



# SOLCO PYROELEC PRODUCT CATALOG

## BEST QUALITY AND PERFORMANCE

Solco Pyroelec provides the best quality total solution of industrial trace heating and leak detection system for various hazardous environments

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FBX  
FBZ  
FBCW  
SFC  
LLC  
STS  
MI

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PYEX-EP-JBP-LP  
PYEX-EP-JBP-LE  
PYEX-EP-JB  
PYEX-EP-JB-LP  
PYEX-EP-JB-LE  
PYEX-EP-JBS  
PYEX-AE  
PYEX-SS-JB  
PYEX-SS-EK  
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Components

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BUSINESS INNOVATION  
SOLCO PYROELEC





# **BUSINESS INNOVATION SOLCO PYROELEC**

Solco Pyroelec never stops but actively supports the clients with customized on-site engineering design work as well as unlimited technical services for the perfect operation and the maintenance of the installed products and systems.



**SOLCO.PYROELEC<sup>TM</sup>**

# Heating Cables





FBL

FBH

FBX

FBZ

FBCW

SFC

LLC

STS

MI

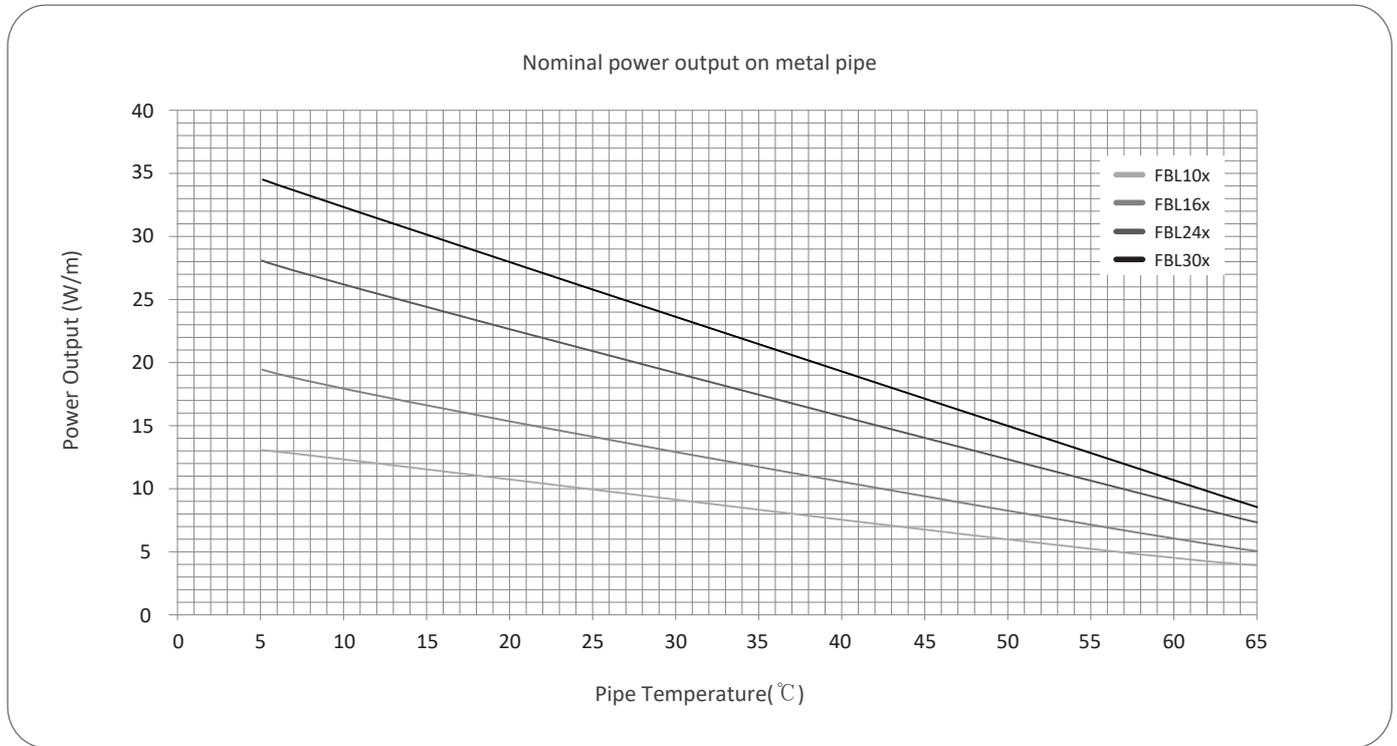


## Product Drawing



- Bus Wire
- Polymeric Heating Element
- Primary Insulation
- Earthing
- Outer Jacket
- Nickel Plated Copper Wire
- PE + C/B
- Flame-Retardant Polyolefin
- Braided Tin Plated Copper Wire
- FR Polyolefin or Fluoropolymer

## Power Output Graph



## Circuit Breaker Selection

Max. circuit length(m) at 230Vac based on starting temp. (°C) and typical Type C circuit breaker size (Amps).

Product code \ Breaker Size(A)	Start-up Temp. -50°C						Start-up Temp. -20°C						Start-up Temp. 0°C						Start-up Temp. 10°C					
	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A
FBL102-CP(F)	62	99	124	132	132	132	84	134	155	155	155	155	101	162	169	169	169	169	131	193	193	193	193	193
FBL162-CP(F)	43	69	87	108	111	111	59	94	118	129	129	129	71	113	141	142	142	142	92	147	162	162	162	162
FBL242-CP(F)	25	40	50	63	81	97	42	67	84	104	111	111	49	79	99	122	122	122	66	105	131	137	137	137
FBL302-CP(F)	16	26	32	40	52	64	32	51	64	80	101	101	32	51	64	80	102	113	41	66	82	102	124	124

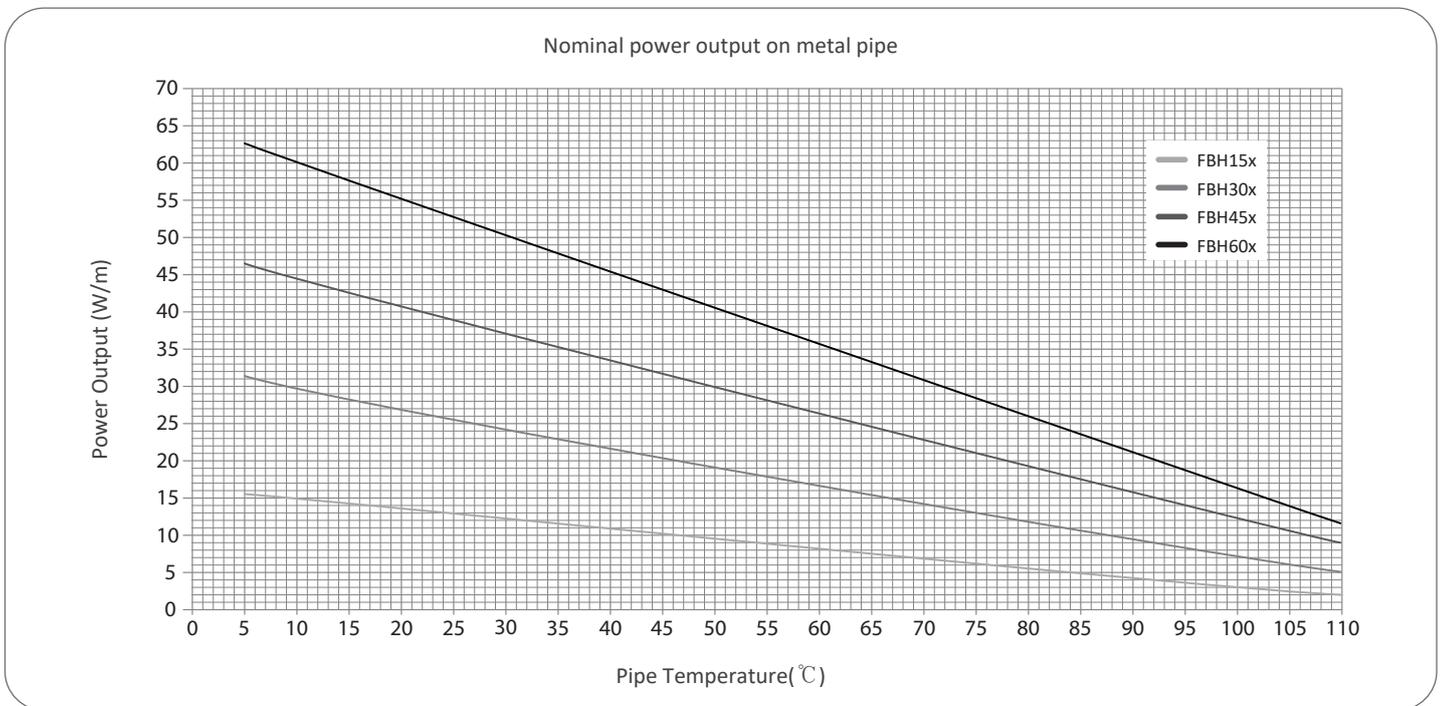


## Product Drawing



- Bus Wire
- Polymeric Heating Element
- Primary Insulation
- Earthing
- Outer Jacket
- Nickel Plated Copper Wire
- Fluoropolymer + C/B
- Flame-Retardant XLEVA
- Braided Tin Plated Copper Wire
- Fluoropolymer

## Power Output Graph



## Circuit Breaker Selection

Max. circuit length(m) at 230Vac based on starting temp. (°C) and typical Type C circuit breaker size (Amps).

Breaker Size(A) Product code	Start-up Temp. -55°C						Start-up Temp. -20°C						Start-up Temp. 0°C						Start-up Temp. 10°C					
	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A
FBH152-CT	53	86	107	123	123	123	65	104	130	136	136	136	78	125	149	149	149	149	80	128	151	151	151	151
FBH302-CT	32	52	65	81	96	96	39	63	79	99	106	106	47	75	94	116	116	116	48	77	97	117	117	117
FBH452-CT	24	38	48	60	77	82	28	45	57	71	90	90	33	53	66	82	97	97	35	56	69	87	99	99
FBH602-CT	20	32	40	49	63	78	23	37	46	57	73	85	25	40	50	63	80	88	27	43	54	68	87	92

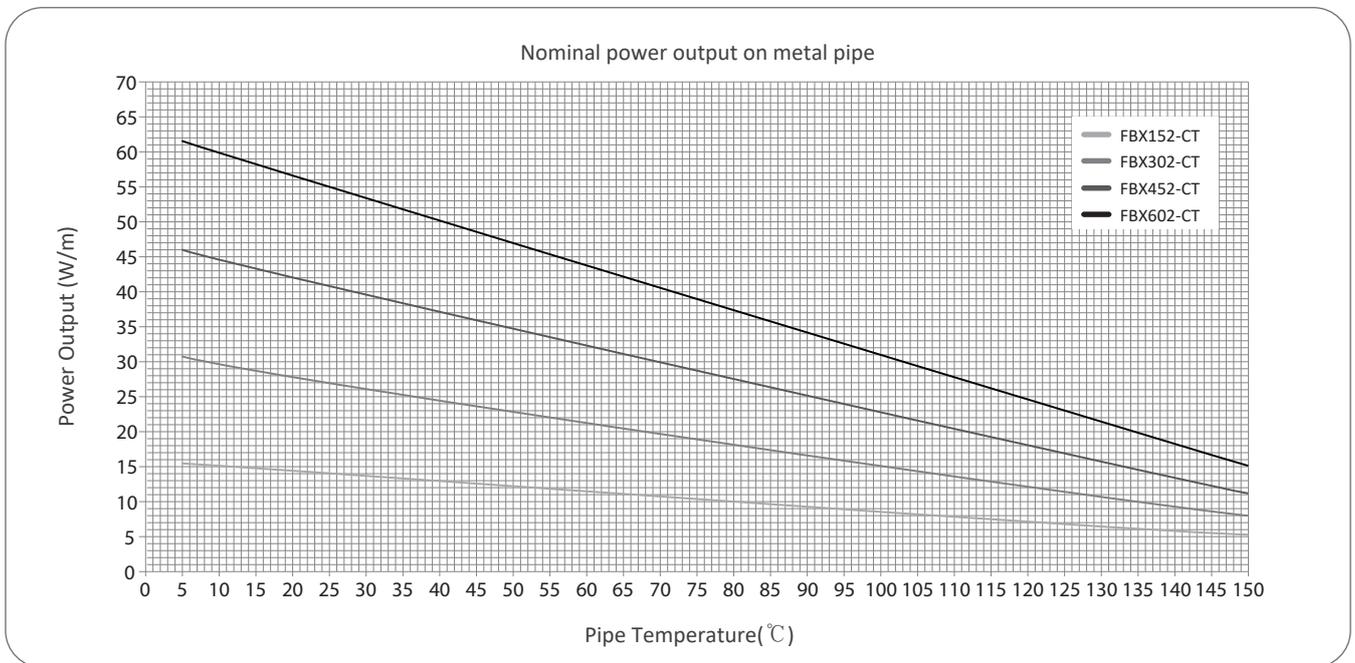


## Product Drawing



—————	Bus Wire	Nickel Plated Copper Wire
—————	Polymeric Heating Element	Fluoropolymer + C/B
—————	Primary Insulation	Fluoropolymer
—————	Earthing	Braided Nickel Plated or Tin Plated Copper Wire
—————	Outer Jacket	Fluoropolymer

## Power Output Graph



## Circuit Breaker Selection

Max. circuit length(m) at 230Vac based on starting temp. (°C) and typical Type C circuit breaker size (Amps).

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	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A
FBX152-CT	58	93	117	129	129	129	67	107	134	138	138	138	78	125	149	149	149	149	80	128	151	151	151	151
FBX302-CT	38	61	76	95	104	104	44	70	88	110	112	112	46	74	92	114	114	114	48	77	97	117	117	117
FBX452-CT	27	44	55	68	87	88	31	50	63	79	94	94	33	53	66	83	97	97	35	56	69	87	99	99
FBX602-CT	22	34	43	54	69	78	25	39	49	61	79	84	26	42	52	65	83	86	27	43	54	68	87	88

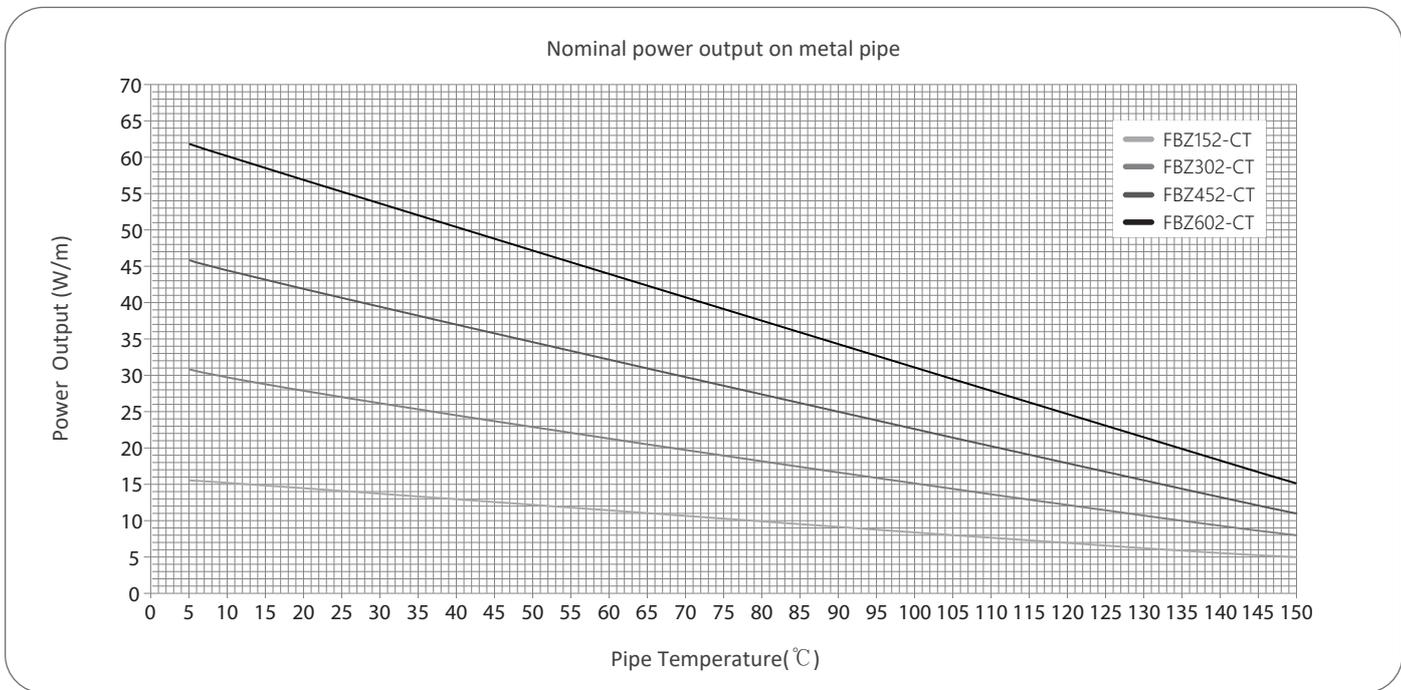


# Product Drawing



- Bus Wire
- Polymeric Heating Element
- Primary Insulation
- Earthing
- Outer Jacket
- Nickel Plated Copper Wire
- Fluoropolymer + C/B
- Fluoropolymer
- Braided Nickel Plated or Tin Plated Copper Wire
- Fluoropolymer

# Power Output Graph



# Circuit Breaker Selection

Max. circuit length(m) at 230Vac based on starting temp. (°C) and typical Type C circuit breaker size (Amps).

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	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A	10A	16A	20A	25A	32A	40A
FBZ152-CT	45	72	90	112	113	113	51	82	103	121	121	121	60	96	120	130	130	130	62	98	123	132	132	132
FBZ302-CT	32	52	64	81	96	96	37	59	74	93	103	103	39	62	78	97	105	105	41	66	82	102	108	108
FBZ452-CT	24	39	48	60	77	83	28	44	56	69	89	89	29	47	58	73	91	91	31	49	61	77	93	93
FBZ602-CT	19	31	39	49	62	74	22	36	45	56	71	80	24	38	47	59	75	82	25	39	49	61	79	83



## Product Drawing



Conductor  
 Heating Element  
 Primary Insulation  
 Elec. Connection Node  
 Insulation  
 Sheath  
 Earth Covering  
 Out Jacket

Copper  
 Nichrome Alloy  
 Silicone Rubber  
 1.0m Interval for 10, 20, 30w  
 Braided fiberglass  
 Silicone Rubber  
 Braided Tinned Copper  
 - CS : Silicone Rubber  
 - CT : Fluoropolymer

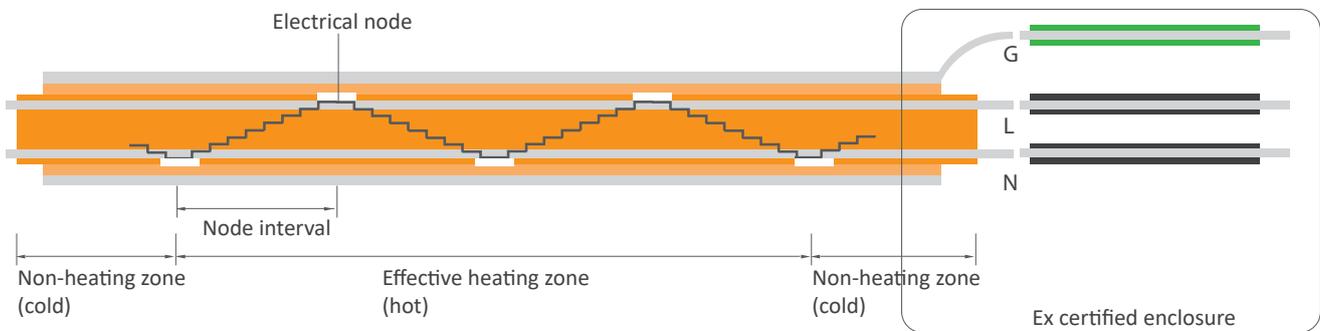
## Semi-conductor Industry



In semi-conductor industry, the variety of aggressive gases are required. The heat-up or temperature maintenance of the gas supply system including tank or vessel requires an outstanding performance and accuracy together with ultimate energy efficiency.

Solco Pyroelec FBCW heating cable and relevant components show outstanding thermal endurance and mechanical strength up to 150°C. Also it has no inrush current so as to save cabling cost.

## Typical Circuit Arrangement



Note : Ground fault protection must be used.

