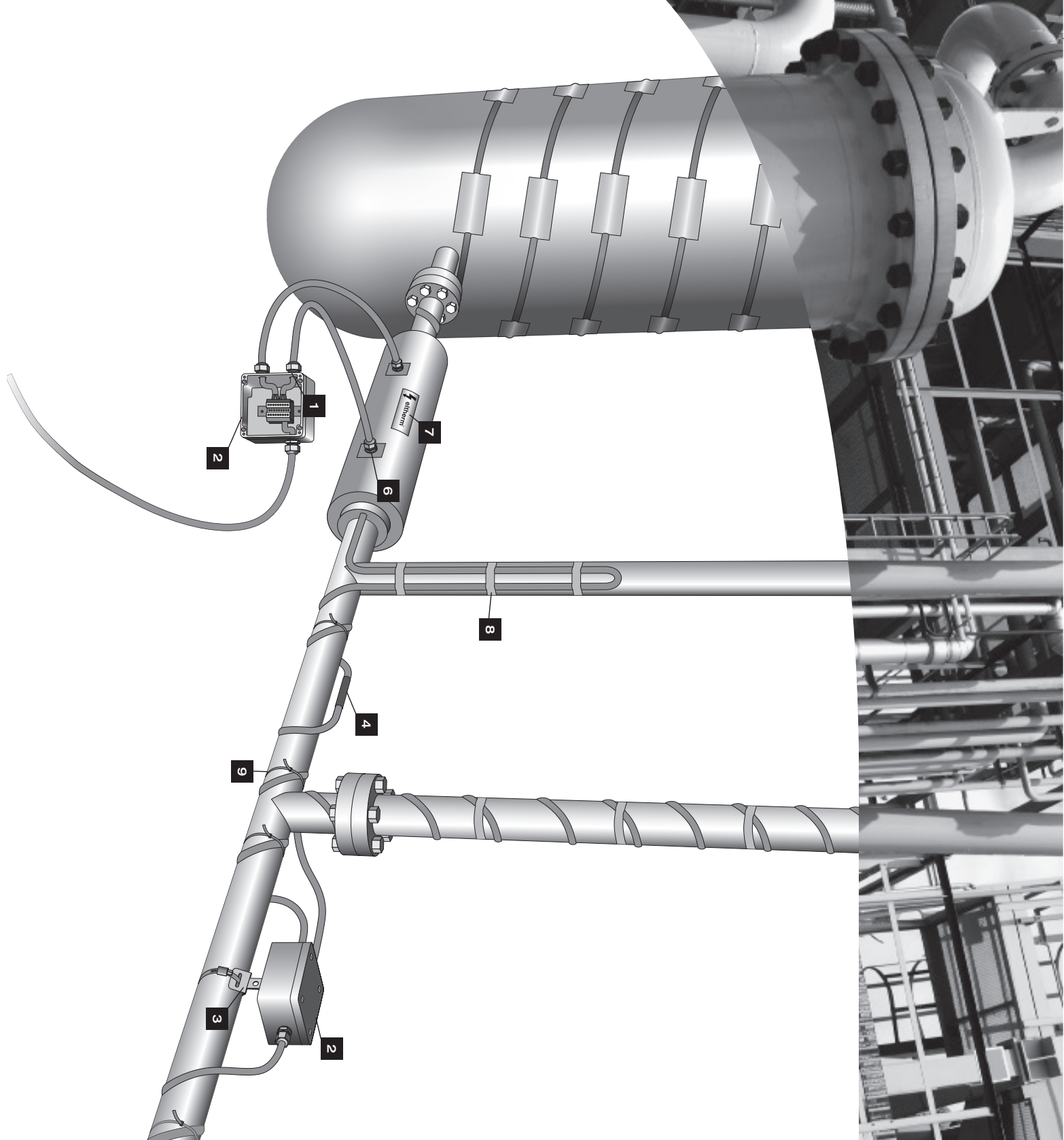


Abbreviated marking	Description	Item number	ELSR-N	ELSR-L	ELSR-M	ELSR-R	ELSR-W	ELSR-H	☞-suitable	
<b>1</b>	Connection and termination kits									
ELVB-SRA-25	power termination kit for ELSR-N, -L, -W	091A010	•	•				•		
ELVB-SRAH-25	power termination kit ELSR-H	091A040						•		
ELVB-SRAM-25	power termination kit for ELSR-M	091A015			•					
ELVB-SREC-2	end termination kit for ELSR-M	0911249			•					
ELVB-SREC-BF	end termination kit for ELSR-M-BF	0911251			•					
ELVB-SREC-1	end termination kit for ELSR-N, -L, -W, ELP	0911248	•	•				•		
ELVB-SREC-H	end termination kit for ELSR-H	0911250						•		
ELVB-SRAN-Ex-20	power term. kit ELSR-N M20 Ex d	0x81PND	•						•	
ELVB-SRAL-Ex-20	power term. kit ELSR-L M20 Ex d	0x81PLD		•					•	
ELVB-SREx-IT	power term. Kit Ex-IT ELSR-H, -N	091AIT1	•					•	•	
ELVB-SRAH-Ex-20	power termination kit ELSR-H M20 Ex d	0x81PHD						•	•	
ELVB-SREx-25	power term. kit f. ELSR-L,-N,-H M25 Ex e	0X81PA1	•	•				•	•	
EL-ECH	end termination kit for ELSR-H M25	0x81EH1						•	•	
EL-ECN	end termination kit for ELSR-N	0x81EN1	•						•	
EL-ECL	end termination kit for ELSR-L	0x81EL1		•					•	
<b>2</b>	Junction Boxes									
ELAK-2	Junction box 98 x 98 x 58 mm, 7 ea. M25 knock outs, incl. 2 cable glands M25	0920001	•	•	•	•	•	•		
ELAK-5.1	Junction Box 130x130x75mm, 9xM20/M25, 2xM20, 1xM25/M32 knock-outs	0920002	•	•	•	•	•	•		
ELAK-5.7	Junction Box 122x120x90mm, for up to 3x ELSR	0920014	•	•	•	•	•	•		
ELAK-6	Junction box 98 x 98 x 58 mm, 1xM 25, 6xM20	0920016	•	•	•	•	•	•		
ELAK-7	Junction box 260 x190 x 190 mm, 1xM25, 9xM16	0920019	•	•	•	•	•	•		
Ex-It-R	junction box w. multiple entry stand assembly, 6mm <sup>2</sup> terminals	0x80070	•					•	•	
Ex-It-R	junction box w. multiple entry stand assembly, 10mm <sup>2</sup> terminals	0x80081	•					•	•	
ELAK-Ex-R5	Junction Box Polyester, ELSR + EL-CT	0x80075	•					•	•	
ELAK-Ex-R7	Junction Box Polyester, 1-3 ELSR	0x80077	•					•	•	
ELAK-Ex-R8	Junction Box Polyester for 2x Ex-PT100	0x80078							•	
ELAK-Ex 3.5	Junction box 122 x 20 x 90 for ELSR + EL-CT	0X80055	•					•	•	
ELAK-Ex 3.7	Junction box 122 x 20 x 90 for up to 3x ELSR	0X80057	•					•	•	
ELAK-Ex 3.8	Junction box 122 x 20 x 90 for up to 2x Pt100	0X80058							•	
<b>3</b>	Pipe Mounting brackets									
ELMW-5	for ELAK-2	0941005							•	
ELMW-9	for ELAK-Ex3.x, and ELAK-5.7	0941009							•	
ELMW-11	for ELAK 5.1, ELTC 1-4/05	0941011							•	
ELMW-13	for ELAK-6	0941013							•	
ELMW-15	for ELAK-7	0941015							•	
ELMW-CT	for EL-CTB, EL-CTC	0941025							•	
ELMW-R	for ELAK-Ex-R	special							•	
			Pipe mounting brackets for usage with eltherm Junction boxes and controllers							
<b>4</b>	Splice kits									
ExCon SR	PEEK-sleeve for ELSR-N; D=36 x 210 mm 4J II 2G Ex e II T6...T3 II 2D Ex tD A21 IP65 TX	0X81125	•					•	•	
<b>5</b>	Heat transfer cement									
ELWZ 5	Heat transfer cement, 18.3 kg bucket	2979002951	applies to all models & ex-suitable							