## Temperature Rating (T-Class)

Maximum permitted maintenance temperature (°C) for multiple T-Classes

stabilised design

Model	T6	T5	T4	T3
FBCW102	50	70	105	120
FBCW202	30	50	85	100
FBCW302	-	30	65	80
FBCW402	-	-	35	50

controlled design

Model	T6	T5	T4	T3
FBCW102	80	95	130	145
FBCW202	75	90	125	140
FBCW302	70	85	120	135
FBCW402	70	85	120	135



## Product Drawing



—————	Conductor	Tin Plated Copper Wire
—————	Primary Insulation	Fluoropolymer
—————	2nd Insulation	Braided fiberglass
—————	Earthing	Braided Tin Plated Copper Wire
—————	Outer Jacket	High Temperature fluoropolymer

## Installation Detail

	Heating Element	Conductor Diameter(mm)	dc resistance ohm/km@20°C	Cable Diameter(mm)	Product Code	Heating Element	Conductor Diameter(mm)	dc resistance ohm/km@20°C	Cable Diameter(mm)
SFC0.8-CT	Copper	6.3	1	9.8	SFC480-CT	NiCr Alloy	1.0	486	5.0
SFC1.1-CT	Copper	5.2	1	8.6	SFC600-CT	NiCr Alloy	0.9	606	4.9
SFC1.8-CT	Copper	4.0	2	7.5	SFC700-CT	NiCr Alloy	1.1	707	5.1
SFC2.9-CT	Copper	3.2	3	6.7	SFC810-CT	NiCr Alloy	1.0	814	5.0
SFC4.4-CT	Copper	2.6	4	6.0	SFC1000-CT	NiCr Alloy	0.9	990	4.9
SFC7-CT	Copper	2.0	7	5.5	SFC1440-CT	NiCr Alloy	0.7	1438	4.8
SFC10-CT	Copper	1.7	10	5.2	SFC1750-CT	NiCr Alloy	0.7	1761	4.7
SFC11.7-CT	Copper	1.6	11	5.1	SFC2000-CT	NiCr Alloy	0.6	2021	4.7
SFC15-CT	Copper	1.4	15	4.8	SFC3000-CT	NiCr Alloy	0.8	3021	4.9
SFC17.8-CT	Copper	1.2	19	4.7	SFC8000-CT	NiCr Alloy	0.5	7991	4.6
SFC25-CT	Copper	1.1	24	4.6	SFCL2.5-CT	Copper	2.0	6.75	5.6
SFC31.5-CT	Copper	1.0	31	4.4	SFCL4.0-CT	Copper	2.8	4.64	5.9
SFC50-CT	NiCu Alloy	1.8	49	5.9	SFCL6.0-CT	Copper	3.2	2.92	6.8
SFC65-CT	NiCu Alloy	1.6	67	5.6	SFCL8.0-CT	Copper	3.7	2.25	7.0
SFC80-CT	NiCu Alloy	1.4	82	5.5	SFCL10-CT	Copper	4.1	1.78	7.6
SFC100-CT	NiCu Alloy	1.6	97	5.6	SFCL16-CT	Copper	5.2	1.03	9.9
SFC150-CT	NiCu Alloy	1.3	15	5.3	SFCL25-CT	Copper	6.5	0.70	10.7
SFC200-CT	NiCr Alloy	1.1	1	5.1					
SFC320-CT	NiCr Alloy	1.2	20	5.3					
SFC380-CT	NiCr Alloy	1.1	1	5.2					

## Tank and Vessel Heating

In extreme weather condition, heat-up or temperature maintenance of tank or vessel requires an outstanding performance together with ultimate energy efficiency. Solco Pyroelec SFC heating cable and relevant components show outstanding thermal endurance and mechanical strength up to 250°C. Also it has no inrush current so as to save cabling cost.

### Use

- Long distance chemical feed pipeline
- Tank and Vessel Heating
- Offshore petrochemical transportation line



## Product Drawing



Heating Element	Ni-Cu Alloy
Primary Insulation	Fluoropolymer
2nd Insulation	XLEVA or Fluoropolymer
Earthing	Braided Tin Plated Copper Wire
Outer Jacket	XLEVA or Fluoropolymer

## Freeze Protection System for Long Distance Pipeline

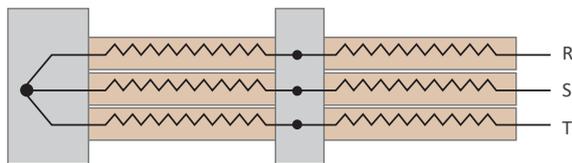
In cold weather, an electrical heat tracing system is highly required for freeze protection of pipelines ex. chemical transport or water supply. But the heat tracing for tunnel or long distance pipeline should bear numbers of power supplies with conventional heating cables. The cabling cost often exceeds that of heat tracing itself. Solco Pyroelec LLC longline heating cable system requires only one power supply in order to trace up to 4 km and saves money and time for extra cablings and connections.

Use

- Long distance chemical feed pipeline
- Fire hydrant for tunnel
- Offshore petrochemical transportation line

## Typical Circuit Arrangement

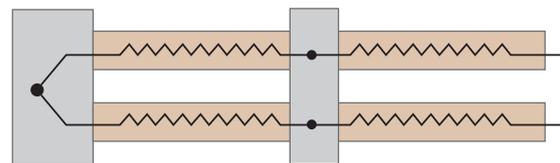
Y or delta connection



3 phase power supply

connection

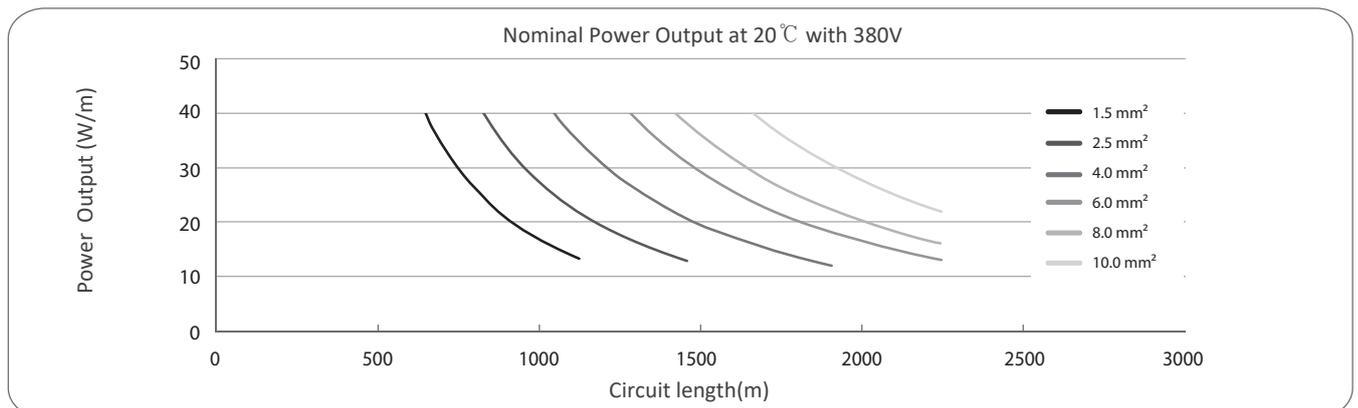
In-line Splicing



single phase power supply

## Power Output Graph

The below power output graphs for several conductor sizes and supplying voltages are to be used only for reference. For practical use, more variations should be considered beforehand. Please refer to Solco Pyroelec technical team for further information. Other conductor sizes are available on request.

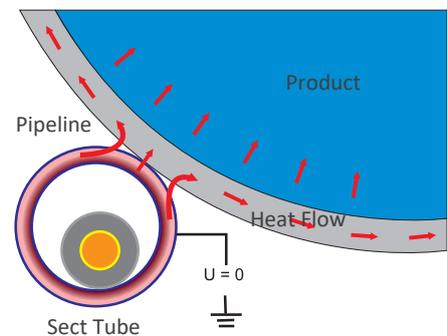




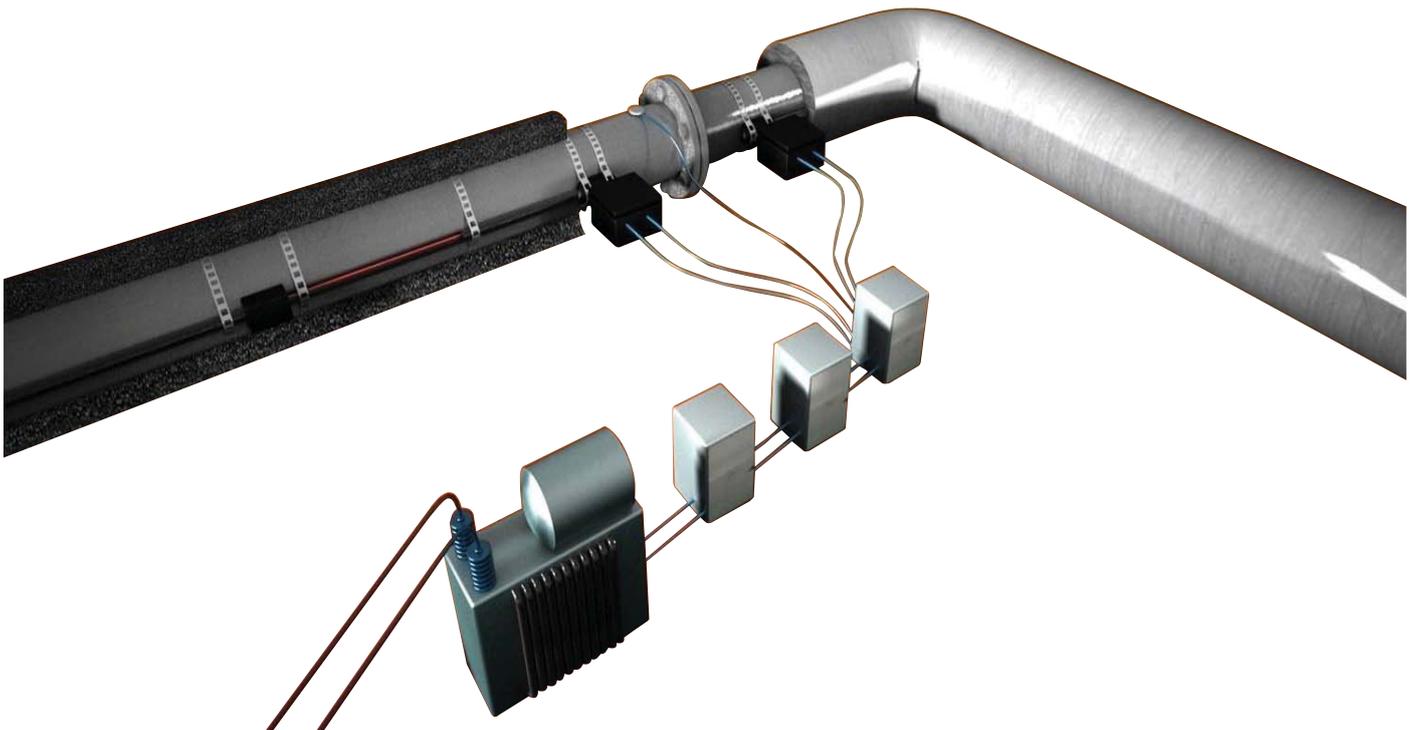
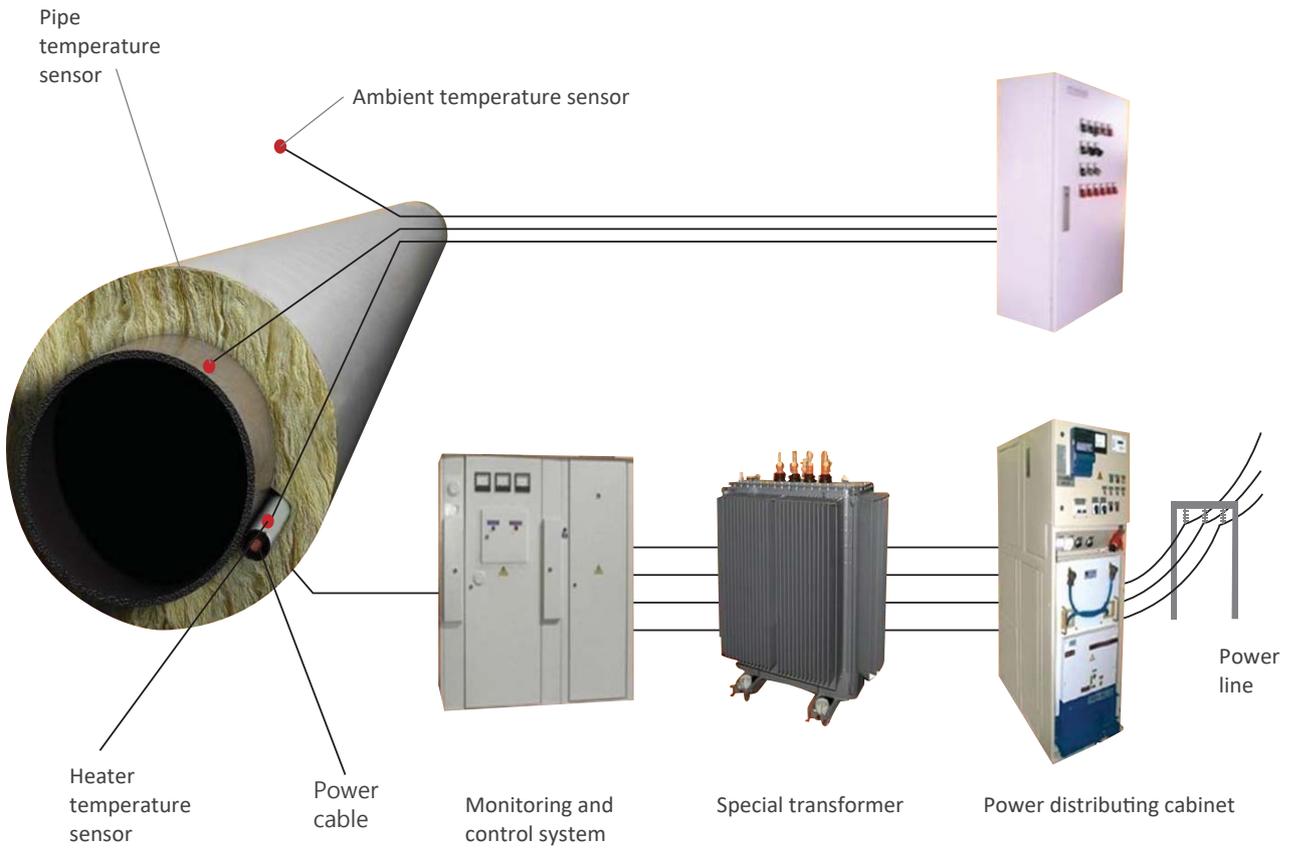
# STS

Skin trace heating system

<p>Use</p>	<p>Maintenance of the product temperature, Protection of long trunk pipelines against freezing and ensuring their start heating.</p>
<p>Specification</p>	<p>Operating temperature: up to 200°C Power output of the heating: up to 120W/m Power supply: up to 5000Vac Circuit length: up to 30km</p>
<p>Features</p>	<p>The only way to heat pipelines with the length up to 30 km without parallel supply network The most efficient way to heat any trunk pipelines of an unlimited length Inherent strength and reliability of system design Zero electrical potential on outer surfaces of heating elements. After earthing and heating elements</p>
<p>System Principles</p>	<p>The STS skin trace heating system consists of a ferromagnetic steel tube with outer diameter of 20-60mm and the wall thickness of at least 3.0mm. There is an insulated copper or aluminium conductor with cross-section of 10-50mm<sup>2</sup> placed inside the tube. The conductor is electrically connected to the tube at the end of a heating run while AC voltage is supplied between the conductor and the pipe at the run head: the voltage value is calculated based on the required heat output and the heating run length.</p> <p>Currents of the conductor and the tube have opposite directions and thus skin and proximity effects originate in the system.</p> <p>The conductor is non-magnetic, thus, it does not feature any noticeable skin effect and AC flows throughout the whole section of the conductor. The main heat producing element of STS is the tube, which produces heat up to 80% of the system output.</p>
<p>Certification</p>	



# Typical Installation





# MI

Mineral insulated heating cable

<p>Use</p>	<p>Oil and gas, chemical and petrochemical, power generation, gas storage and many other industrial application.</p>
<p>Specification</p>	<p>Sheath material : one of the following</p> <ul style="list-style-type: none"> <li>- Copper</li> <li>- Stainless steels of AISI 300x range</li> <li>- Cupronickel 70/30</li> <li>- Alloys 825, Inconel 600</li> </ul> <p>No. of conductors : 1 or 2</p> <p>Conductor material : one of the following</p> <ul style="list-style-type: none"> <li>- Nichrome</li> <li>- Copper</li> <li>- Constantan</li> <li>- Copper-Nickel alloys</li> </ul> <p>Insulation Material : Magnesium Oxide (MgO)</p> <p>Maximum operating temperature</p> <ul style="list-style-type: none"> <li>- Copper sheath : 200 °C</li> <li>- Cupronickel sheath : 400 °C</li> <li>- Stainless steel and nickel alloy sheath : 600 °C</li> </ul> <p>Electrical Parameters</p> <ul style="list-style-type: none"> <li>- Supply voltage up to 500Vac (assembled unit)</li> <li>- Supply voltage up to 750Vac (cable)</li> </ul>
<p>Features</p>	<p>MI cables and elements are ideal for industrial freeze protection, high temperature maintenance of process and areas where good corrosion resistance are required. The cables are enabled to operate at high temperatures for long periods of time in extremely harsh environments. For example, petro-chemical, reactor vessels and other applications where the integrity of the cable is the most important.</p> <p>MI cable offers excellent corrosive properties against a wide range of organic acids and alkalis in combination with a high temperature withstand capability.</p>
<p>Certification</p>	

# Product Drawing



\_\_\_\_\_ Single Heating Conductor  
 \_\_\_\_\_ Dual Heating Conductors

\_\_\_\_\_ Magnesium Oxide  
 \_\_\_\_\_ Insulation

\_\_\_\_\_ Metal Sheath



# Typical Installation

## Heating Units References

B / H321-A10K / T1 / 25 / 1.15 / 150  
 (a) (b) (c) (d) (e) (f)

(a)	Unit Design	"B" - Single core heating unit design B "D" - Twin core heating unit design D "E" - Twin core heating unit design E
(b)	cable reference	For cable references see tables below
(c)	Type of termination	"T1" - Type 1 "T2" - Type 2 "T4" - Type 4
(d)	Heated length	Length of heating cable in meters
(e)	Cold lead-in length	Length of cold lead-in cable and tails, in meters
(f)	Tails length	Tail length in mm

## Heating Cable References

H 122 - 1 D 100 - HDPE  
 (a) (b) (c) (d) (e) (f)

(a)	Category	"H" - Heating cable
(b)	Sheath material	122 - Copper 321 - AISI321 Stainless steel 316L - AISI316L Stainless steel 310 - AISI310 Stainless steel 400 - Cupronickel 70/30 600 - Inconel 600 825 - Alloy 825
(c)	Number of conductors	1 - One conductor (omitted by default) 2 - Two conductors
(d)	Conductor material reference	"A" - Nichrome "B" - Constant "C" - Copper "D" - Copper-Nickel alloys
(e)	Conductor(s) resistance	Resistance in ohm/1000m (km) for single conductor or for loop of two conductors
(f)	Suffix	Additional information, such as "-300V" - Voltage rating if not 500V "-HDPE" - for HDPE served cables

## Cold Lead / Wiring Cable Reference

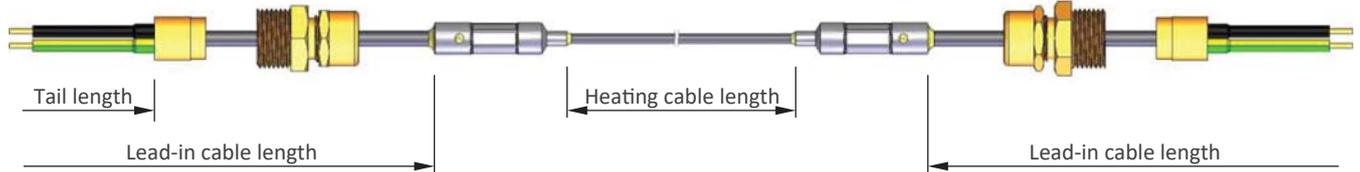
W 122 - 1 C 10 - 750V - HDPE  
 (a) (b) (c) (d) (e) (f) (g)

(a)	Category	"W" - Wiring/Cold lead-in cable
(b)	Sheath material	122 - Copper 321 - AISI321 316L - AISI316L 310 - AISI310 400 - Cupronickel 70/30 600 - Inconel 600 825 - Alloy 825
(c)	Number of conductors	1 - One conductor (omitted by default) 2 - Two conductors
(d)	Conductor material reference	"C" - Copper
(e)	Conductor cross section area	Cross section area of a single conductor
(f)	Voltage Rating	Voltage rating 750V
(g)	Suffix	"-HDPE" - for HDPE served cables with copper sheath

## Heating Units Design Types

### Design B

Single core heating cable with Stainless Steel, Cupronickel or Nickel alloy sheath

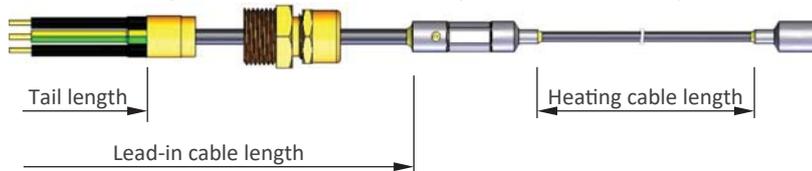


Single core heating cable with Copper sheath bare (right) or HDPE served (left)



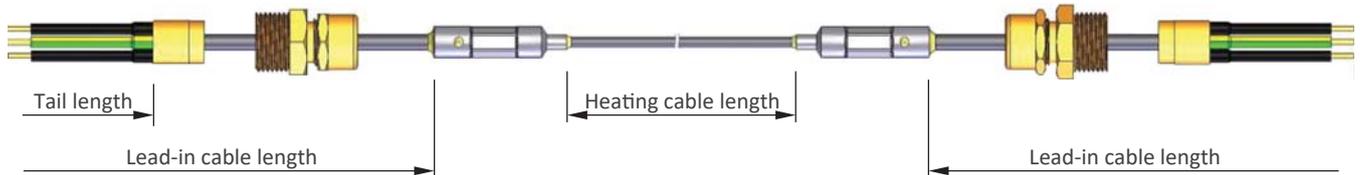
### Design D

Twin core heating cable with Stainless Steel, Cupronickel or Nickel alloy sheath



### Design E

Twin core heating cable with Stainless Steel, Cupronickel or Nickel alloy sheath

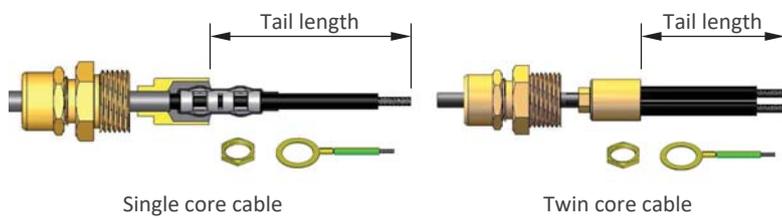


Twin core heating cable with Copper sheath bare (right) or HDPE served (left)