### Key

- Suitable
- Partially suitable

Abbreviated marking	Description	Item number	ELSR-N	ELSR-L	ELSR-M	ELSR-R	ELSR-W	ELSR-H	☞-suitable
<b>6</b>	Insulation entry kits								
ELISD-1.12	insulation entry kit 1xM12	0921011							•
ELISD-1.16	insulation entry kit 1xM16	0921015							•
ELISD-1.20	insulation entry kit 1xM20	0921019							•
ELISD-1.25	insulation entry kit 1xM25	0921023							•
ELISD-R1	insulation entry kit ELSR-N, -L and -W	0921035		•	•		•		•
ELISD-R4	insulation entry kit ELSR-H	0921047						•	•
ELISD-R5	insulation entry kit ELSR-M	0921051				•			•
<b>7</b>	Warning label								
EL-WS01D	Warning label German "Elektr. Begleith."	2986900002	applies to all models & ex-suitable						
EL-WS01E	Warning label English "Electr. Heattrac."	2986900012							
<b>8</b>	Self-adhesive tapes and foils								
ELB-03	50m cloth-adhesive tape 12mm 90°C	2481800120							
ELB-06D	100m Aluminium foil 75mm adhesive 140°C	2701900076							
ELB-02	20m Glass cloth adhes. tape 12mm 140°C	2486800125							
ELB-02A	30m Glass cloth adhes. tape 12mm 180°C	2486800126	applies to all models & ex-suitable						
ELB-06C	50m Aluminium foil 45mm net reinforced 80°C	2701900051							
ELB-06E	aluminium foil 50x536mm 150°C	2701900500							
<b>9</b>	Mechanical fasteners and attachments								
ELB-12A	stainless steel fixing strip 40 mm spacing	2723001251							
ELB-13S1	fixing band 11mm, galvanized steel, Roll=30 m	2720301010							
ELB-13S2	Lock 1.4301, 100pcs	2720301011	applies to all models & ex-suitable						
ELB-13V1	fixing band 11mm Mat.:1.4301 Roll = 30m	2723001010							
ELB-13V2	Lock 1.4301, 100pcs	2723001011							
<b>10</b>	Temperature Sensors/RTD's								
ELTF-PT.1	Pt100, 2 wire 5x50mm PVC 5m	0650001	•	•	•	•	•	•	
ELTF-PT.1	Pt100 2-wire PVC 10m	0650013	•	•	•	•	•	•	
ELTF-PT.3.1	3-Wire, 5x50 mmm, 250°C, 3m	0650002	•	•	•	•	•	•	
ELTF-PT3.3	Pt100, 2 wire, 3m PTFE	0650003	•	•	•	•	•	•	
ELTF-Te.4	thermo element Type K 10.5m	0670005	•	•	•	•	•	•	
ELTF-Te.4	thermo element Type K 2m silicone lead	0670001	•	•	•	•	•	•	
ELTF-PT.4	Sensor class A 2xPt100, 2x2 wire, 5m PTFE	QA40003	•	•	•	•	•	•	
ELTF-PT.5	Sensor class 1/3B Pt100, 4 wire, 5m PTFE	QA40004	•	•	•	•	•	•	
ELTF PTEEx-1	Sensor Pt100, 4 wire, cold lead 1.5m PTFE with SS prot.overjacket	QA40006	•	•	•	•	•	•	
ELTF-PT.6	Sensor Pt100, +500°C,	QA80002	•	•	•	•	•	•	
ELTF-PT.7	Pt100,2 wire., dim. 3x350mm, -400°C	QA70011	•	•	•	•	•	•	
ELTF-PT3.3	Pt100, 2 wire, 10m PTFE	QA20002	•	•	•	•	•	•	
ELTF-PT.3	Pt100, 2 wire 5x50mm PTFE 3m	0650003	•	•	•	•	•	•	
ELTF-PTEEx.1	Pt100, 5 x 50 mm, 5 m PTFE II 2G Ex e II T6...T2; II 2D Ex tD A21 IP65 Tx	0X70001	•	•	•	•	•	•	•
ELTF-PTEEx.2	Pt100 4 wire, 3 m PTFE II 2G Ex e II T6...T2; II 2D Ex tD A21 IP65 Tx	0X70002	•	•	•	•	•	•	•
ELTF-PTEEx.2	PT 100, Eexe, 4-core, 10 m PTFE cable II 2G Ex e II T6...T2; II 2D Ex tD A21 IP65 Tx	0X70010	•	•	•	•	•	•	•



eltherm®  
Innovations in heat tracing



## eltherm – competent in measuring, controlling, monitoring and indicating

eltherm Elektrowärmetechnik GmbH is the specialist of electrical heat tracing systems. All electrical heat tracing systems must be temperature controlled. Even self regulating heating cables should be temperature controlled for saving energy costs.