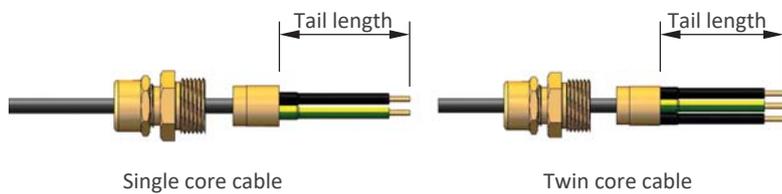
## Termination Types

### Type 1



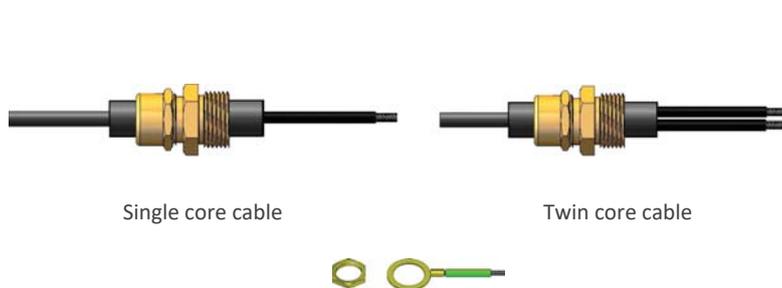
Seal reference	T1
Description	ATEX approved seal for use in hazardous area terminations
Conductor Type	Flexible
Earth tail type	Flexible earth tag with locknut
Pot type	Crimp on pot
Gland thread	M20x1.5 Other sizes on request
Standard tail lengths	150 mm, 300 mm, 450 mm

### Type 2



Seal reference	T2
Description	ATEX approved seal for use in hazardous area terminations
Conductor Type	Solid
Earth tail type	Solid
Pot type	Braze on pot
Gland thread	M20x1.5 Other sizes on request
Standard tail lengths	150 mm, 300 mm, 450 mm

### Type 4



Seal reference	T4
Description	Long reach seal with on-pot gland CSA and ATEX approved for use in hazardous area terminations
Conductor Type	Flex
Earth tail type	Flexible earth tag with locknut (optional depending on application)
Pot type	Braze on long reach pot
Gland thread	M20x1.5 Other sizes on request
Gland material	Brass, Nickel plated brass, Stainless steel
Standard tail lengths	150 mm, 300 mm, 450 mm

# Connection Kits





PYEX-EP-JBP

PYEX-EP-JBP-LP

PYEX-EP-JBP-LE

PYEX-EP-JB

PYEX-EP-JB-LP

PYEX-EP-JB-LE

PYEX-EP-JBS

PYEX-AE

PYEX-SS-JB

PYEX-SS-EK

PYEX-EP-SPK



# PYEX-EP-JBP

Power Connection, T-Splicing, End Termination

GRP enclosure with plastic pipe-mount

## Features

The PYEX-EP-JBP is an Ex certified GRP enclosure with engineering plastic pipe-mount system designed and manufactured to meet all requirements from relevant international standards for industrial heat tracing cable system especially for hazardous location such as petrochemical plant, gas plant, ship and off-shore facility and utilizes an Ex certified GRP enclosure with plastic pipe-mount for self-regulating heating cable's connection and termination.

## Specification

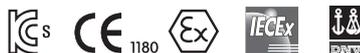
Protection Type : Ex eb IIC  
 Applicable heating cables in hazardous location : FBL, FBH, FBX, FBZ  
 Temperature classification  
 FBL : T6 (85 °C)  
 FBH : T4 (135 °C)  
 FBX15x / 30x / 45x, FBZ15x / 30x / 45x : T3 (200 °C)  
 FBX60x, FBZ60x : T2 (220 °C)  
 Enclosure service temperature : -55 °C to 135 °C  
 Plastic pipe-mount service temperature on the pipe :-50 °C to 200 °C  
 Max rated voltage 277Vac  
 Max load current : 50A for PYEX-EP-JBP-12 & 16, 100A for PYEX-EP-JBP-26  
 Ingress Protection : IP66 (when assembled with heating cables)  
 Enclosure Material : Glassfibre reinforced polyester / UV stabilized  
 Impact Resistance : 7J  
 Flammability : Self-extinguishing UL 94/V-0  
 Color : Graphite Black / Pipe-mount : PPS  
 Gasket and Seal : Flame-proof silicone rubber  
 Maximum power conductor cross-section : 10mm<sup>2</sup>  
 Thread for power cable entry : Max. M25, PF3/4, NPT3/4-14  
 Gasket and Seal : Flame-proof silicone rubber  
 Approval : KCs, ATEX, IECEx  
 Reference standards : IEC60079-0, IEC60079-7, IEC60079-30-1

## Selection Code

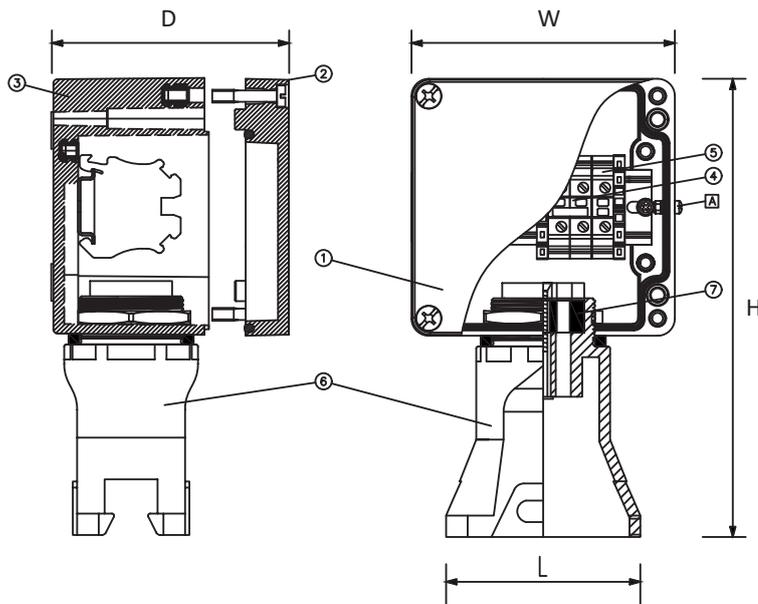
PYEX-EP-JBP - 12 - P  
 (a) (b) (c)

(a)	Model
(b)	Enclosure size 12: 120x120x90 box 16: 160x120x90 box 26: 260x120x90 box
(c)	Function P: Power connection, T: T-Splicing E: End termination

## Certification



## Product Drawing



### Note

The dimension of assembled enclosure system varies depending on the choice of enclosure size.

Name	W	H	L	D
PYEX-EP-JBP-12	122	244	90	90
PYEX-EP-JBP-16	160	284	90	90
PYEX-EP-JBP-26	260	254	90	90

## Components

No.	Part Name	Description
1	PYEX-EP-JB	-12 : 122x120x90 -16 : 160x160x90 -26 : 260x160x90
2	PYEX-EP-LID	Enclosure Lid
3	PYEX-EP-BODY	Enclosure Body
4	PYEX-TBP	Ex Terminal Block for Power
5	PYEX-TBE	Ex Terminal Block for Earth (Yellow/Green)
6	PYEX-MEMT	Mount
7	PYEX-JBP-HS	Heater Seal
A	PYEX-EAS	Earth Stud (Optional)

## Seal Selection and Applicable Heaters

Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
JBP-HS116	11.6	5.6	FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
JBP-HS122	12.2	4.6	FBX FBZ 15,30,45,60	Fluoropolymer -CT
JBP-HS127	12.7	5.2	FBH 15,30,45	Fluoropolymer -CT
JBP-HS136	13.6	5.6	FBL 30	Fluoropolymer -CF / Polyolefin -CP
JBP-HS143	14.3	5.4	FBH 60	Fluoropolymer -CT

All dimensions are in mm.



# PYEX-EP-JBP-LP

Power connection, Monitoring

GRP enclosure with plastic pipe-mount & signal lamp

## Features

The PYEX-EP-JBP-LP is designed and manufactured to meet all requirements of relevant standards for industrial heat tracing cable system in hazardous location such as petrochemical plant, gas plant, ship and off-shore facility and utilizes an Ex certified GRP enclosure with plastic pipe-mount for self-regulating heating cable's connection. For monitoring an Ex certified LED signal lamp is installed on the lid of GRP enclosure.

## Specification

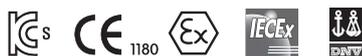
Protection Type : Ex d eb IIC  
 Applicable heating cables in hazardous location : FBL, FBH, FBX, FBZ  
 Temperature classification  
 FBL : T6 (85 °C)  
 FBH : T4 (135 °C)  
 FBX15x / 30x / 45x, FBZ15x / 30x / 45x : T3 (200 °C)  
 FBX60x, FBZ60x : T2 (220 °C)  
 Enclosure service temperature : -55 °C to 135 °C  
 Plastic pipe-mount service temperature on the pipe : -50 °C to 200 °C  
 Max rated voltage 277Vac  
 LED signal lamp  
 Rated voltage: 20~ 250Vac  
 Power consumption: ≤1W  
 Color: Green, Red, Yellow, Blue, White  
 Max load current : 50A for PYEX-EP-JBP-12 & 16, 100A for PYEX-EP-JBP-26  
 Ingress Protection : IP66 (when assembled with heating cables)  
 Enclosure Material : Glassfibre reinforced polyester / UV stabilized  
 Impact Resistance : 7J  
 Flammability : Self-extinguishing UL 94/V-0  
 Color : Graphite Black / Pipe-mount : PPS  
 Gasket and Seal : Flame-proof silicone rubber  
 Maximum power conductor cross-section : 10mm<sup>2</sup>  
 Thread for power cable entry : Max. M25, PF3/4, NPT3/4-14  
 Approval : KCs, ATEX, IECEx  
 Reference standards : IEC60079-0, IEC60079-1, IEC60079-7, IEC60079-30-1

## Selection Code

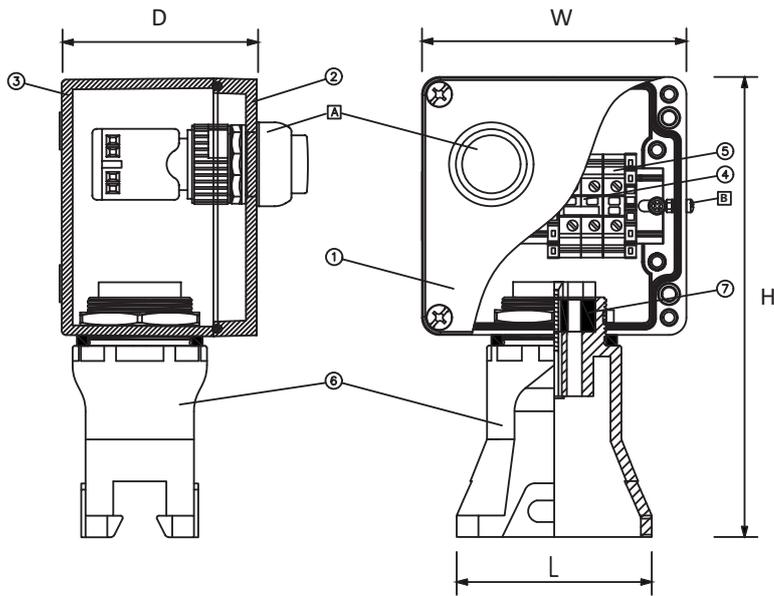
PYEX-EP-JBP - 12 - LP  
 (a) (b) (c)

(a)	Model
(b)	Enclosure size 12: 120x120x90 box 16: 160x120x90 box 26: 260x120x90 box
(c)	Function LP: Power connection with signal lamp

## Certification



## Product Drawing



### Note

The dimension of assembled enclosure system varies depending on the choice of enclosure size.

Name	W	H	L	D
PYEX-EP-JBP-12	122	214	90	90
PYEX-EP-JBP-16	160	284	90	90
PYEX-EP-JBP-26	260	254	90	90

## Components

No.	Part Name	Description
1	PYEX-EP-JB	-12 : 122x120x90 -16 : 160x160x90 -26 : 260x160x90
2	PYEX-EP-LID	Enclosure Lid
3	PYEX-EP-BODY	Enclosure Body
4	PYEX-TBP	Ex Terminal Block for Power
5	PYEX-TBE	Ex Terminal Block for Earth (Yellow/Green)
6	JBP-MEMT	Mount
7	JBP-HS	Heater Seal
A	PYEX-LK	Signal Lamp Kit
B	PYEX-EAS	Earth Stud (Optional)

## Seal Selection and Applicable Heaters

Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
JBP-HS116	11.6	5.6	FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
JBP-HS122	12.2	4.6	FBX FBZ 15,30,45,60	Fluoropolymer -CT
JBP-HS127	12.7	5.2	FBH 15,30,45	Fluoropolymer -CT
JBP-HS136	13.6	5.6	FBL 30	Fluoropolymer -CF / Polyolefin -CP
JBP-HS143	14.3	5.4	FBH 60	Fluoropolymer -CT

All dimensions are in mm.



# PYEX-EP-JBP-LE

End termination, Monitoring

GRP enclosure with plastic pipe-mount & signal lamp

## Features

The PYEX-EP-JBP-LE is designed and manufactured to meet all requirements of relevant standards for industrial heat tracing cable system in hazardous location such as petrochemical plant, gas plant, ship and off-shore facility and utilizes an Ex certified GRP enclosure with plastic pipe-mount for self-regulating heating cable's termination. For monitoring an Ex certified LED signal lamp is installed on the lid of GRP enclosure.

## Specification

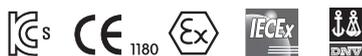
Protection Type : Ex d eb IIC  
 Applicable heating cables in hazardous location : FBL, FBH, FBX, FBZ  
 Temperature classification  
 FBL : T6 (85 °C)  
 FBH : T4 (135 °C)  
 FBX15x / 30x / 45x, FBZ15x / 30x / 45x : T3 (200 °C)  
 FBX60x, FBZ60x : T2 (220 °C)  
 Enclosure service temperature : -55 °C to 135 °C  
 Plastic pipe-mount service temperature on the pipe : -50 °C to 200 °C  
 Max rated voltage 277Vac  
 LED signal lamp  
 Rated voltage: 20~ 250Vac  
 Power consumption: ≤1W  
 Color: Green, Red, Yellow, Blue, White  
 Max load current : 50A for PYEX-EP-JBP-12 & 16, 100A for PYEX-EP-JBP-26  
 Ingress Protection : IP66 (when assembled with heating cables)  
 Enclosure Material : Glassfibre reinforced polyester / UV stabilized  
 Impact Resistance : 7J  
 Flammability : Self-extinguishing UL 94/V-0  
 Color : Graphite Black / Pipe-mount : PPS  
 Gasket and Seal : Flame-proof silicone rubber  
 Maximum power conductor cross-section : 10mm<sup>2</sup>  
 Thread for power cable entry : Max. M25, PF3/4, NPT3/4-14  
 Approval : KCs, ATEX, IECEx  
 Reference standards : IEC60079-0, IEC60079-1, IEC60079-7, IEC60079-30-1

## Selection Code

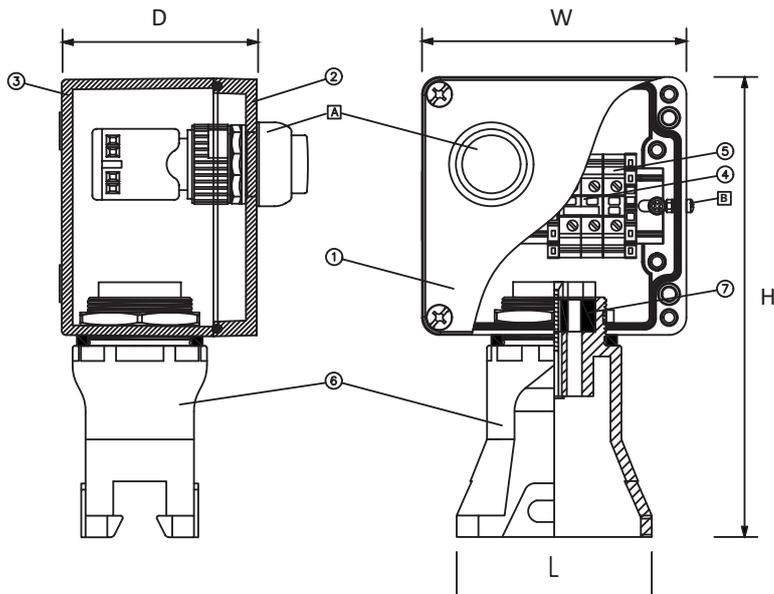
PYEX-EP-JBP - 12 - LE  
 (a) (b) (c)

(a)	Model
(b)	Enclosure size 12: 120x120x90 box 16: 160x120x90 box 26: 260x120x90 box
(c)	Function LE: End termination with signal lamp

## Certification



## Product Drawing



### Note

The dimension of assembled enclosure system varies depending on the choice of enclosure size.

Name	W	H	L	D
PYEX-EP-JBP-12	122	214	90	90
PYEX-EP-JBP-16	160	284	90	90
PYEX-EP-JBP-26	260	254	90	90

## Components

No.	Part Name	Description
1	PYEX-EP-JB	-12 : 122x120x90 -16 : 160x160x90 -26 : 260x160x90
2	PYEX-EP-LID	Enclosure Lid
3	PYEX-EP-BODY	Enclosure Body
4	PYEX-TBP	Ex Terminal Block for Power
5	PYEX-TBE	Ex Terminal Block for Earth (Yellow/Green)
6	JBP-MEMT	Mount
7	JBP-HS	Heater Seal
A	PYEX-LK	Signal Lamp Kit
B	PYEX-EAS	Earth Stud (Optional)

## Seal Selection and Applicable Heaters

Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
JBP-HS116	11.6	5.6	FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
JBP-HS122	12.2	4.6	FBX FBZ 15,30,45,60	Fluoropolymer -CT
JBP-HS127	12.7	5.2	FBH 15,30,45	Fluoropolymer -CT
JBP-HS136	13.6	5.6	FBL 30	Fluoropolymer -CF / Polyolefin -CP
JBP-HS143	14.3	5.4	FBH 60	Fluoropolymer -CT

All dimensions are in mm.



# PYEX-EP-JB

Power Connection, T-Splicing, End Termination

GRP enclosure with plastic gland for heating cable

## Features

The PYEX-EP-JB is an Ex certified GRP enclosure system designed and manufactured to meet all requirements from relevant international standards for industrial heat tracing cable system especially for hazardous location such as petrochemical plant, gas plant, ship and off-shore facility and utilizes an Ex certified GRP enclosure with plastic gland for self-regulating heating cable's connection and termination.

## Specification

Protection Type : Ex eb IIC  
 Applicable heating cables in hazardous location : FBL, FBH, FBX, FBZ  
 Temperature classification  
 FBL : T6 (85 °C)  
 FBH : T4 (135 °C)  
 FBX152 / 302 / 452, FBZ152 / 302 / 452 : T3 (200 °C)  
 FBX602, FBZ602 : T2 (300 °C)  
 Enclosure service temperature : -55 °C to 135 °C  
 Plastic heating cable gland (PYEX-EP-PG25) service temperature : -40 °C to 110 °C  
 Max rated voltage 277Vac  
 Max load current : 50A for PYEX-EP-JB-12 & 16, 100A for PYEX-EP-JB-26  
 Ingress Protection : IP65 (when assembled with heating cables)  
 Enclosure Material : Glassfibre reinforced polyester / UV stabilized  
 Impact Resistance : 7J  
 Flammability : Self-extinguishing UL 94/V-0  
 Color : Graphite Black  
 Gasket and Seal : Flame-proof silicone rubber  
 Maximum power conductor cross-section : 10mm<sup>2</sup>  
 Thread for power cable entry : Max. M25, PF3/4, NPT3/4-14  
 Approval : ATEX, IECEx  
 Reference standards : IEC60079-0, IEC60079-7, IEC60079-30-1

## Selection Code

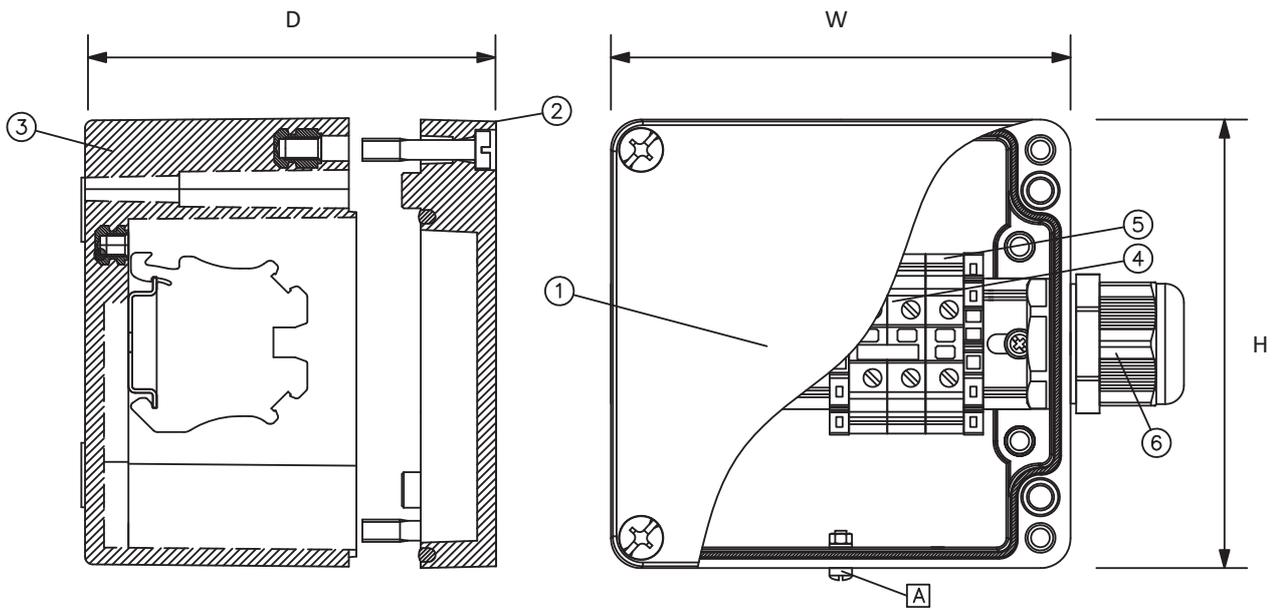
**PYEX-EP-JB** - **12** - **P**  
 (a) (b) (c)

(a)	Model
(b)	Enclosure size 12: 120x120x90 box 16: 160x120x90 box 26: 260x120x90 box
(c)	Function P: Power connection, T: T-Splicing E: End termination

## Certification



## Product Drawing



### Note

The dimension of assembled enclosure system varies depending on the choice of enclosure size.

Name	W	H	D
PYEX-EP-JBP-12	122	120	90
PYEX-EP-JBP-16	160	160	90
PYEX-EP-JBP-26	260	160	90

## Components

No.	Part Name	Description
1	PYEX-EP-JB	-12 : 122x120x90 -16 : 160x160x90 -26 : 260x160x90
2	PYEX-EP-LID	Enclosure Lid
3	PYEX-EP-BODY	Enclosure Body
4	PYEX-TBP	Ex Terminal Block for Power
5	PYEX-TBE	Ex Terminal Block for Earth (Yellow/Green)
6	PYEX-EP-PG25	M25 Ex Plastic Cable Gland
A	PYEX-EAS	Earth Stud(Optional)



# PYEX-EP-JB-LP

Power connection, Monitoring

GRP enclosure with signal lamp & plastic gland for heating cable

## Features

The PYEX-EP-JB-LP is designed and manufactured to meet all requirements of relevant standards for industrial heat tracing cable system in hazardous location such as petrochemical plant, gas plant, ship and off-shore facility and utilizes an Ex certified GRP enclosure with plastic gland for self-regulating heating cable's connection. For monitoring an Ex certified LED signal lamp is installed on the lid of GRP enclosure.

## Specification

Protection Type : Ex d eb IIC  
 Applicable heating cables in hazardous location : FBL, FBH, FBX, FBZ  
 Temperature classification  
 FBL : T6 (85 °C)  
 FBH : T4 (135 °C)  
 FBX15x / 30x / 45x, FBZ15x / 30x / 45x : T3 (200 °C)  
 FBX60x, FBZ60x : T2 (220 °C)  
 Enclosure service temperature : -55 °C to 135 °C  
 Plastic heating cable gland (PYEX-EP-PG25) service temperature : -40 °C to 110 °C  
 Max rated voltage 277Vac  
 LED signal lamp  
 Rated voltage: 20~ 250Vac  
 Power consumption: ≤1W  
 Color: Green, Red, Yellow, Blue, White  
 Max load current : 50A for PYEX-EP-JB-12 & 16, 100A for PYEX-EP-JB-26  
 Ingress Protection : IP65 (when assembled with heating cables)  
 Enclosure Material : Glassfibre reinforced polyester / UV stabilized  
 Impact Resistance : 7J  
 Flammability : Self-extinguishing UL 94/V-0  
 Color : Graphite Black  
 Gasket and Seal : Flame-proof silicone rubber  
 Maximum power conductor cross-section : 10mm<sup>2</sup>  
 Thread for power cable entry : Max. M25, PF3/4, NPT3/4-14  
 Approval : ATEX, IECEx  
 Reference standards : IEC60079-0, IECEx60079-1, IEC60079-7, IEC60079-30-1

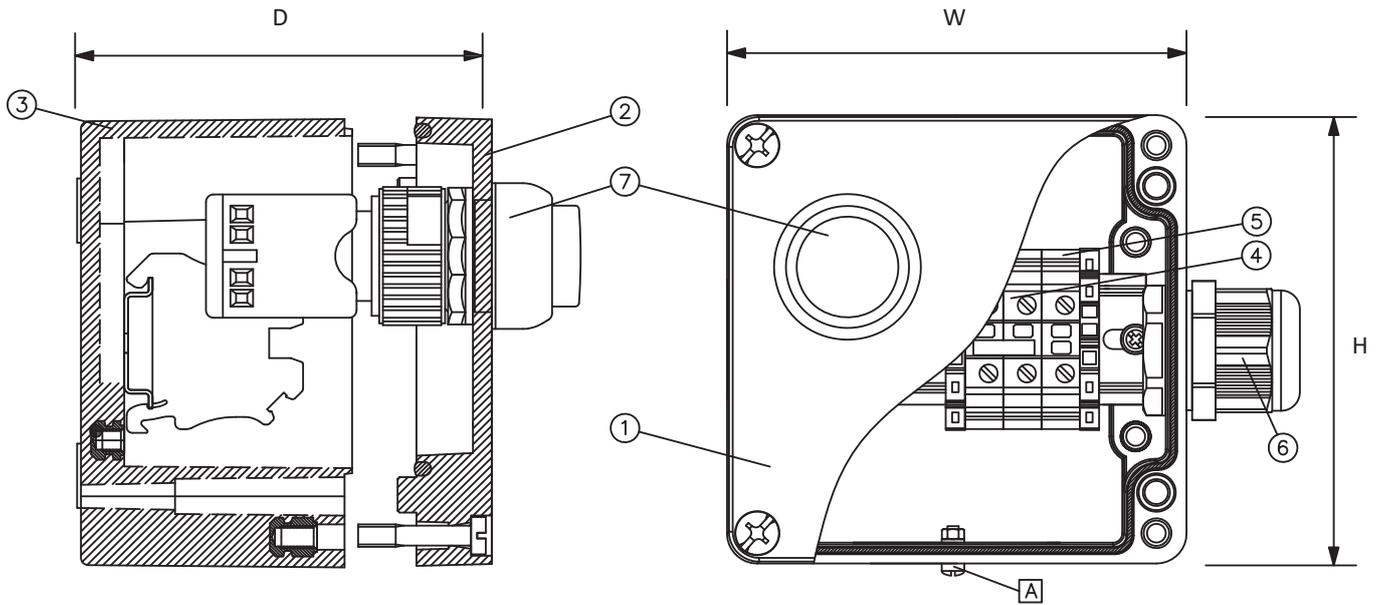
## Selection Code

PYEX-EP-JB - 12 - LP  
 (a) (b) (c)

(a)	Model
(b)	Enclosure size 12: 120x120x90 box 16: 160x120x90 box 26: 260x120x90 box
(c)	Function LP: Power connection with signal lamp

## Certification





**Note**  
The dimension of assembled enclosure system varies depending on the choice of enclosure size.

Name	W	H	D
PYEX-EP-JBP-12	122	120	90
PYEX-EP-JBP-16	160	160	90
PYEX-EP-JBP-26	260	160	90

Components

No.	Part Name	Description
1	PYEX-EP-JB	-12 : 122x120x90 -16 : 160x160x90 -26 : 260x160x90
2	PYEX-EP-LID	Enclosure Lid
3	PYEX-EP-BODY	Enclosure Body
4	PYEX-TBP	Ex Terminal Block for Power
5	PYEX-TBE	Ex Terminal Block for Earth (Yellow/Green)
6	PYEX-EP-PG25	M25 Ex Plastic Cable Gland
7	PYEX-LK	Signal Lamp Kit
A	PYEX-EAS	Earth Stud(Optional)



# PYEX-EP-JB-LE

End termination, Monitoring

GRP enclosure with signal lamp & plastic gland for heating cable

## Features

The PYEX-EP-JB-LE is designed and manufactured to meet all requirements of relevant standards for industrial heat tracing cable system in hazardous location such as petrochemical plant, gas plant, ship and off-shore facility and utilizes an Ex certified GRP enclosure with plastic gland for self-regulating heating cable's termination. For monitoring an Ex certified LED signal lamp is installed on the lid of GRP enclosure.

## Specification

Protection Type : Ex d eb IIC  
 Applicable heating cables in hazardous location : FBL, FBH, FBX, FBZ  
 Temperature classification  
 FBL : T6 (85 °C)  
 FBH : T4 (135 °C)  
 FBX15x / 30x / 45x, FBZ15x / 30x / 45x : T3 (200 °C)  
 FBX60x, FBZ60x : T2 (220 °C)  
 Enclosure service temperature : -55 °C to 135 °C  
 Plastic heating cable gland (PYEX-EP-PG25) service temperature : -40 °C to 110 °C  
 Max rated voltage 277Vac  
 LED signal lamp  
 Rated voltage: 20~ 250Vac  
 Power consumption: ≤1W  
 Color: Green, Red, Yellow, Blue, White  
 Max load current : 50A for PYEX-EP-JB-12 & 16, 100A for PYEX-EP-JB-26  
 Ingress Protection : IP65 (when assembled with heating cables)  
 Enclosure Material : Glassfibre reinforced polyester / UV stabilized  
 Impact Resistance : 7J  
 Flammability : Self-extinguishing UL 94/V-0  
 Color : Graphite Black  
 Gasket and Seal : Flame-proof silicone rubber  
 Maximum power conductor cross-section : 10mm<sup>2</sup>  
 Thread for power cable entry : Max. M25, PF3/4, NPT3/4-14  
 Approval : ATEX, IECEx  
 Reference standards : IEC60079-0, IECEx60079-1, IEC60079-7, IEC60079-30-1

## Selection Code

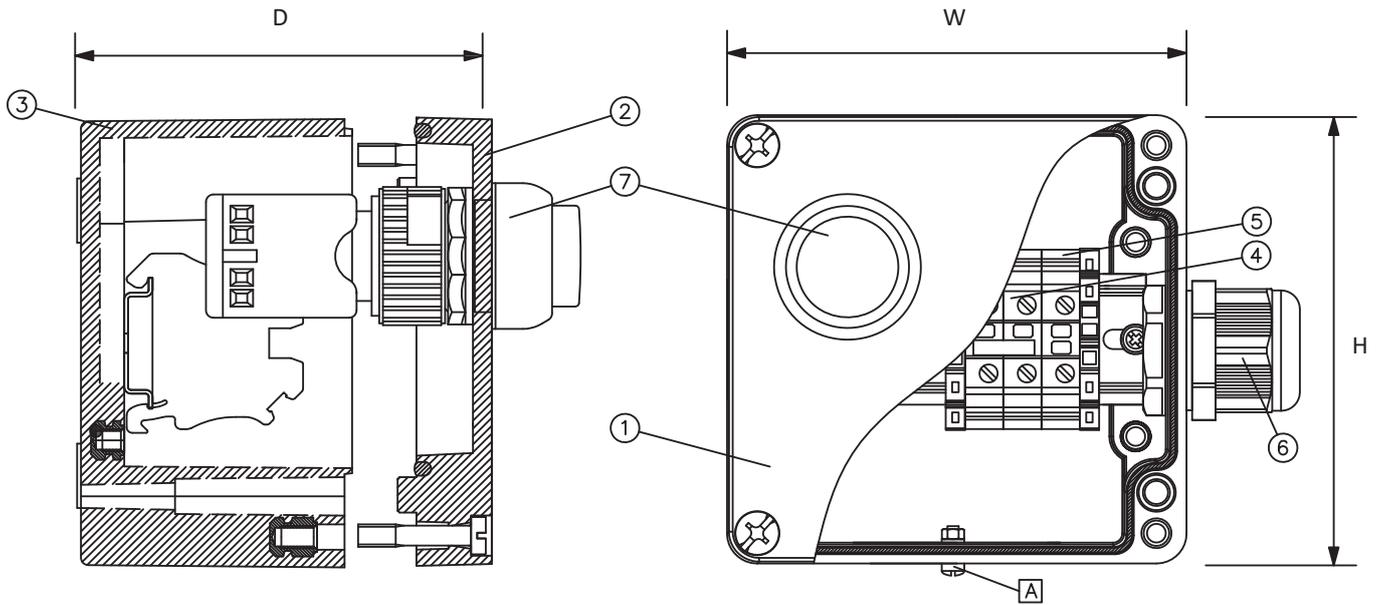
PYEX-EP-JB - 12 - LE  
 (a) (b) (c)

(a)	Model
(b)	Enclosure size 12: 120x120x90 box 16: 160x120x90 box 26: 260x120x90 box
(c)	Function LE: End termination with signal lamp

## Certification



## Product Drawing



### Note

The dimension of assembled enclosure system varies depending on the choice of enclosure size.

Name	W	H	D
PYEX-EP-JBP-12	122	120	90
PYEX-EP-JBP-16	160	160	90
PYEX-EP-JBP-26	260	160	90

## Components

No.	Part Name	Description
1	PYEX-EP-JB	-12 : 122x120x90 -16 : 160x160x90 -26 : 260x160x90
2	PYEX-EP-LID	Enclosure Lid
3	PYEX-EP-BODY	Enclosure Body
4	PYEX-TBP	Ex Terminal Block for Power
5	PYEX-TBE	Ex Terminal Block for Earth (Yellow/Green)
6	PYEX-EP-PG25	M25 Ex Plastic Cable Gland
7	PYEX-LK	Signal Lamp Kit
A	PYEX-EAS	Earth Stud(Optional)



# PYEX-EP-JBS

Power Connection, T-Splicing, End Termination

GRP enclosure with stainless steel pipe-mount

## Features

The PYEX-EP-JBS is an Ex certified GRP enclosure system designed and manufactured to meet all requirements from relevant international standards for industrial heat tracing cable system especially for hazardous location such as petrochemical plant, gas plant, ship and off-shore facility and utilizes an Ex certified GRP enclosure with stainless steel pipe-mount for self-regulating heating cable's connection and termination.

## Specification

Protection Type : Ex eb IIC  
 Applicable heating cables in hazardous location : FBL, FBH, FBX, FBZ  
 Temperature classification  
 FBL : T6 (85 °C)  
 FBH : T4 (135 °C)  
 FBX15x / 30x / 45x, FBZ15x / 30x / 45x : T3 (200 °C)  
 FBX60x, FBZ60x : T2 (220 °C)  
 Enclosure service temperature : -55 °C to 135 °C  
 Stainless steel pipe-mount service temperature on the pipe : -50 °C to 300 °C  
 Max rated voltage 277Vac  
 Max load current : 30A for PYEX-EP-JBS-12, 16 & 26  
 Ingress Protection : IP66 (when assembled with heating cables)  
 Enclosure Material : Glassfibre reinforced polyester / UV stabilized  
 Impact Resistance : 7J  
 Flammability : Self-extinguishing UL 94/V-0  
 Color : Graphite Black  
 Gasket and Seal : Flame-proof silicone rubber  
 Maximum power conductor cross-section : 10mm<sup>2</sup>  
 Thread for power cable entry : Max. M25, PF3/4, NPT3/4-14  
 Approval : ATEX, IECEx  
 Reference standards : IEC60079-0, IEC60079-7, IEC60079-30-1

## Selection Code

PYEX-EP-JBS - 12 - P  
 (a) (b) (c)

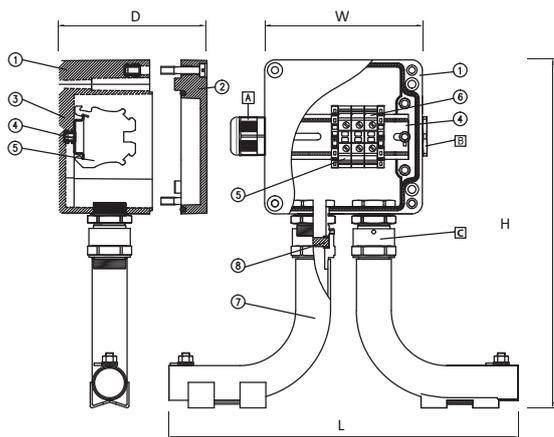
(a)	Model
(b)	Enclosure size 12: 120x120x90 box 16: 160x120x90 box 26: 260x120x90 box
(c)	Function P: Power connection, T: T-Splicing E: End termination

## Certification

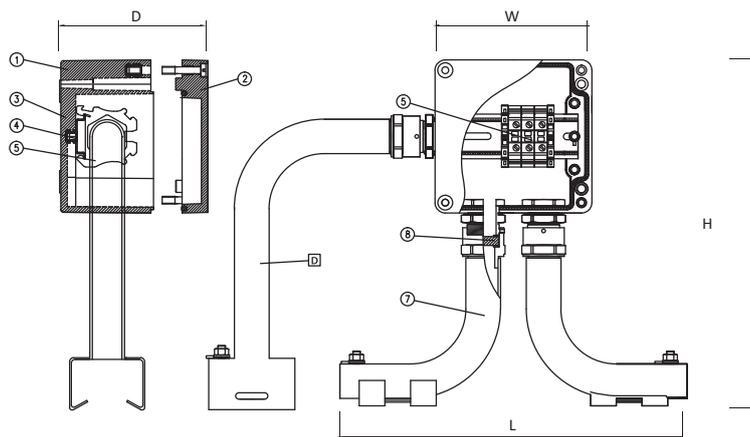


## Product Drawing

① PYEX-EP-JBS-P/E



② PYEX-EP-JBS-T



Name	W	H	L	D
PYEX-EP-JBS-12	122	272	268	90
PYEX-EP-JBS-16	160	312	271	90
PYEX-EP-JBS-26A	260	312	297	90
PYEX-EP-JBS-26B	255	402	292	90

### Note

The dimension of assembled enclosure system varies depending on the choice of enclosure size.

## Components

No.	Part Name	Description	Q'ty
1	PYEX-EP-JB	-12 : 122x120x90      -26A : 260x160x90 -16 : 160x160x90      -26B : 255x250x90	
2	PYEX-EP-L	Enclosure Lid	
3	PYEX-EP-B	Enclosure Body	
4	PYEX-DR	Din Rail	
5	PYEX-TBP	Ex Terminal Block for Power	
6	PYEX-TBE	Ex Terminal Block for Earth (Yellow/Green)	
7	PYEX-SS-MT	Pipe-Mount Assembly	
8	PYEX-HS	Heater Seal	
A	PYEX-EP-PG25	Ex Plastic Cable Gland (Optional)	
B	PYEX-SP-M25	Ex Stopping Plug (Optional)	
C	PYEX-BR-PMG25	Metallic Cable Gland for Pipe Mount (Optional)	
D	PYEX-SS-SE	SUS Side Elbow Pipe-Mount (Optional)	

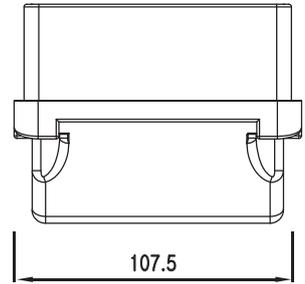
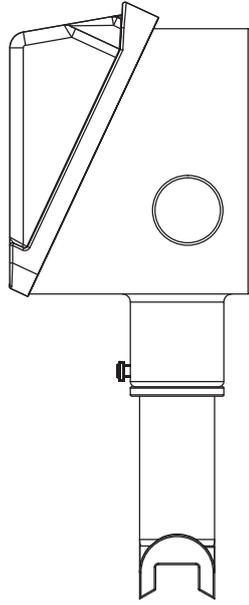
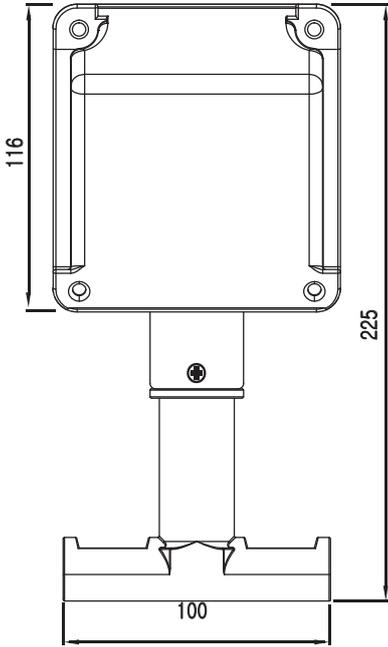
## Seal Selection and Applicable Heaters

Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
JBS-HS116	11.6	5.6	FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
JBS-HS122	12.2	4.6	FBX FBZ 15,30,45,60	Fluoropolymer -CT
JBS-HS127	12.7	5.2	FBH 15,30,45	Fluoropolymer -CT
JBS-HS136	13.6	5.6	FBL 30	Fluoropolymer -CF / Polyolefin -CP
JBS-HS143	14.3	5.4	FBH 60	Fluoropolymer -CT

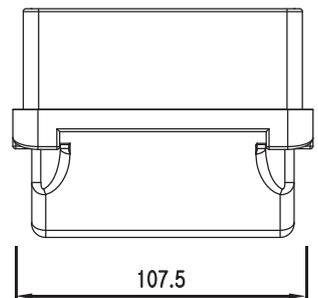
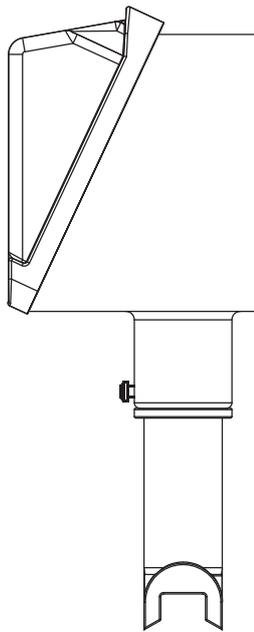
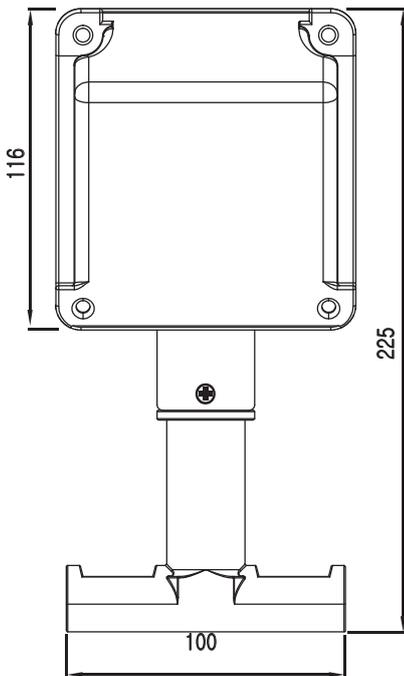
All dimensions are in mm.