As a producer of heating cables we are faced in our day by day work with the requirements of temperature controlling devices. Therefore, we are able to compile for our customers the best practice measurement and control programme which they need to fulfil the constantly raising requirements in quality, accuracy and safety.

Thus, we are not only a specialist in electrical heat tracing but also a specialist in

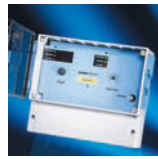
- Measuring
- Controlling
- Monitoring
- Indicating

Our particular strength is our flexibility. Apart from complex problem definitions in the individual or small-lot production, we are able to offer also simple and rugged solutions for standard applications. For this purpose, the feasibility is the most important aspect. Therefore, the features of our programme are a high controlling quality, fast commissioning, rugged enclosure material and an optimized cost-performance ratio.

The information and advertising statements in this product catalogue, regardless of type, in particular descriptions, illustrations, drawings, patterns, and data concerning quality, design, composition, performance, consumption and applicability as well as dimensions of the range of products are subject to alterations unless they are expressly stated as binding. They do not represent any assurances or guarantees, regardless of type. Slight deviations from the product information are regardless as authorized, as far as they are not considered to be unacceptable to the customer. The right to amend errors and technical data is reserved.



# Content Controller, Limiter




Type	Modutronic ELT-GP1	Modutronic ELT-GP2	Modutronic ELT-GP3	ex-box DIS	ex-box LED	ex-box LIM
<b>Measuring range</b>	0...+100°C ● 0...+200°C ● 0...+400°C ● 0...+800°C ●	0...+100°C ● 0...+200°C ● 0...+400°C ● 0...+800°C ●	0...+400°C ● 0...+800°C ●	-40...+300°C	-40...+300°C	-40...+300°C
<b>Enclosure (WxHxD) mm</b>	175x125x75	45x118x137	213x185x117	170x130x140	170x130x140	170x130x140
<b>Standard rail</b>		●				
<b>Wall enclosure</b>	●		●	●	●	●
<b>Supply Voltage</b>						
<b>12-24 V AC</b>						
<b>16-30V DC</b>						
<b>230 V AC</b>	●	●	●	●	●	●
<b>Measurement</b>						
<b>PT 100</b>	●	●	●	●	●	●
<b>Thermocouple Type J</b>	●	●	●			
<b>Thermocouple Type K</b>	●	●	●			
<b>Alarm indication</b>	○	○	○	●	●	●
<b>Analogue output</b>	○	○	○			
<b>Digital display</b>	○	○	○	●		●
<b>Power consumption</b>	5 VA	5 VA	5 VA			
<b>IP protection class front</b>	IP 67	IP 20	IP 67	IP 65	IP 65	IP 65
<b>Switching capacity</b>	16 A	12 A	16 A	16 A	16 A	16 A
<b>For hazardous areas</b>				●	●	●
<b>Page</b>	6	7	7	10	10	11

● Standard

○ Option

◐ Alternatives



								
EL-CTB (C)	ELTC 1-4	ELTC/H 1-4	ELTC 05	ELTC 11	ELTC 40	ELTC 60	ELHC *4	ELHKV *5
-	-	-	-	-	-99...+999°C	-99...+999°C	-	-
40x120x120	130x130x75	130x130x75	130x130x75	35x70x79	84x42x85	64x62 (D/mounting depth)	DIN: 45x75x120 enclosure: 130x130x75	295x458x129 ELHKV-E1-1
●	●	●	●	●			●	●
					○	○		
●	●	●	●	●	○	○	●	
Capillary								230/400 V AC
	●	●	●	●	●	●		
				○				
				○				
					○ *6			
					●	●		
	5 VA	5 VA	5 VA	3 VA	4 VA	4 VA		
IP 66	IP 66	IP 66	IP 66	IP 20	IP 65	IP 65	IP 50	IP 54
16 A	16 A	16 A	16 A	10 A	12 A	16 A	2 A	
●								
12	13	14	15	16	17	18	21	22