① PYEX-AE-P



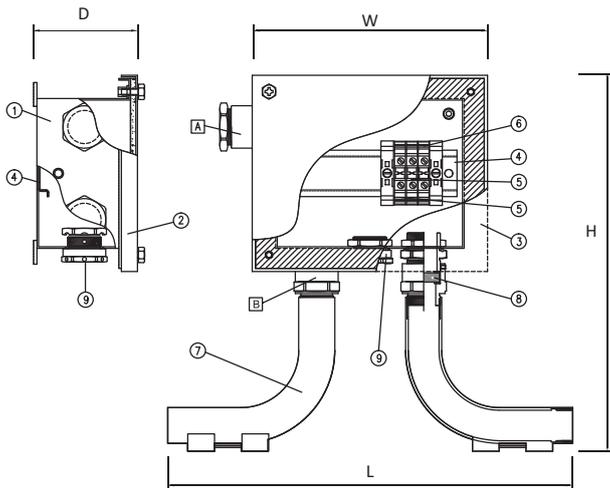
② PYEX-AE-E



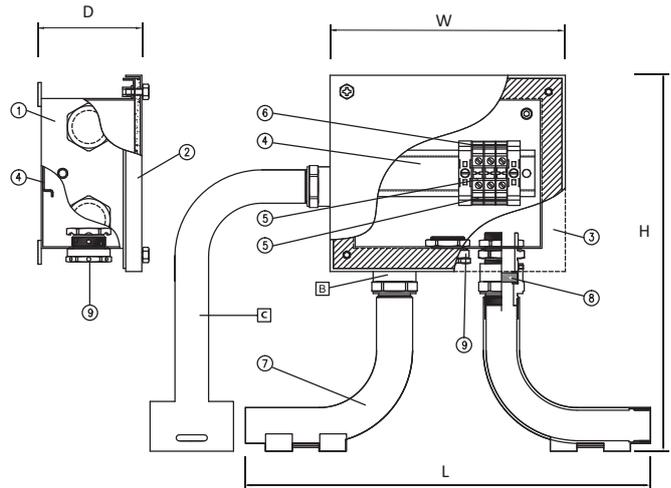


# Product Drawing

① PYEX-SS-JB-P/E



② PYEX-SS-JB-T



Name	W	H	L	D
PYEX-SS-JB18	176	265	303	90
PYEX-SS-JB25	253	306	380	90

**Note**  
The dimension of assembled enclosure system varies depending on the choice of enclosure size.

## Components

No.	Part Name	Description	Q'ty
1	PYEX-SS-JB	-18 : 176x148x78      -25 : 253x175x108	1
2	PYEX-SS-L	Enclosure Lid	1
3	PYEX-SS-B	Enclosure Body	1
4	PYEX-DR	Din Rail	1
5	PYEX-TBP	Ex Terminal Block for Power	2
6	PYEX-TBE	Ex Terminal Block for Earth (Yellow/Green)	1
7	PYEX-SS-MT	SUS Pipe-Mount Assembly	1
8	PYEX-HS	Heater Seal	2
9	PYEX-BR-DP	Drain Plug	1
A	PYEX-BR-MG25	Ex Certified Metallic Cable Gland (Optional)	1
B	PYEX-BR-PMG25	Metallic Cable Gland for Pipe Mount (Optional)	2
C	PYEX-SS-SE	SUS Side Elbow Pipe-Mount (Optional)	1

## Seal Selection and Applicable Heaters

Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
SJB-HS116	11.6	5.6	FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
SJB-HS122	12.2	4.6	FBX FBZ 15,30,45,60	Fluoropolymer -CT
SJB-HS127	12.7	5.2	FBH 15,30,45	Fluoropolymer -CT
SJB-HS136	13.6	5.6	FBL HSR 30	Fluoropolymer -CF / Polyolefin -CP
SJB-HS143	14.3	5.4	FBH 60	Fluoropolymer -CT

All dimensions are in mm.



# PYEX-SS-EK

Cold applied power connection kit for heat tracing cable system

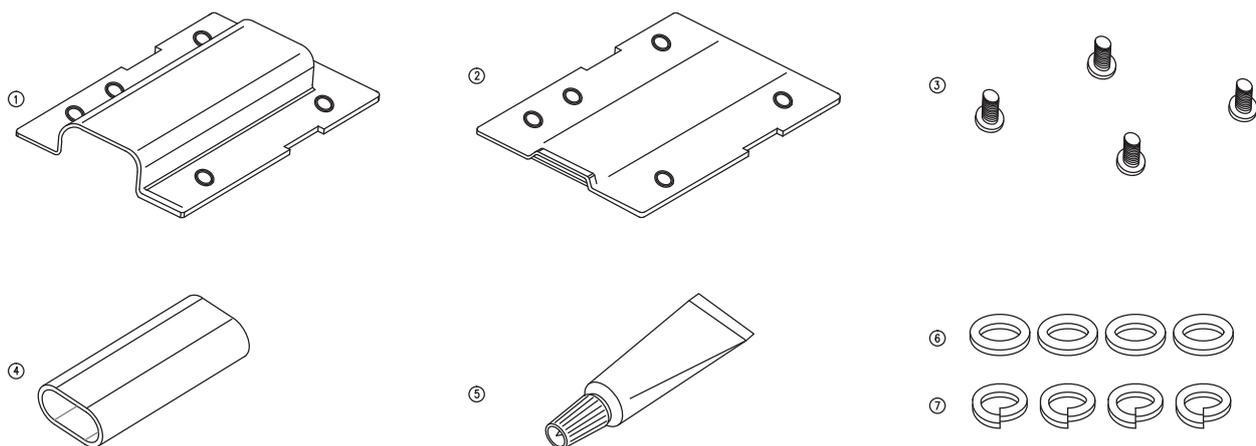
<b>Use</b>	Freeze protection for water pipeline Temperature maintenance for fuel feedline
<b>Features</b>	The PYEX-SS-EK is a low-profile end termination kit for FBL, FBH, FBX and FBZ parallel heat tracing cables. The service temperature is -50°C to 200°C. It is certified for ATEX and IECEx for use in hazardous areas. It provides both excellent electrical insulation and ultimate mechanical protection as it is the ideal combination between molded silicone rubber end seal and stainless steel cover. This kit does not require a heat gun or torch for the installation. Therefore hot work is not required.
<b>Specification</b>	Protection Type : Ex eb IIC Ingress Protection : IP66 Min. Ambient Temperature : -50°C Max. Exposure Temperature : 230°C Construction Material : Stainless Steel & Silicone Rubber Approval : ATEX, IECEx Reference standards : IEC60079-0, IEC60079-7, IEC60529, IEC60079-30-1
<b>Certification</b>	

## Hole Sizes and Applicable Heaters

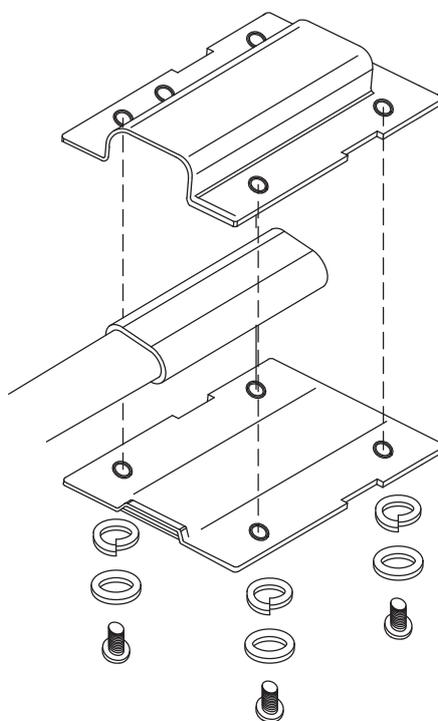
Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
EX-ES11	11.6	5.6	FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
EK-ES12	12.7	5.2	FBX FBZ 15,30,45,60	Fluoropolymer -CT
EK-ES13	13.6	5.6	FBH 15,30,45	Fluoropolymer -CF / Polyolefin -CP
EK-ES14	14.3	5.4	FBL HSR 30 FBH 60	Fluoropolymer -CT

All dimensions are in mm.

## Component



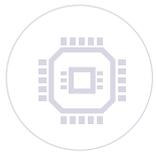
## Assembly Guide



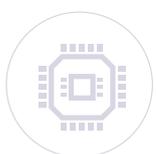
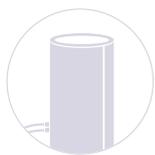
## Component

No.	Part Name	Description	Q'ty
1	EK-CT	Stainless Steel Cover Top	1
2	EK-CB	Stainless Steel Cover Bottom	1
3	EK-SC	Screw	4
4	EK-ES	Moulded Silicone Rubber End Boot	1
5	EK-RV	Silicone Rubber RTV Paste 10g	1
6	EK-PW	Plain Washer	4
7	EK-SW	Spring Washer	4





**SOLCO.PYROELEC**



# Components





PYEX-PTK-M

PYEX-ETK-M

PYEX-PTK-S

PYEX-EP-PG25

PYEX-SP-M25

PYEX-SS-BRP/BRW

PYEX-CL-A/S

PYEX-GT

PYEX-AT

PYEX-SG

PYEX-FS

HACC-PK-P

HACC-TK-P

HACC-ELK-P

# COMPONENTS



## Cold Applied Power Connection Kit for Heat Tracing Cable System

### PYEX-PTK-M

This kit is certified for ATEX and IECEx for use in hazardous areas. The silicone molded power tube does not require a heat gun or torch for insulating heating core.



## Cold Applied End Termination Kit for Heat Tracing Cable System

### PYEX-ETK-M

This connection kit is designed for end terminating all Solco Pyroelec self-regulating heat tracing cables while maintaining electrical insulation of the heating cable conductors and core.



## Heat Shrink Power Connection Kit for Self-Regulating Heating Cables

### PYEX-PTK-S

PTK-S is for power connecting FBL, FBH, FBX and FBZ parallel heating cables to Ex certified enclosure.



## M25 Cable Gland

### PYEX-EP-PG25

The M25 plastic cable gland is made of fiberglass reinforced nylon for thermal endurance and mechanical strength. The silicone rubber seal should be selected with care to maintain optimum sealing with the heating cable to use with. An additional locknut is provided for unthreaded enclosure wall.



M25 Stop Plug

**PYEX-SP-M25**

The M25 plastic stop plug is made of fiberglass reinforced nylon for thermal endurance and mechanical strength. An additional locknut is provided for unthreaded enclosure wall.



Pipe Mounting Bracket (Horizontal)

**PYEX-SS-BRP-16H**

Support brackets are used to fix equipment such as the Ex enclosure on pipes.

Applicable Ex Enclosure

-16H : PYEX-EP-JB-12, PYEX-EP-JB-16

-26H : PYEX-EP-JB-26



Pipe Mounting Bracket (Vertical)

**PYEX-SS-BRP-16V**

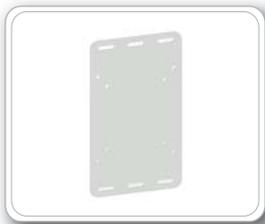
Support brackets are used to fix equipment such as the Ex enclosure on pipes.

Applicable Ex Enclosure

-16H : PYEX-EP-JB-12, PYEX-EP-JB-16

-26H : PYEX-EP-JB-26

# COMPONENTS



## Wall Mounting Bracket

### PYEX-SS-BRW-16V

Support brackets are used to fix equipment such as the Ex enclosure on pipe trays or wall.

Applicable Ex Enclosure

-16H : PYEX-EP-JB-12, PYEX-EP-JB-16

-26H : PYEX-EP-JB-26



## Warning Labels

### PYEX-CL-S/P

S : PET sheet type warning label

P : SUS316L Plate type warning label used for outdoor use.



## Glass Tape

### PYEX-GT

The attachment tape is used to fix the heating cable or temperature sensor. The glass tape is made of fiberglass for thermal endurance and mechanical strength.

- Max. Exposure Temp. 130°C, Size 12mm x 30M



## Aluminium Tape

### PYEX-AT

The attachment tape is used to fix the heating cable or temperature sensor. The high performance tape is made of aluminum for thermal conductivity and mechanical strength.

- Max. Exposure Temp. 125°C, Size 50mm x 50M



Protective Grommet

**PYEX-SG**

Silicone grommet that protects the heating cable at sharp edges such as endplates of insulation cladding, flanges etc. It can be cut-to-length and resists temperatures up to 215 °C



Pipe Straps

**PYEX-FS**

Metal straps for pipe mounting of enclosure connection kit.

PYEX-FS-045	0.5" - 1.5"	10 - 45mm
PYEX-FS-100	2" - 4"	45 - 100mm
PYEX-FS-225	4" - 9"	92 - 225mm
PYEX-FS-380	9" - 15"	220 - 380mm
PYEX-FS-540	15" - 20"	375 - 540mm



# HACC-PK-P

Power connection

# HACC-TK-P

T-Splicing

Aluminium enclosure (Flame-proof type)

## Specification

Ex d IIC T6  
 Ambient Temperature range : -20°C to 50°C  
 Max rated voltage 600Vac  
 Max load current : 20A  
 Ingress Protection : IP65  
 Enclosure Material : Aluminium  
 Cable entry 3/4"PF compatible to conventional pipe thread  
 Gasket and Seal : Flame-proof silicone rubber  
 Maximum power conductor cross-section : 15mm<sup>2</sup>  
 Approval : KCs  
 Reference standards: IEC60079-0, IEC60079-1

## Features

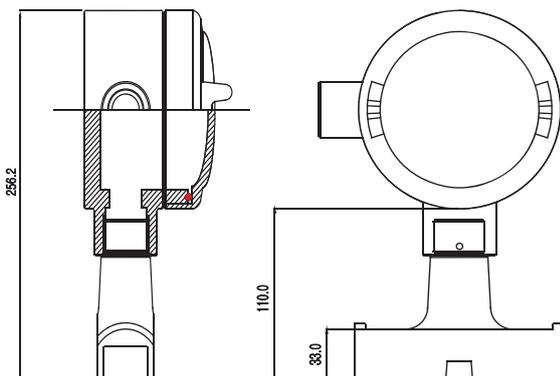
HACC is the explosion-proof aluminium enclosure specially for heating cable installation. It is designed and manufactured to meet all the technical requirements for hazardous locations rating Ex d and IP65. The additional suffix describes the specific use of HACC enclosure set for the installation with trace heating cables. HACCPK-P : Power connection / HACC-TK-P : Tee splicing. It is made of special-grade aluminium to meet the required pressure tests against explosion or ignition of explosive gas or dust. The flame-proof gasket stops the ingress of water and dust. It accommodates various power cables and heating cables up to 15mm<sup>2</sup>.

## Certification

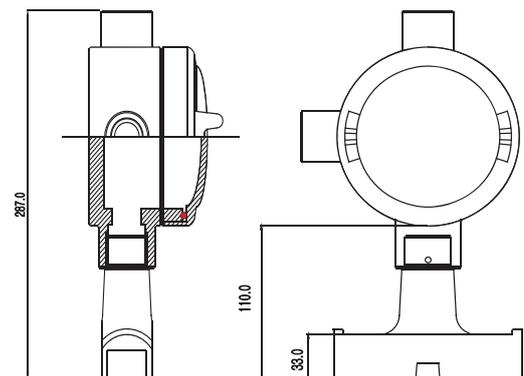


## Product Drawing

① HACCPK-P



② HACC-TK-P



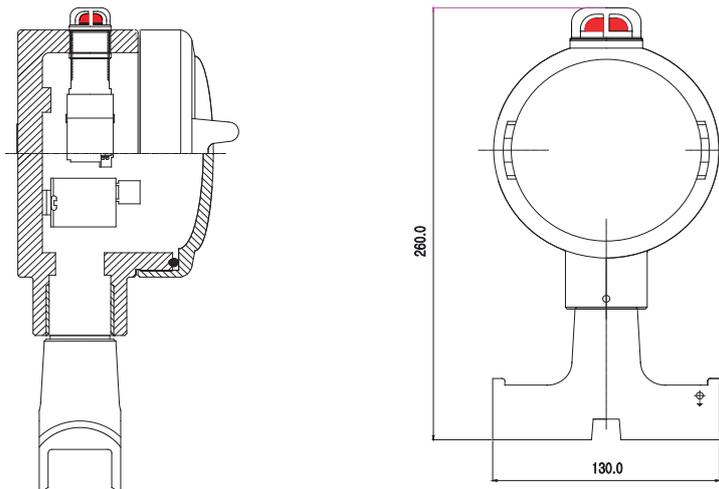


# HACC-ELK-P

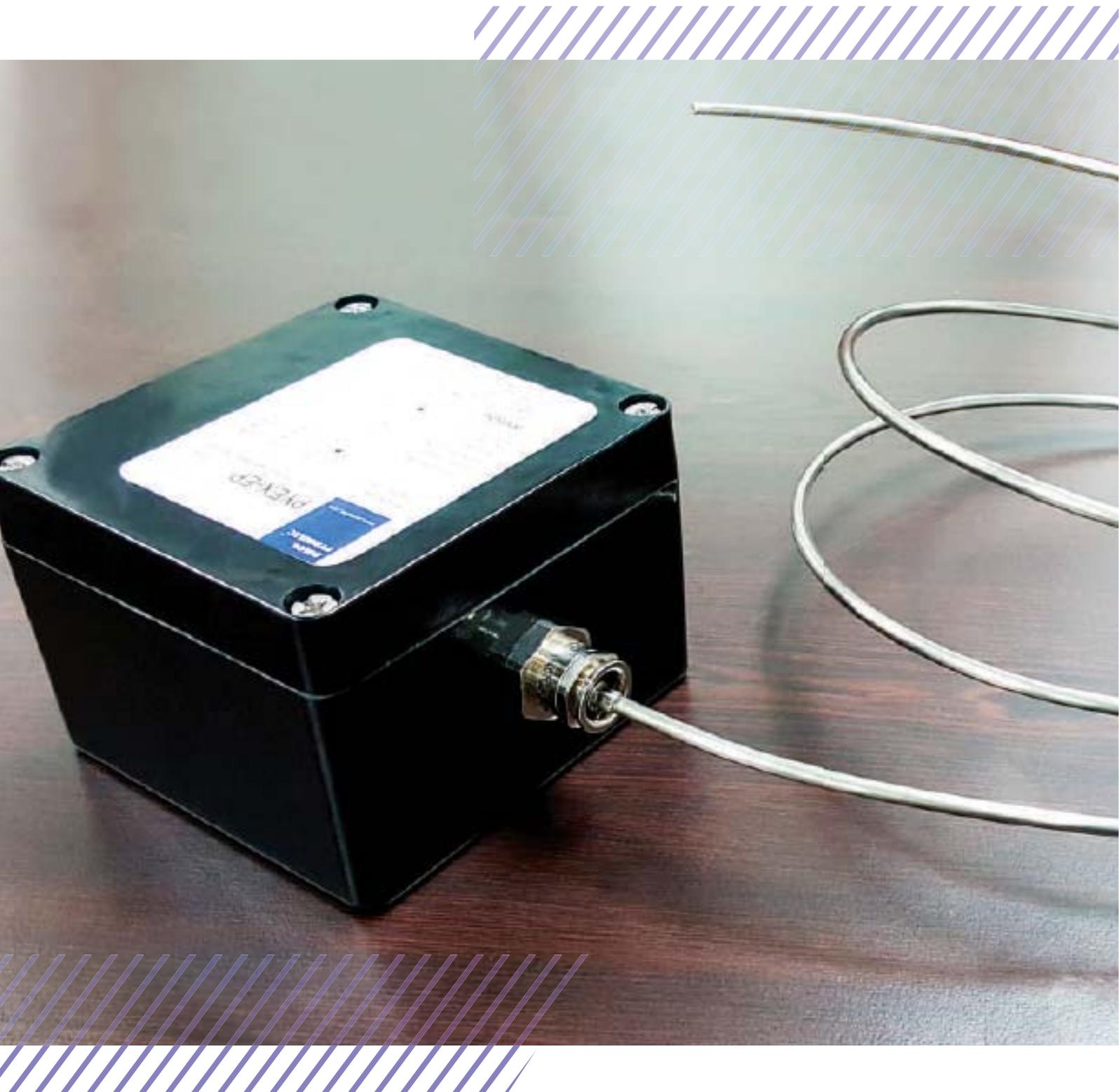
Explosion-proof Ex 'd'  
End termination enclosure with signal lamp

<p>Specification</p>	<p>Assembled Enclosure : height 257mm, width 132mm, depth 64mm Ex d IIC T6 IP66 Gasket and cable seal : Flameproof silicone rubber 220Vac / 110Vac, 15mA</p>																																				
<p>Features</p>	<p>HACC-ELK-P is the explosion-proof aluminum enclosure fitted with specially designed pilot lamp, which shows the status of power supply of each circuit of electrical heat tracing. It is made of special-grade of aluminum to meet the required pressure tests against explosion or ignition of explosive gas or dust. The flame-proof gaskets stops the ingress of water and dust.</p>																																				
<p>Part List</p>	<table border="1"> <thead> <tr> <th>No.</th> <th>Part name</th> <th>Designation</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Pipe mount</td> <td>ALPJB-MB/TS</td> <td>1</td> </tr> <tr> <td>2</td> <td>Heater seal</td> <td>SH-HS</td> <td>1</td> </tr> <tr> <td>3</td> <td>Heat seal stopper</td> <td>GS-CS</td> <td>1</td> </tr> <tr> <td>4</td> <td>Enclosure body</td> <td>AL-PJB-B/TS</td> <td>1</td> </tr> <tr> <td>5</td> <td>Pilot lamp</td> <td>PL</td> <td>1</td> </tr> <tr> <td>6</td> <td>Gasket</td> <td>SR-GSK</td> <td>1</td> </tr> <tr> <td>7</td> <td>Enclosure cover</td> <td>AL-PJB-C/TS</td> <td>1</td> </tr> <tr> <td>8</td> <td>Mount grub screw</td> <td>GS-GRS</td> <td>1</td> </tr> </tbody> </table>	No.	Part name	Designation	Quantity	1	Pipe mount	ALPJB-MB/TS	1	2	Heater seal	SH-HS	1	3	Heat seal stopper	GS-CS	1	4	Enclosure body	AL-PJB-B/TS	1	5	Pilot lamp	PL	1	6	Gasket	SR-GSK	1	7	Enclosure cover	AL-PJB-C/TS	1	8	Mount grub screw	GS-GRS	1
No.	Part name	Designation	Quantity																																		
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8	Mount grub screw	GS-GRS	1																																		
<p>Certification</p>																																					

## Product Drawing



# Temperature Measurement





PYEX-EP-MTS12

PYEX-EP-RTD

Ex Certified Temperature Sensor

PYEX-AE-TC

HACC-TSK-P

PYEX-BT

PYEX-Z2BT



# PYEX-EP-MTS12

Explosion proof capillary thermostat

## Features

The explosion-proof capillary thermostat PYEX-EP-MTS12 is built sense and control surface temperature of various objects in potentially explosive areas. The use in environments with gas and steam is permitted (zone 1 and 2) ; use in the area with conductive dust (zone 21 and 22) is also permitted.

The capillary thermostat is enclosed within Ex d (flameproof) aluminium enclosure and then the whole aluminium enclosure assembly is fitted inside 120 x 120 x 90mm engineering plastic enclosure for easy installation and maintenance on site.

The electrical switching element of capillary thermostat works based on the expansion / shrinkage of liquid and gas, being enclosed within the sensing bulb and capillary tube. PYEX-EP-MTS12 is only single thermostat. Two more numerics shown after -MTS12 are for selection guide. For example '21'. The first numeric '2' describes the number of power cable entries. And the second numeric '1' means conductor size of power cable.

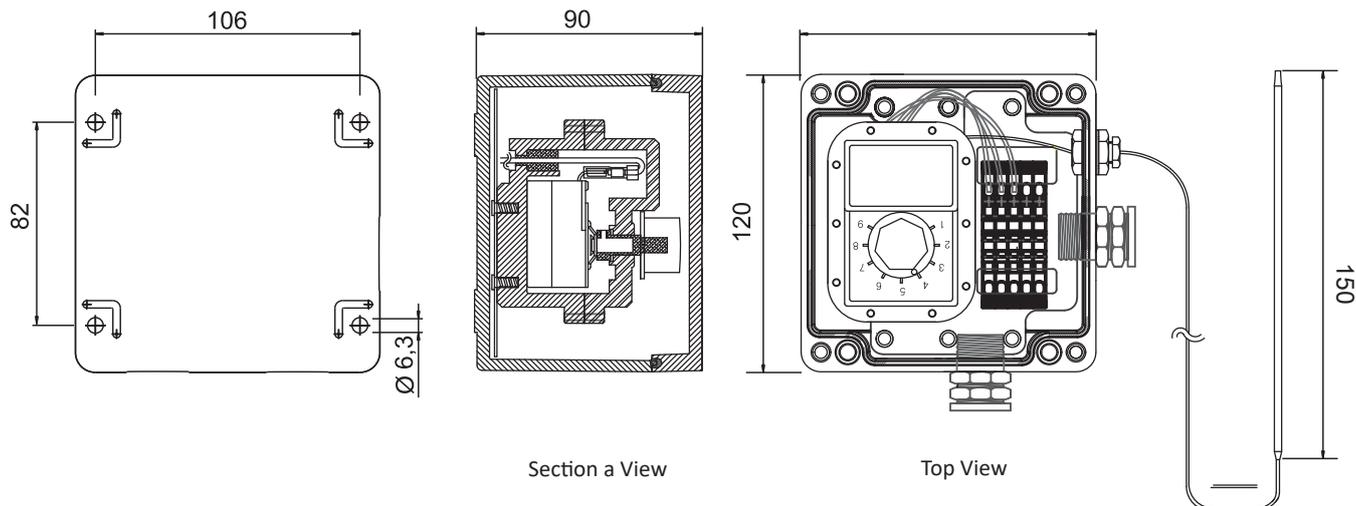
## Specification

Protection Type	Ex d e IIC T6
Ingress Protection	IP56
Ambient temperature range	- 20 °C to + 40 °C
Switching capacity	max. 250V / 16A
Relay output	Refer to Table 1.
Set point range (optional)	Refer to Table 1.
Housing	Glassfibre reinforced polyester 120 x 120 x 90mm
Cable entry method	Plastic cable gland M16, M20, M25, M32 available
Number of cable entry (optional)	max. 2
Capillary sensor	made of stainless steel Capillary Ø 1.0mm diameter, 830~1730mm in depending on model length
Sensor probe	Capillary bending radius 5.0mm max
Connection terminal	Refer to Table 1. Refer to Table 2.

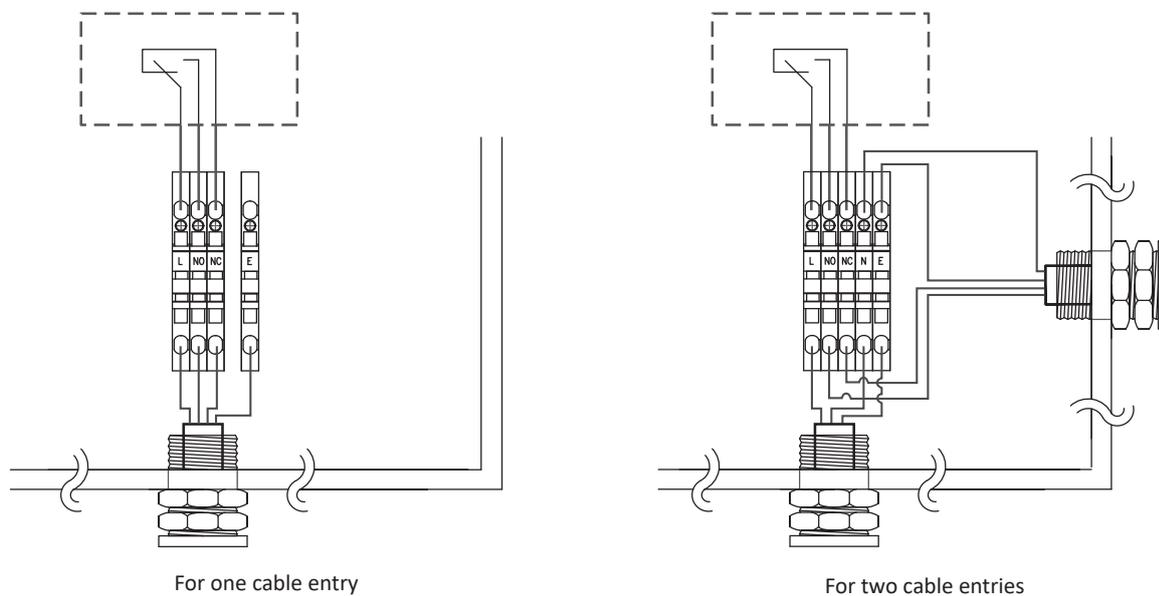
## Certification



## Product Drawing



## Wiring diagrams



## Selection Guide

Table 1. Thermostat Selection Guide for PYEX-EP-MTS12 series

Thermostat No.	Temp. setting range	Service temperature for sensor probe	Capillary length (mm)	Probe diameter	Probe length	Output Terminal
1	-20°C ~ +20 °C	-30°C ~ +80 °C	1730	6.0	98	3
2	0°C ~ +50 °C	-50°C ~ +100 °C	1730	6.0	98	2
3	+30°C ~ +90 °C	-20°C ~ +120 °C	870	6.0	98	3
4	+30°C ~ +110 °C	-10°C ~ +120 °C	870	6.0	113	2
5	+30°C ~ +110 °C	-10°C ~ +140 °C	870	6.0	113	3
6	+54°C ~ +324 °C	-10°C ~ +330 °C	870	3.0	160	3
7	+200°C ~ +600 °C	0°C ~ +650 °C	830	3.9	163	3

Table 2. Terminal Block Selection

Terminal Selection	conductor size(mm <sup>2</sup> )
1	2.5
2	4.0
3	6.0

Note.

Tension crimping and screw tightening type are available.



# PYEX-EP-RTD

Ex temperature sensing kit

Explosion proof RTD enclosure kit for heating cable system

## Specification

Protection Type : Ex e IIC Gb

Ingress Protection : IP64 (when assembled with trace heating cable)

Impact Strength : 7J

Temperature Rating : T6 to T2

(T-Rating varies depending on the type of heating cable and sensor probe. Refer to installation manual.)

Surface Resistance : < 10<sup>9</sup> Ω

Flammability : Self-extinguishing UL94/V-0

Maximum conductor size for terminal : 2.5mm<sup>2</sup>

M16 metallic cable gland for compression fitting

The length of RTD sensing probe : Max. 2.0m

Enclosure dimension 122 x 120 x 90mm

## Features

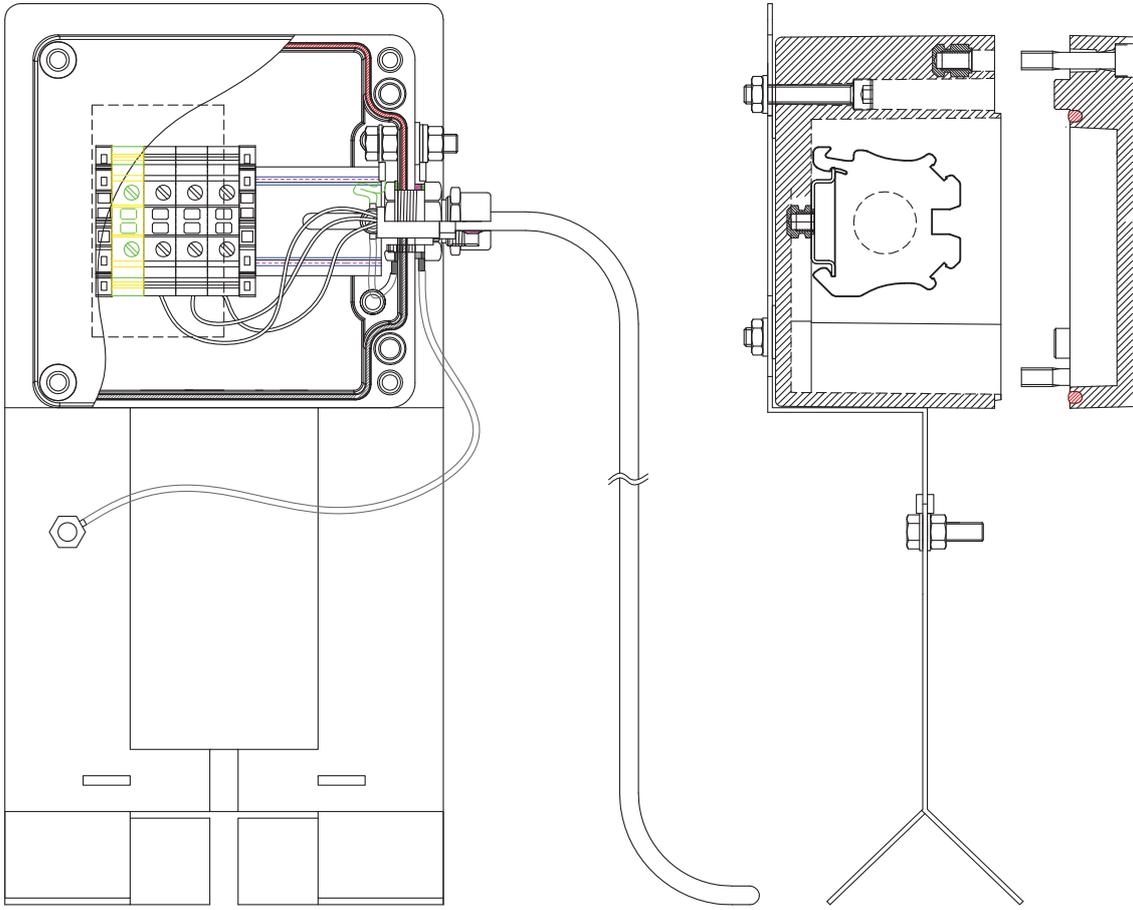
PYEX-EP-RTD is an Ex certified plastic enclosure kit assembled with RTD sensor probe for both ambient sensing and pipeline sensing. It is designed and manufactured to meet all the technical requirements from relevant standards for the use in hazardous location such as petrochemical plant, gas plants, ship-building and off-shore plant etc, as well as for the best performance of electrical trace heating cable system.

The plastic enclosure is made of fiberglass-reinforced polyester for ultimate thermal endurance and mechanical strength. The enclosure surface is UV resistant and electrically-conductive having 10<sup>9</sup> ohm to reduce the static hazard risk.

Each kit includes an IP66 rated junction box and 2.5mm<sup>2</sup> terminal block. Ex certified RTD sensor probe enters into the enclosure through M16 metallic cable gland with compression seal. The length of mineral insulated RTD sensing probe can be extended up to 2m for convenient installation on site. The pipe-and wall-mount bracket are sold separately for easy installation.

## Certification





# Ex Certified Temperature Sensor



## Mineral insulated temperature sensor

### Features

High Temperature range  
 Standard MI materials AISI 316L  
 MI-construction, bendable, vibration proof

### Specification

Marking	Ambient Temperature	T Class
Ex e IIC T6...T4	-40°C to +80°C	T6
	-40°C to +95°C	T5
	-40°C to +130°C	T4

Temperature sensor:  
 W-M-303-(a)/(b)-(c)/FDF-4-A-Ex :Pt100  
 T-M-303-(a)/(b)-(c)/FDS-Z-1-Ex: Thermocouple K or N type  
 Max. Measuring current: 10mA  
 Temperature range: -60°C ...+450°C Temporary +550 °C  
 Diameter of Sensor Probe: 3mm, 6mm, 8mm  
 Tinned Copper Connection Wires: 0.22mm<sup>2</sup>  
 Max. Service Temperature (Connection to MI cable): +130°C  
 Max. Service Temperature (End sleeve): +105°C

### Selection Code

W - M - 303 - (a) / (b) - (c) / FDF - 4 - A - Ex

(a)	Sensor probe diameter 3: 3mm 6: 6mm 8: 8mm
(b)	Probe Length : xxx mm (min 30mm)
(c)	Lead cable Length : yyyy mm (min 50mm)

T - M - 303 - (a) / (b) - (c) / FDS - Z - 1 - Ex

(a)	Sensor probe diameter 3: 3mm 6: 6mm 8: 8mm
(b)	Probe Length : xxx mm (min 10mm)
(c)	Lead cable Length : yyyy mm (min 50mm)

## Stainless Steel Probe sensor

Features	Temperature sensor for multiple temperature measurement purposes Standard MI materials AISI 316L Pt100, accuracy class A.														
Specification	<table border="1" data-bbox="625 421 1422 602"> <thead> <tr> <th>Marking</th> <th>Ambient Temperature</th> <th>T Class</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Ex e IIC T6...T3</td> <td>-40°C to +80°C</td> <td>T6</td> </tr> <tr> <td>-40°C to +95°C</td> <td>T5</td> </tr> <tr> <td>-40°C to +130°C</td> <td>T4</td> </tr> <tr> <td>-40°C to +185°C</td> <td>T3</td> </tr> </tbody> </table> <p>                     Temperature sensor: Pt100                      Max. Measuring current: 10mA                      Operating Temperature: -40°C ...+200°C                      Diameter of Sensor Probe: 6mm                      Tinned Copper Connection Wires: 0.22mm<sup>2</sup> </p>			Marking	Ambient Temperature	T Class	Ex e IIC T6...T3	-40°C to +80°C	T6	-40°C to +95°C	T5	-40°C to +130°C	T4	-40°C to +185°C	T3
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	-40°C to +130°C	T4													
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Selection Code	<p>Ⓐ WT-KAAPOLI-6/Ⓑ-Ⓒ/TDT-4J-KLA-Ex</p> <table border="1" data-bbox="625 853 1422 981"> <tbody> <tr> <td>Ⓐ</td> <td>No. of sensor None : 1, 2X :2</td> </tr> <tr> <td>Ⓑ</td> <td>Probe Length(mm), min. 30mm</td> </tr> <tr> <td>Ⓒ</td> <td>Lead cable Length to end sleeve (mm), min. 50mm</td> </tr> </tbody> </table>			Ⓐ	No. of sensor None : 1, 2X :2	Ⓑ	Probe Length(mm), min. 30mm	Ⓒ	Lead cable Length to end sleeve (mm), min. 50mm						
Ⓐ	No. of sensor None : 1, 2X :2														
Ⓑ	Probe Length(mm), min. 30mm														
Ⓒ	Lead cable Length to end sleeve (mm), min. 50mm														

## Bayonet temperature sensor

Features	Spring-loaded bayonet sensor for measuring temperature. Very easy and quick installation due to bayonet connection Standard MI materials AISI 316L														
Specification	<table border="1" data-bbox="625 1422 1422 1603"> <thead> <tr> <th>Marking</th> <th>Ambient Temperature</th> <th>T Class</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Ex e IIC T6...T3</td> <td>-40°C to +80°C</td> <td>T6</td> </tr> <tr> <td>-40°C to +95°C</td> <td>T5</td> </tr> <tr> <td>-40°C to +130°C</td> <td>T4</td> </tr> <tr> <td>-40°C to +185°C</td> <td>T3</td> </tr> </tbody> </table> <p>                     Temperature sensor: Pt100 x 1, or Pt100 x 2                      Max. Measuring current: 10mA                      Operating Temperature: -40°C ...+200°C                      Diameter of Sensor Probe: 6mm, 8mm                      Tinned Copper Connection Wires: 0.22mm<sup>2</sup> </p>			Marking	Ambient Temperature	T Class	Ex e IIC T6...T3	-40°C to +80°C	T6	-40°C to +95°C	T5	-40°C to +130°C	T4	-40°C to +185°C	T3
Marking	Ambient Temperature	T Class													
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	-40°C to +95°C	T5													
	-40°C to +130°C	T4													
	-40°C to +185°C	T3													
Selection Code	<p>Ⓐ WT-BAJONETTI-Ⓑ/Ⓒ-Ⓓ/ TDT-4J-KLA-Ex</p> <table border="1" data-bbox="625 1865 1422 2089"> <tbody> <tr> <td>Ⓐ</td> <td>No. of sensor None : 1, 2X :2</td> </tr> <tr> <td>Ⓑ</td> <td>Sensor probe diameter 6: 6mm 8: 8mm</td> </tr> <tr> <td>Ⓒ</td> <td>Probe Length (mm), min. 25mm</td> </tr> <tr> <td>Ⓓ</td> <td>Lead cable Length to end sleeve (mm), min. 300mm</td> </tr> </tbody> </table>			Ⓐ	No. of sensor None : 1, 2X :2	Ⓑ	Sensor probe diameter 6: 6mm 8: 8mm	Ⓒ	Probe Length (mm), min. 25mm	Ⓓ	Lead cable Length to end sleeve (mm), min. 300mm				
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# PYEX-AE-TC

Temperature control enclosure

Ex 'e' explosion-proof aluminium enclosure for temperature control

## Features

PYEX-AE-TC is the explosion-proof aluminium enclosure fitted with RTD sensor to detect pipe temperature and deliver the signal to relay or contactor in control cabinet in distance for temperature control. It is designed and manufactured to meet all the technical requirements for hazardous locations rated Ex e and IP66. Not only it is weather-proof but also it has an excellent mechanical strength as it is made of aluminium and it consists of fixing screws and flame-proof gaskets against water and dust ingress.