\*1 = Ice and snow sensor

\*3 = Ice and snow sensor

\*5 = Control panels

\*2 = Power output

\*4 = Heating circuit monitor

\*6 = only available for 40/5

Abbreviated marking	Description	Item number
<b>Modutronic Temperature Controller for non-Ex areas</b>		
ELT-GP-1.1	LED temperature controller for wall installation	0611011
ELT-GP-1.1	Temperature controller for wall installation	0611014
ELT-GP-1.2	LED temperature controller for wall installation	0611017
ELT-GP-1.2	Temperature controller for wall installation	0611020
ELT-GP-2	LED temperature controller for rail installation	0611032
ELT-GP-2	Temperature controller for rail installation	0611035
ELT-GP2-H	LED temperature controller for rail installation	0611038
ELT-GP-3	Temperature controller controller / limiter unit	0611041
<b>ELT Modutronic options</b>		
ELT-OAA	Option analog output for ELT-GP-1.1/1.2-(0-10V, 0-20mA) preinstalled or installation by customer	0611009
ELTG-OLR-1	Option 2nd load relay for ELT-GP-1.1/1.2 - (230 V/max. 16A)	0611002
ELTG-OLR-1	Option 2nd load relay for ELT-GP-1.1/1.2 - (230 V/max. 16A)	0611003
ELT-OMR-1	Opt. 2x signal relais K3 and K4 for ELT-GP-1, 2 and 3 - (230V/ max. 8A)	0611004
ELT-ANZ	Control and indication equipm. for ELT-GP-1.1/1.2/2 MODUTRONIC	0611010
<b>Ex-Box Temperature Controller for Ex areas</b>		
ex-box REG/DIS	Electr. controller w. display	0X60020
ex-box REG/LED	Electr. controller	0X60021
ex-box LIM/LED	Electr. limiter with LED	0X60023
ex-box LIM/DIS	Electr. limiter with display	0X60024
ex-control	Hand held controller pad for ex-box	0X60026
ex-connect	PC-Adapter for ex-box DIS	0X60028
<b>EL-CT</b>		
EL-CTB-30	Ex capillary thermostat -50 to +30°C	0X63030
EL-CTB-50	Ex capillary thermostat 0 to +50°C	0X63050
EL-CTB-200	Ex capillary thermostat 0 to +200°C	0X63200
EL-CTC-30	Ex capillary thermostat -50 bis +30°C	0X63031
EL-CTC-200	Ex capillary thermostat 0 to +200°C	0X63201
EL-CTC-500	Ex capillary thermostat +20 bis +500°C	0X63501
<b>ELTC Temperature Controller for non-Ex Areas</b>		
ELTC-05	Frostcontrol +3°C, 1 Relay	0610002
ELTC-05	Frostcontrol +3°C, 2 Relay	0610005
ELTC-1	-5...+15°C incl. Pt100, 1 Relay	0610008
ELTC-1	-5°...+15°C incl. Pt100, 2 Relay	0610014
ELTC-2	0...100°C incl. Pt100, 1 Relay	0610017
ELTC-2	0...100°C incl. Pt100, 2 Relay	0610026
ELTC-3	0...250°C incl. Pt100, 1 Relay	0610032
ELTC-3	0...250°C incl. Pt100, 2 Relay	0610035
ELTC-4	150...400°C excl. Pt100, 1 Relay	0610038
ELTC-4	150...400°C excl. Pt100, 2 Relay	0610041
ELTC-11/N	0...100°C for rail installation	0610070
ELTC-11/M	0...200°C for rail installation	0610071
ELTC-11/H	0...250°C for rail installation	0610072
ELTC-60/1	PT100 -60...+400°C 1S	0620601
ELTC-40/1	-80...+400°C incl. Pt100, 1S	0621140