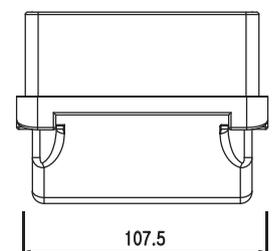
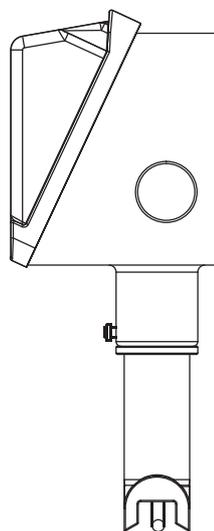
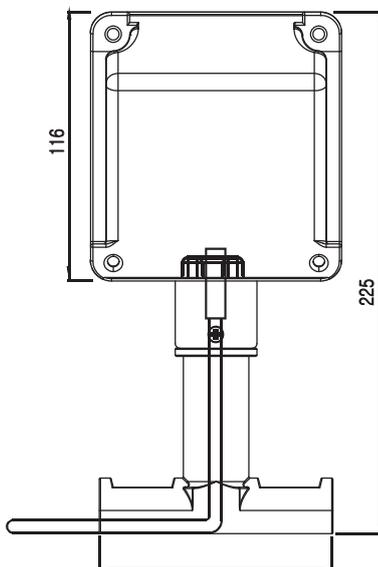
## Specification

Assembled Height : 225mm, Floor area : 92 x 92 mm, depth : 35mm ~ 74mm  
 Protection Type : Ex e IIC  
 Ingress Protection IP66  
 Operating Temperature  $-55^{\circ}\text{C} < \text{Ta} < 40^{\circ}\text{C}$   
 Gasket and Seal : Flame-proof silicone rubber  
 Temperature Class : FBL (T6), FBH (T4), FBX (T3 or T2)  
 RTD Sensor Diameter 5.20mm, SUS

## Certification



## Product Drawing





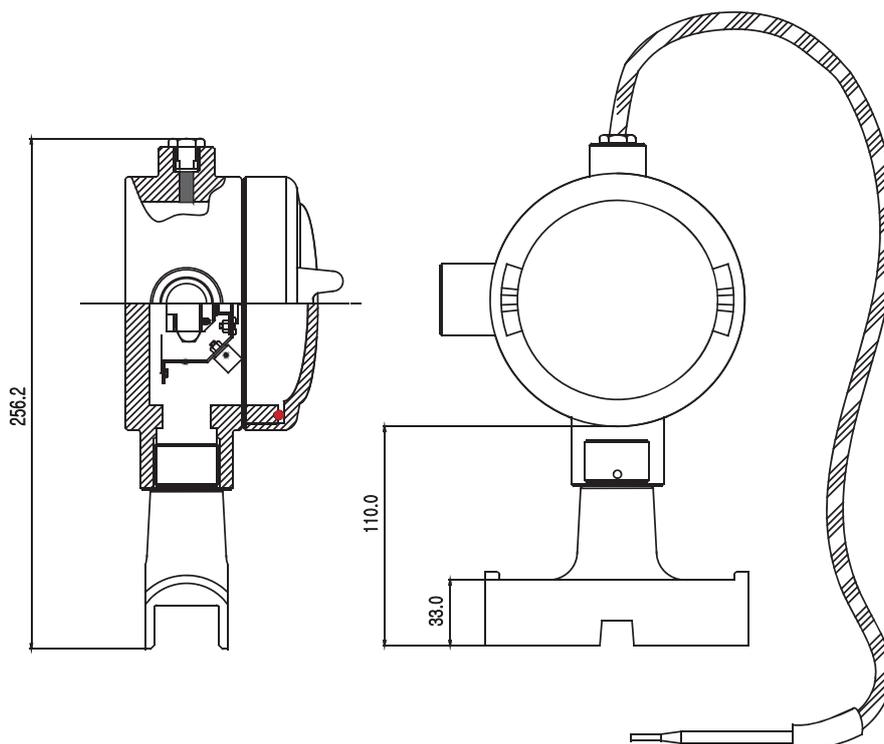
# HACC-TSK-P

Line sensing thermostat enclosure

Ex 'd' explosion-proof enclosure thermostat control

<b>Features</b>	HACC-TSK-P is the explosion-proof aluminium enclosure fitted with thermostat control unit, which detects the temperature of each circuit of pipeline or vessel and locally controls it for ultimate efficiency and safety. It is made of special-grade aluminium to meet the required pressure tests against explosion or ignition of explosive gas or dust. The flame-proof gaskets stops the ingress of water and dust.
<b>Specification</b>	Assembled height : 257mm, width : 132mm, depth : 64mm. Ex d IIC T6 (flame-proof), Ingress protection IP65 Operating temp $-20^{\circ}\text{C} < \text{Ta} < 50^{\circ}\text{C}$ Cable entry 3/4"PF compatible to conventional pipe thread Gasket and cable seal : flame-proof silicone rubber Armoured flexible Conduit for Capillary Sensor Length 75cm, Sensor diameter 6.0mm
<b>Certification</b>	

## Product Drawing





# PYEX-BT

Explosion-proof bimetal thermostat  
Safety device for temperature limit

<p>Use</p>	<p>Temperature limiting for surface heating system Semiconductor, display and petro chemical industry Hazardous and non-hazardous locations</p>								
<p>Specification</p>	<p>Protection type : Ex mb IIC T4...T6 Gb Operating temperature : 0 °C to 100 °C with interval of 5 °C Operating tolerance : ± 5 °C Switching voltage and current : 250Vac/30mA, 24Vdc/50mA On-off differential : 30 ± 15 K Ambient temperature : -40°C to +100°C Stainless housing Dimension Φ 17.0 x 30.0mm (Type 3/8) Φ 20.5 x 32.5mm (Type 1/2) 14.0 x 18.0 x 31.5mm (Type B1418) Ingress protection : IP67 Leadwire : AWG 22</p>								
<p>Features</p>	<p>Ex 'm' encapsulated explosion proof bimetallic thermostat Connected to power relay to limit temperature rise The smallest temperature monitoring equipment Can be installed independently inside various surface heating equipments ATEX, IECEx and KCs certified for zone 1 and 2 hazardous locations</p>								
<p>Selection Code</p>	<p>PYEX-BT - <u>1/2</u> - <u>70</u> - <u>NC</u>            (a) (b) (c) (d)</p> <table border="1" data-bbox="624 1621 1414 1928"> <tr> <td>(a)</td> <td>Model</td> </tr> <tr> <td>(b)</td> <td>Type / Construction 1/2 - 1/2 inch cylindrical bar 3/8 - 3/8 inch cylindrical bar B1418 - rectangular bar</td> </tr> <tr> <td>(c)</td> <td>Swiching temperature 0 ~ 100°C</td> </tr> <tr> <td>(d)</td> <td>Nomal close (NC) / Nomal open (NO)</td> </tr> </table>	(a)	Model	(b)	Type / Construction 1/2 - 1/2 inch cylindrical bar 3/8 - 3/8 inch cylindrical bar B1418 - rectangular bar	(c)	Swiching temperature 0 ~ 100°C	(d)	Nomal close (NC) / Nomal open (NO)
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(c)	Swiching temperature 0 ~ 100°C								
(d)	Nomal close (NC) / Nomal open (NO)								
<p>Certification</p>									



# PYEX-Z2BT

Explosion-proof bimetal thermostat  
Safety device for temperature limit

<p>Use</p>	<p>Temperature limiting for surface heating system Semiconductor, display and petro chemical industry Hazardous and non-hazardous locations</p>								
<p>Specification</p>	<p>Protection type : Ex nC IIC T4...T6 Gb / Ex tc IIIC T85°C ... T135°C Dc Operating temperature : 0 °C to 100 °C with interval of 5 °C Operating tolerance : ± 5 °C Switching voltage and current : 250Vac/5A, 125Vac/8A, 24Vdc/50mA On-off differential : 30 ± 15 K Ambient temperature : -40°C to +100°C Stainless housing Dimension 6.5 x 9.0 x 28.0mm Ingress protection IP67 Leadwire AWG 22</p>								
<p>Features</p>	<p>Ex 'm' encapsulated explosion proof bimetallic thermostat Connected to power relay to limit temperature rise The smallest temperature monitoring equipment Can be installed independently inside various surface heating equipments ATEX, IECEx and KCs certified for zone 1 and 2 hazardous locations</p>								
<p>Selection Code</p>	<p><u>PYEX-Z2BT</u> - <u>70</u> - <u>NC</u> - <u>2.0</u>            (a) (b) (c) (d)</p> <table border="1" data-bbox="608 1536 1437 1738"> <tr> <td>(a)</td> <td>Model</td> </tr> <tr> <td>(b)</td> <td>Swiching temperature 0 ~ 100°C</td> </tr> <tr> <td>(c)</td> <td>Nomal close (NC) / Nomal open (NO)</td> </tr> <tr> <td>(d)</td> <td>Lead cable lenght 1.0-20.0m</td> </tr> </table>	(a)	Model	(b)	Swiching temperature 0 ~ 100°C	(c)	Nomal close (NC) / Nomal open (NO)	(d)	Lead cable lenght 1.0-20.0m
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(d)	Lead cable lenght 1.0-20.0m								
<p>Certification</p>									

# Monitoring and Control





SKYTRACE

BLUTRACE

IOTKEY

# SKYTRACE

Web-based monitoring solution for industrial trace heating applications

<p>Use</p>	<ul style="list-style-type: none"> <li>Avoid process downtime</li> <li>Find hidden kWh cost and save money</li> <li>Identify and solve mysterious problems</li> <li>Confirm heating cable quality and maintenance schedule change</li> </ul>
<p>Specification</p>	<ul style="list-style-type: none"> <li>Trace heating circuit analysis by table and by site map</li> <li>Control panel and circuit location can be customized after the completion of installation</li> <li>Dashboard for controlling and monitoring of individual circuit</li> <li>Monitoring temperature, load current, leakage current and sensor status</li> <li>Energy consumption statistics - Top 10 circuits with higher consumption</li> <li>Top 10 alarm count per circuit</li> </ul>
<p>Features</p>	<ul style="list-style-type: none"> <li>Web-based monitoring and control solution for trace heating system</li> <li>Saving saves energy and labor costs up to 90%</li> <li>Proactive maintenance analysis</li> <li>Prioritized alarm 1 to 9</li> <li>Heating cable performance analysis</li> <li>Excellent security</li> <li>Remote control via VPN to LAN network</li> <li>Integrate to client own automation system</li> <li>Extendable to 'SKTRACE analytics' via cloud service</li> <li>Mobile user interface</li> <li>Proactive maintenance montly report</li> </ul>
<p>Certification</p>	

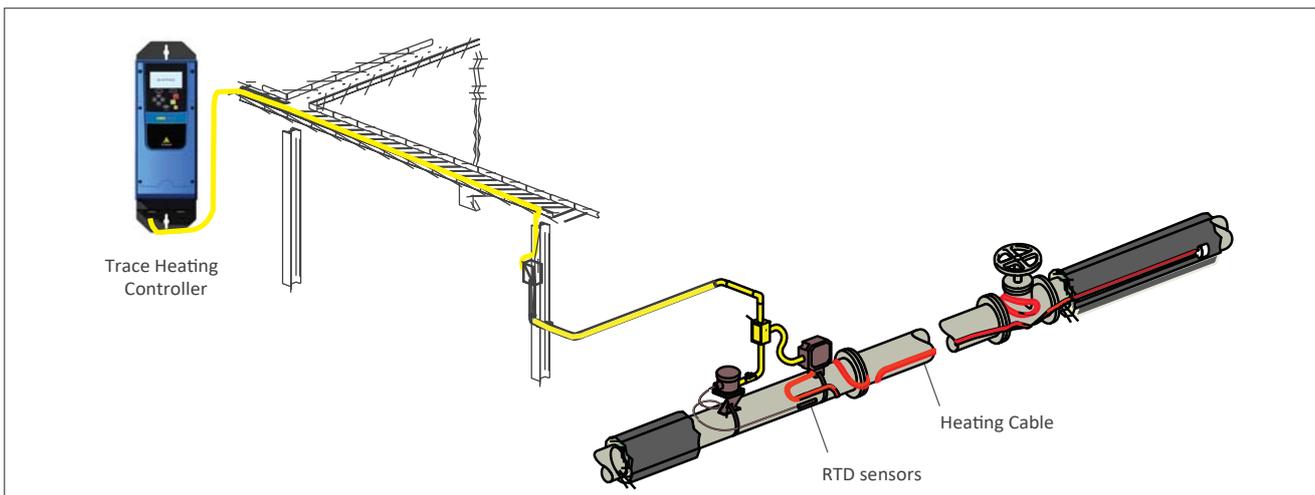




# BLUETRACE

Single circuit controller for industrial trace heating system

<b>Use</b>	Tanks, Vessels Pipelines Conveyors, filter stations Gutter, roof drains Ventilation grids, pumps Ramps, slabs
<b>Specification</b>	50A x 1-Phase / 3 Phase Solid State Relay Two RTD inputs RS485 connection Adjustable power percentage save time and money in trace heating design Temperature limiter can be integrated BluePID algorithm Temperature window mode Two programmable voltage inputs 24VDC, 100-277VAC Downtime test cycle and circuit status report Setting can be saved and downloaded for copy
<b>Features</b>	Self-contained single circuit control and monitoring solution for trace heating system Scaleable Blue Trace Team Plug-and-Play Accurate and intelligent control with BluePID algorithm and Softstat function Easy to use and maintain Extended lifetime
<b>Certification</b>	





# IOTKEY

Industrial grade wireless measurements and monitoring

## Features

### WIRELESS FOR INDUSTRIAL APPLICATIONS

- Industry grade turn-key solution for cost efficient wireless measurements
- Fast and simple set-up also for retro-fit and temporary installation
- Reliable, long range, low power wireless data communication with excellent immunity to interference even in high demanding circumstances

### SMARTER MAINTENANCE FOR BETTER PRODUCTIVITY

- Prevent, detect, locate and diagnose problems and failures faster and more efficiently
- Optimise inspection and maintenance intervals, conditions, product life-cycle and warranty costs based on real time measurement
- Get more insight with more data - temperature, humidity, pressure, level, vibration, oil quality, current etc.

### FUTURE-PROOF FLEXIBILITY

- Use as stand-alone solution or to be integrated into existing automation systems
- Scale-up for new sensors, locations and monitoring options
- Simple web-based access to real time data, trends and measuring set-up any time, anywhere, also with mobile devices.

## Certification



## Application References

- Detecting the reduced efficiency in heat exchanger with remote and automated temperature measurement.
- Problem diagnostics and pro-active maintenance for pumps and gears with wireless temperature, pressure and vibration measurements
- Monitoring and improving energy efficiency in surface heating systems



## Components



IoTKey transmitter WLT310

- Encrypted wireless LoRa communication. LoRaWAN certified.
- Energy efficient LoRa 868 MHz transmitter using LoRaWAN protocol.
- 3.6V nominal 8.5Ah Lithium primary cell battery or external 12 / 24V DC power supply
- Long range, low power and excellent immunity for external interferences
- 1 to 3 sensors per transmitter. temperature, humidity, current, pressure, vibration etc
- Configurable measuring interval and alarms
- Excellent range with typical 100+ meters indoor, ~10km outdoor



IoTKey wireless temperature sensing kits

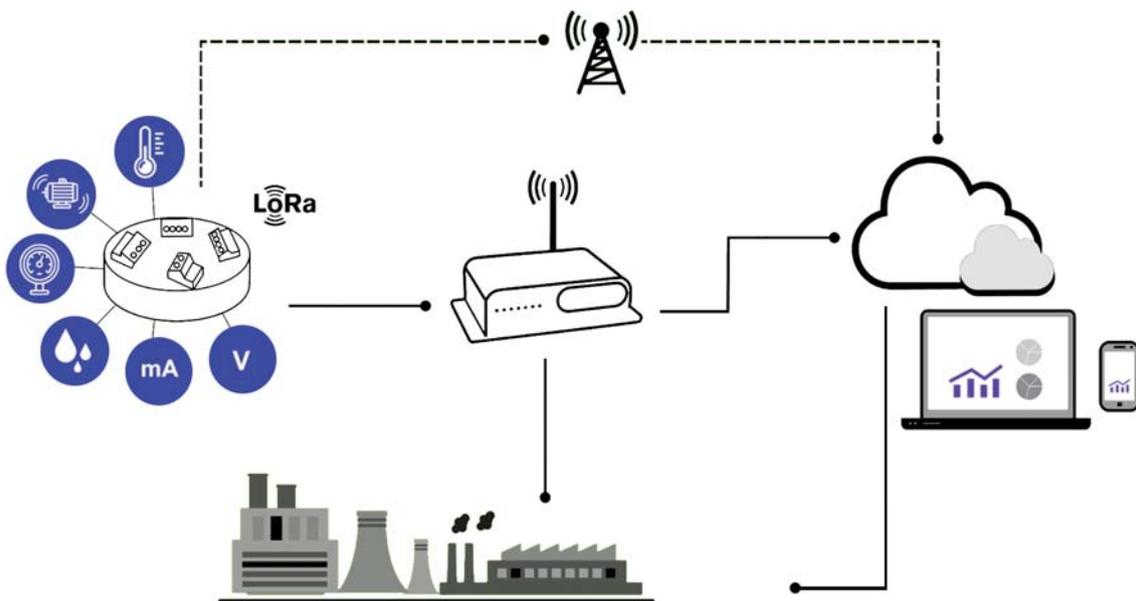
- Complete measuring sets according to needs and conditions
- Includes sensors, transmitters, batteries, antennas, housing and other required components
- Pre-configured and ready-to-use for immediate wireless measurements and monitoring
- Typical 2+ years life time with C size 3.6V battery for temperature measurements
- 12/24Vdc input
- Smart power saving and self-diagnostics
- ATEX certified with Ex d housing



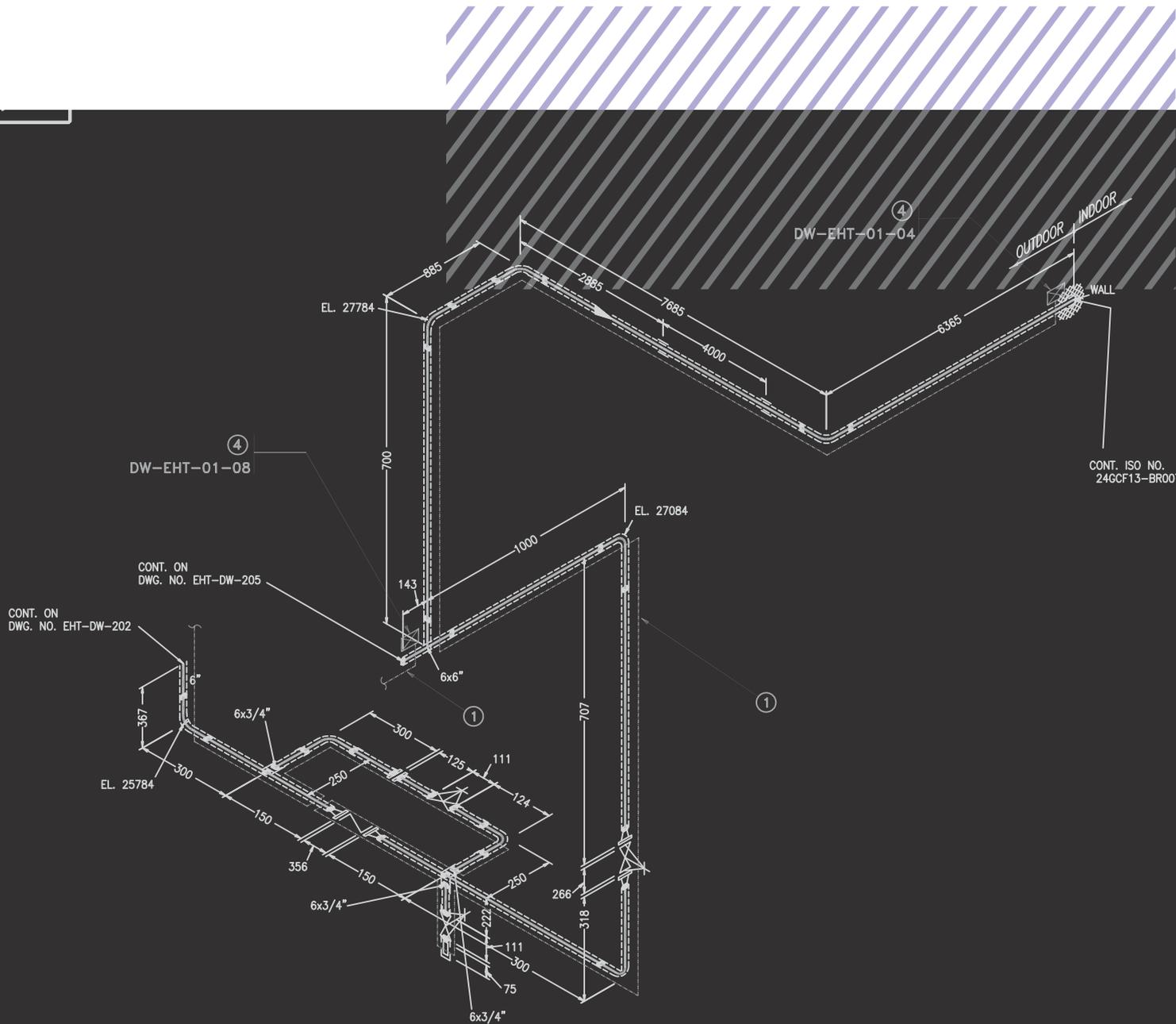
IoTKey gateway and monitoring

- Data routing (4G/Ethernet) to IoTKey cloud or any other system
- Real time monitoring, alarms and history data anywhere with any web-enabled device
- Configurable dashboard views and measuring parameters

## System Configuration



# Technical Support



△		
△		

NORMAL OPER. TEMP.	5 °C
MAINTAIN TEMP.	5 °C
MINIMUM AMB. TEMP.	-20 °C
TEMP.DIFFERENTIAL	40 °C
SERVICE VOLTAGE	220VAC
PIPE MATERIAL	

**THERMAL INSULATION**

TYPE	"K"	THK.	PIPE SIZE
Perlite	0.0687	5.	6"

	Q'TY	CAT.NO.	DESCRIPTION
	1	59	HSR242-CF 26.3 W/M @
	2		HSR302-CF 32.8 W/M @
	3		VSR302-CF 34.2 W/M @
	4	1	AL-PJB-P POWER CONN. KIT
	5		POWER CONN. KIT
	6	1	AL-PJB-LE LIGHTED END SEAL KIT
	7		END SEAL KIT
	8		
	9		SPLICE CONN. KIT
	10	HACC-TK-P	TEE CONN. KIT
	11		
	12	HACC-TSK-P	THERMOSTAT
	13		TEMP. SENSOR CONT.
	14		
	15		
	16		
	17		



PROJECT NAME

TITLE  
ELECTRIC HEAT TRACING SYSTEM

END USER

PROJECT CHP-S1	ENG'S JOB NO.	P.O. NO. KKPC CHP-S1-UE-RFQ-005
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-HCY-150A(10F3):INDOOR

Pyrotechnician (ver.2)

Engineering & Design



# Pyrotechnician

Trace heating design software

Pyrotechnician, the design software for trace heating application provides the outstanding design-aid performance via user-friendly interface. User can enter the conditions of process and each parameter directly or via Excel form easy to enter multiple lines. To design the circuit of trace heating line, visually comfortable graphic is used and the selection of connection kit and/or temperature control devices is also more convenient.