Abbreviated marking	Description	Item number
<b>ELTC Temperature Controller for non-Ex Areas</b>		
ELTC-40/5	-80...+400°C incl. Pt100, 3S	0621141
ELTC-40/1.1	-80...+400°C incl. Pt100, 1S 12-24 V	0621142
ELTC-40/5.1	-80...+400°C incl. PT100, 1S 12-24V	0621143
ELTC-60/1.1	-50...+400°C incl. PT100, 1S 12-24V	TB50003
ELTC-11	-20°C - +40°C for rail installation	TB00010
<b>ELHKV Control panels for non-Ex Areas</b>		
ELHKV-E1-1	Compl. Control cabinet for ELSR f.1 heating/C.circuit	0640001
ELHKV-E1-2	Compl. Control cabinet for ELSR f. 2heatings/C. circuit	0640002
ELHKV-ST3	Compl. Control cab. f. ELSR f. 1 c. circ./3 heat. circuit	0640003
ELHKV-ST6	Compl. Control cab. f. ELSR f. 2 c. circ./6 heat. circuit	0640006
ELHKV-ST9	Compl. Control cab. f. ELSR f. 3 c. circ./9 heat. circuit	0640009
ELHKV-ST12	Compl. Control cab. f. ELSR f. 4 c. circ./12 heat. circuit	0640012
<b>Scada Control Panel Parts</b>		
	Power supply for scada master unit 220VAC/24VDC, 10A, DRP-240-24	2508000015
	Plant Visor Pro PC	4TD8000201
	Controller PCOE004580 with 4x 16A outgoing and communications cards for connection to Transmitter PCOE1Pt100	4TD8000202
	RTD Transmitter PCOEPt100, 4-20mA with 4xPT100 (RTD) incoming for connection to PCOE004580	4TD8000203
	Supernode Master unit SNS000AM0	4TD8000204
	RS485 BMS Karte, PCOS004850	4TD8000205
	Supernode Master unit plugset, SNSCON00M0	4TD8000206
	User Terminal PGD1000F00	4TD8000207
	User Terminal plugset, S90CONN000	4TD8000208
	Power Management System UMG 96S	ZZ80007
<b>Temperature Sensors/RTD's for non-Ex areas</b>		
ELTF-PT.1	Pt100, 2 wire 5x50mm PVC 5m	0650001
ELTF-PT.1	Pt100 2-wire PVC 10m	0650013
ELTF-PT.3.1	3-Wire, 5x50 mmm, 250°C, 3m	0650002
ELTF-PT3.3	Pt100, 2 wire, 3m PTFE	0650003
ELTF-Te.4	Thermo element Type K 10.5m	0670005
ELTF-Te.4	Thermo element Type K 2m silicone lead	0670001
ELTF-PT.4	Sensor class A 2xPt100, 2x2 wire, 5m PTFE	QA40003
ELTF-PT.5	Sensor class 1/3B Pt100, 4 wire, 5m PTFE	QA40004
ELTF PTEEx-1	Sensor Pt100, 4 wire, cold lead 1.5m PTFE with SS prot.overjacket	QA40006
ELTF-PT.6	Sensor Pt100, +500°C,	QA80002
ELTF-PT.7	Pt100,2 wire., dim. 3x350mm, -400°C	QA70011
ELTF-PT3.3	Pt100, 2 wire, 10m PTFE	QA20002
ELTF-PT.3	Pt100, 2 wire 5x50mm PTFE 3m	0650003
<b>Temperature Sensors/RTD's for Ex areas</b>		
ELTF-PTEEx.1	Pt100, 5 x 50 mm, 5 m PTFE II 2G Ex e II T6...T2; II 2D Ex tD A21 IP65 Tx	0X70001
ELTF-PTEEx.2	Pt100 4 wire, 3 m PTFE II 2G Ex e II T6...T2; II 2D Ex tD A21 IP65 Tx	0X70002
ELTF-PTEEx.2	PT 100, Eexe, 4-core, 10 m PTFE cable II 2G Ex e II T6...T2; II 2D Ex tD A21 IP65 Tx	0X70010

## Headquarters for Asia-Pacific Region



### **Eltherm Asia-Pacific Pte Ltd**

33, Ubi Ave 3, #08-11, Vertex, Tower B  
Singapore 408868

Tel : +65 6634-9100

Fax : +65 6634-9101

Website : [www.eltherm.com](http://www.eltherm.com)

Enquiry email : [apsales@eltherm.com](mailto:apsales@eltherm.com)

Contact your local sales representative