It has all the features you need such as

- site conditions and process conditions can be tailored for each pipeline
- heat loss calculation,
- automated heating cable selection
- electrical load for each circuit
- selection of control and monitoring method
- calculated/determined temperature information
- automated generation of design summary and bill of material(BOM)

All reports can be issued in Excel program.

Pyrotechnician is the most advanced design software for precision and time-saving design work for both pipe tracing and tank tracing application.

## Project Window

The screenshot displays the Pyrotechnician 2.0 software interface. The main window shows a circuit diagram with three segments: Segment 1 (JBP-16), Segment 2 (JBP-12), and Segment 3 (JBP-12). A 'Kit Type' dialog box is open, allowing selection of a kit type for the selected kit. The dialog lists two options: JBP-12 (PYEX-EP-JBP-12-T: 120x120 GRP enclosure with plastic) and JBP-16 (PYEX-EP-JBP-16-T: 160x160 GRP enclosure with plastic). Below the dialog, the 'Design Results of Circuit 1' and 'Design Results of Segment 1' are displayed. The 'Design Results of Circuit 1' table shows the following data:

Name	Value	Unit
Comments	[ Success ]	
Circuit Data		
Control Method	Stabilized Pipe Sensing	
Total Heater Length	93.00 m	
Operating Load	1433.13 W	
Operating Current	6.51 A	
Maximum Current	15.82 A	

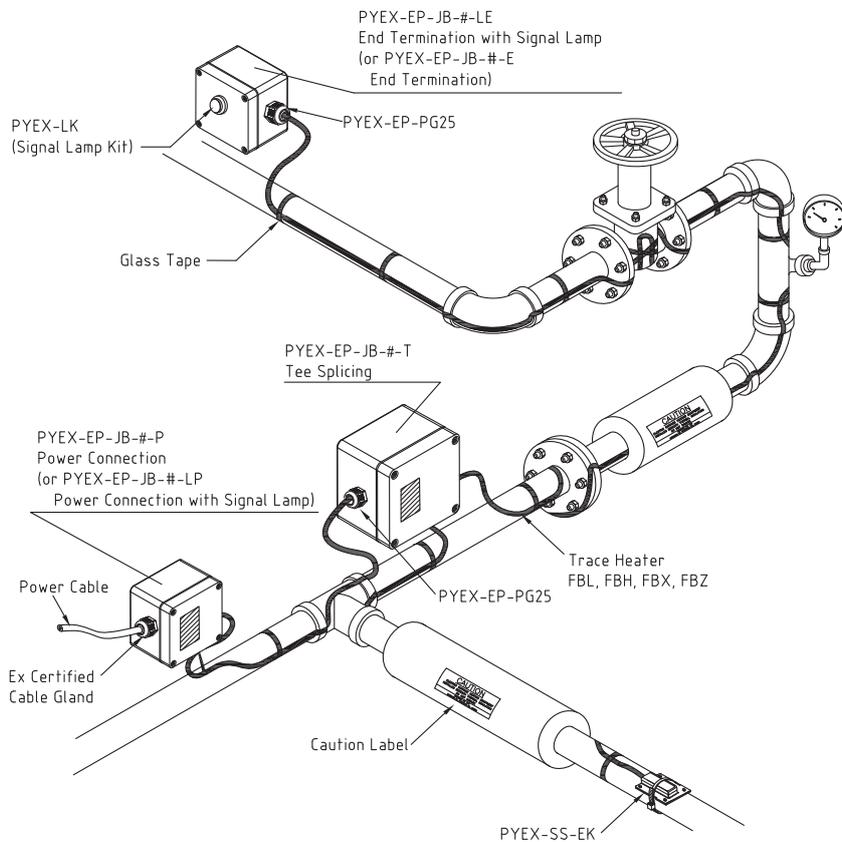
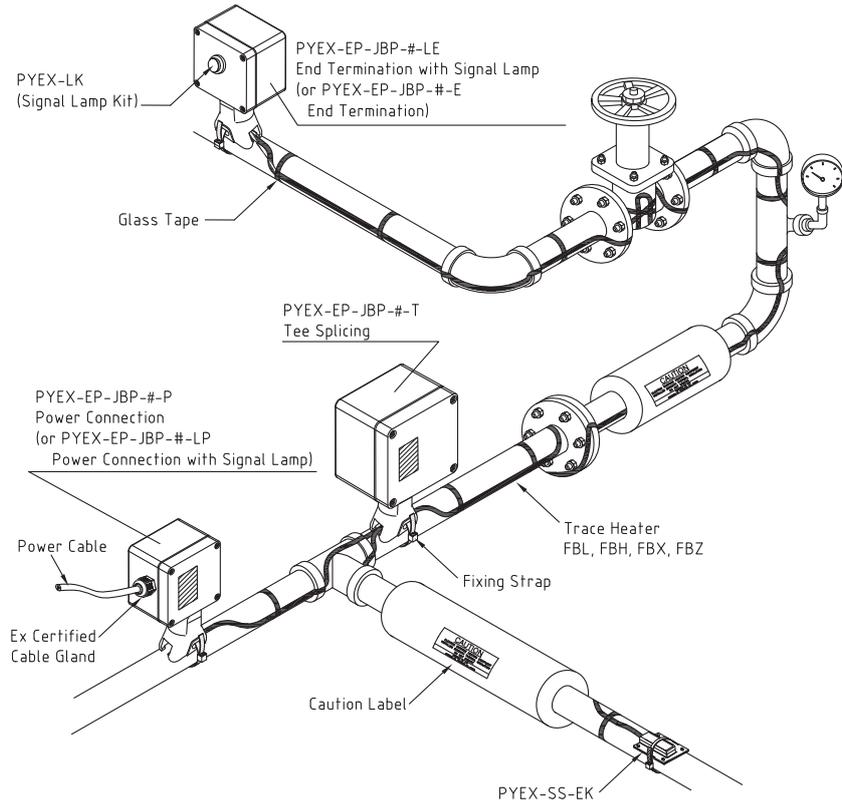
The 'Design Results of Segment 1' table shows the following data:

Name	Value	Unit
Catalog Number	FBH152-CT	
Power Output	13.40 W/m	
Trace Ratio per Set	1	
Number of Sets	1	
Sheath Temperature	18.66 °C	
Min Controlled Temperat	5.00 °C	
Max Controlled Tempera	N/A °C	
Max Pipe Temperature	18.66 °C	
Max Cable Temperature	N/A °C	

The 'Input Data of Segment 1' table shows the following data:

Name	Value	Unit
Name	Segment 1	
Module	[Unspecified]	
Work Package	[Unspecified]	
Area	[Unspecified]	
Customer Line No.	[Unspecified]	
Ext. Reference No.	[Unspecified]	
Customer Drawing No.	[Unspecified]	
Pipe		
Size	50.00 mm	
Length	30.00 m	
Insulation		
Layer Count	One Layer	
Inner Layer Type	MF(Mineral Fiber)	
Inner Layer Thickness	25.00 mm	
Outer Layer Type	MF(Mineral Fiber)	
Outer Layer Thickness	25.00 mm	
Weather Barrier	Aluminum	
Emissivity	0.12	
Temperature		
Min Ambient	-20.00 °C	
Max Ambient	40.00 °C	
Startup Ambient	-20.00 °C	
Environmental		
Chemical Exposure	None	
Wind	0.00 mis	
Safety Factor	20.00 %	
Heater		
Heater Family (Read Onl	Select By Pyrotechni	
Heater Model	Select By Pyrotechni	
Heat Sink Allowance		

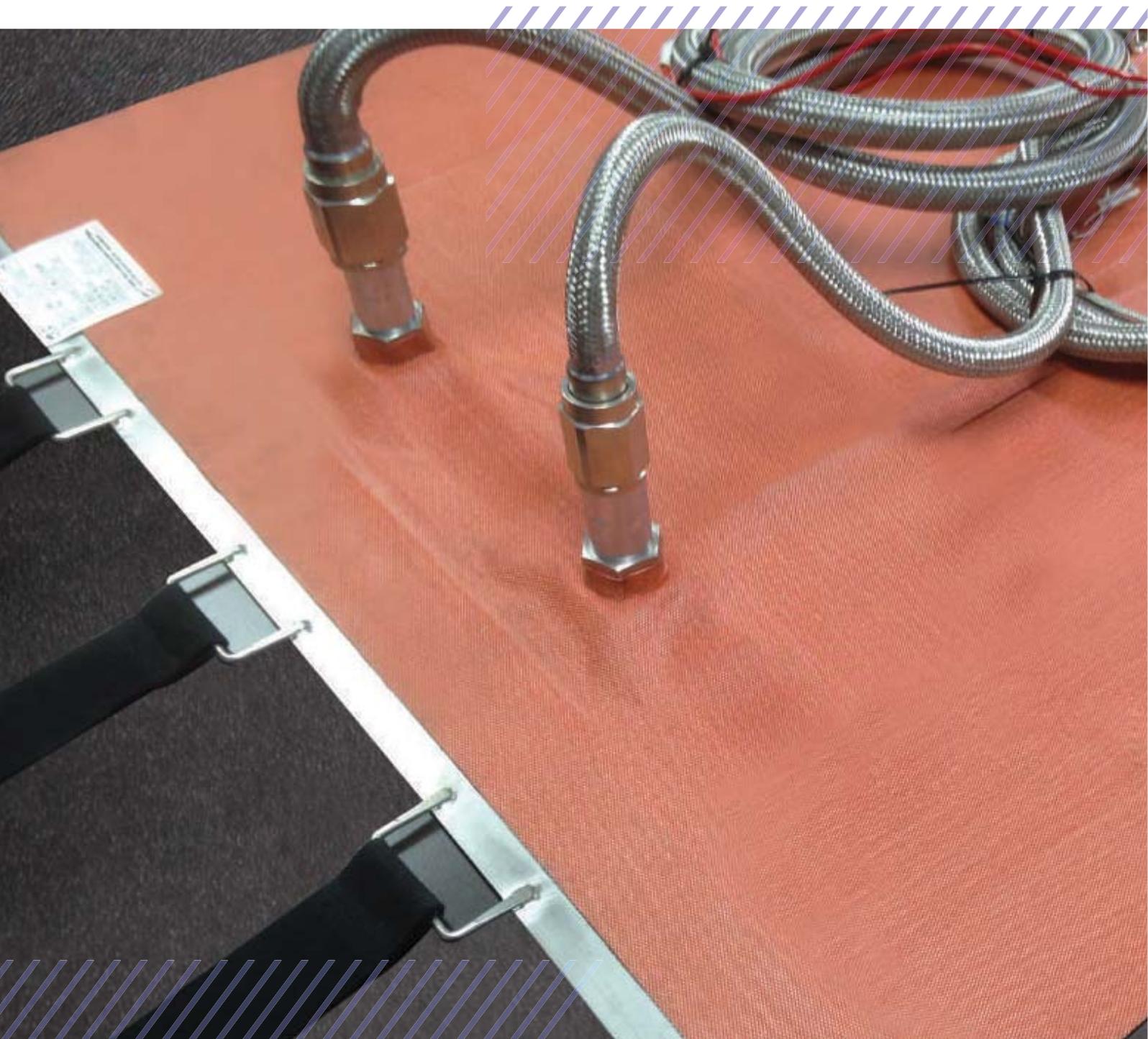
# Typical Installation



SOLCO PYROELEC self-regulating cables are to be installed with genuine components being supplied by SOLCO PYROELEC representatives to guarantee optimum performance as well as to validate extended warranty scheme. To benefit from SOLCO PYROELEC product warranty, the customer must complete and retain the installation, inspection or commissioning record(s) provided with installation manual.

Also the customer complete warranty registration form and fax it to SOLCO PYROELEC within thirty(30) days from the installation. Otherwise only standard terms and conditions apply.

# Heating Jacket



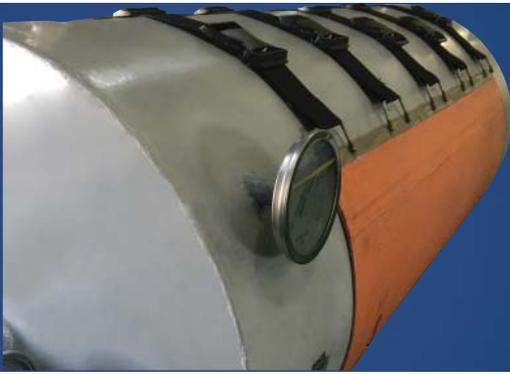


FBJH-SR

FBJH-GR

FBJH-GP

FBJH-GB

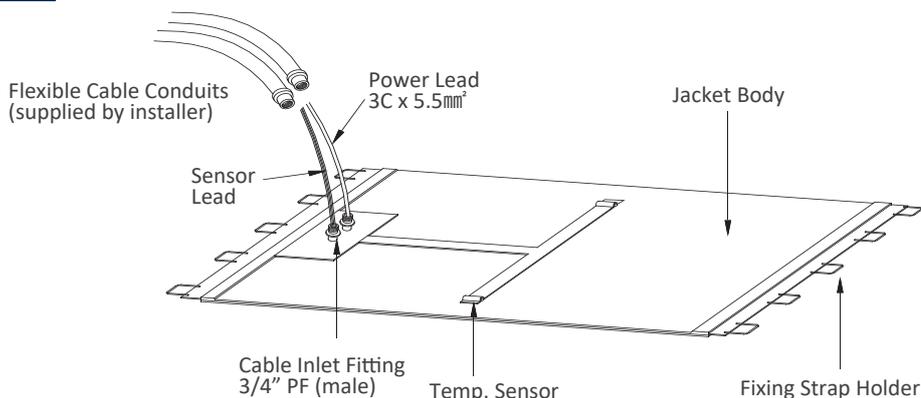


# FB-JH-SR

Heating wire or etched metal foil heating element for cylindrical tanks and vessels in chemistry and gas industry

Use	Gentle heat-up or temperature maintenance of gas cylinder Freeze protection or temperature maintenance of chemical tanks Hazardous and non-hazardous locations								
Specification	Max. maintain Temperature (Power-on) 40 °C (104°F) Max. continuous Temperature (Power-off) 150 °C (302°F) Rated voltage : 110 / 220 Vac Power consumption : 1,000 ~ 8,000 watt per set Temperature class (T-class) : T4 (135 °C) Min. installation Temperature : -20 °C Minimum bending radius 110 or 310 mm Temperature sensors Pt100 RTD or type K thermocouple Cable outlet fitting 3/4 inch PF threaded elbow Certification to use in hazardous locations Ex e IIC T4 KCs (Korea) / ATEX (EU) / NEPSI (China)								
Features	Explosion proof heating jacket for various containers Wire type or etched foil type heating element Flat heating element for highly efficient thermal performance Glassfiber reinforced silicone rubber substrate for high thermal endurance Flexible and excellent mechanical strength Easy installation and fast response Resistance to heat, oil and chemicals								
Selection Code	<p><b>FB-JH-SR</b> / <b>Y</b> <b>6000</b> - <b>F</b></p> <p>(a) (b) (c) (d)</p> <table border="1" data-bbox="616 1234 1447 1552"> <tr> <td>(a)</td> <td>Model / Type Silicone rubber substrate heating jacket</td> </tr> <tr> <td>(b)</td> <td>Dimension Y 880mm* X 1270mm (* product with -H suffix, 805mm X 1270mm) T 1400mm X 1940mm B47x ** 480mm* X 510mm (** -x denote rated voltage 1 : 110V 2 : 220V)</td> </tr> <tr> <td>(c)</td> <td>Power consumption watt per set</td> </tr> <tr> <td>(d)</td> <td>Option H : Size variation 850mm x 1270mm G : Graphite earthing layer F : Etched foil heating element</td> </tr> </table>	(a)	Model / Type Silicone rubber substrate heating jacket	(b)	Dimension Y 880mm* X 1270mm (* product with -H suffix, 805mm X 1270mm) T 1400mm X 1940mm B47x ** 480mm* X 510mm (** -x denote rated voltage 1 : 110V 2 : 220V)	(c)	Power consumption watt per set	(d)	Option H : Size variation 850mm x 1270mm G : Graphite earthing layer F : Etched foil heating element
(a)	Model / Type Silicone rubber substrate heating jacket								
(b)	Dimension Y 880mm* X 1270mm (* product with -H suffix, 805mm X 1270mm) T 1400mm X 1940mm B47x ** 480mm* X 510mm (** -x denote rated voltage 1 : 110V 2 : 220V)								
(c)	Power consumption watt per set								
(d)	Option H : Size variation 850mm x 1270mm G : Graphite earthing layer F : Etched foil heating element								
Certification									

## Product Drawing





# FBJH-GR

Ex 'e' Explosion-proof glassfiber substrate heating jacket for tanks and vessels in chemistry and gas industry

Use	<p>Gentle heat-up or temperature maintenance of various gas cylinder          Freeze protection or temperature maintenance of chemical tanks          Hazardous and non-hazardous locations</p>								
Specification	<p>Max. maintain Temperature (Power-on) 40 °C (104 °F)          Max. continuous Temperature (Power-off) 150 °C (302 °F)          Rated voltage : 220 Vac          Power consumption : 70 ~ 400 watt per set          Temperature class (T-Class) T4 (135 °C) except - PTC version T6 (85 °C)          Min. installation Temperature : -20 °C          Minimum bending radius 110 mm          Temperature sensors Pt100 RTD or type K themodouple          Cable outlet fitting 1/2 inch PT threaded elbow made of stainless steel          Certification to use in hazardous locations Ex e IIC T4 or T6          KCs (Korea) / NEPSI(China) / ATEX(EU) / IECEx</p>								
Features	<p>Explosion proof heating jacket designed for various containers          Easy installation and fast response          Aluminum backed glass fiber fabric for ultimate thermal endurance          Flexible and excellent mechanical strength          Resistance to heat, oil and chemicals          Long service life</p>								
Selection Code	<p><u>FBJH-GR</u> / <u>47</u> - <u>200</u> <u>PTC</u>          (a) (b) (c) (d)</p> <table border="1" data-bbox="625 1541 1444 1832"> <tr> <td>(a)</td> <td>Model / Type Aluminum backed glassfiber fabric based heating jacket</td> </tr> <tr> <td>(b)</td> <td>Dimension 10 550mm x 300mm 47 880mm x 500mm* (* product with -400 suffix, 880mm X 1000mm) 54 952mm x 450mm</td> </tr> <tr> <td>(c)</td> <td>Power consumption watt per set</td> </tr> <tr> <td>(d)</td> <td>Heating cable None series heating cable PTC self-regulating (PTC) heating cable</td> </tr> </table>	(a)	Model / Type Aluminum backed glassfiber fabric based heating jacket	(b)	Dimension 10 550mm x 300mm 47 880mm x 500mm* (* product with -400 suffix, 880mm X 1000mm) 54 952mm x 450mm	(c)	Power consumption watt per set	(d)	Heating cable None series heating cable PTC self-regulating (PTC) heating cable
(a)	Model / Type Aluminum backed glassfiber fabric based heating jacket								
(b)	Dimension 10 550mm x 300mm 47 880mm x 500mm* (* product with -400 suffix, 880mm X 1000mm) 54 952mm x 450mm								
(c)	Power consumption watt per set								
(d)	Heating cable None series heating cable PTC self-regulating (PTC) heating cable								
Certification									



# FBJH-GP

Glassfibre insulated heating jacket for gas purifier application

Use	Semi-conductor, LCD, battery industries Hazardous and non-hazardous locations						
Specification	<p>Max. maintenance temperature 350°C            Max. intermittent exposure 500°C            Rated voltage and current 240Vac, 15A            Power consumption 3,000 W max. per set            Min. installation temperature -40°C            Temperature sensors 2 x thermocouple            Inner diameter when assembled 217mm(8 in), 319mm(12 in)            Outer diameter when assembled 317mm(8 in), 419mm(12 in)            Height 690mm            Heating cable glassfibre insulated series heating cable 400°C            50mm E-Glass insulation</p>						
Features	<p>Explosion proof heated jacket for purifier tank            Easy and fast installation with heat resistance velcro.            Aluminum backed glass fiber fabric for ultimate thermal endurance            Flexible and excellent mechanical strength            Resistance to heat, oil and chemicals            Long service life</p>						
Selection Code	<p><b>FBJH-GP</b> - <b>8</b> - <b>3000</b>  <small>(a) (b) (c)</small></p> <table border="1" data-bbox="625 1514 1449 1704"> <tr> <td data-bbox="625 1514 687 1570">(a)</td> <td data-bbox="687 1514 1449 1570">Model / Type Glassfibre insulation purifier heating jacket</td> </tr> <tr> <td data-bbox="625 1570 687 1659">(b)</td> <td data-bbox="687 1570 1449 1659">Dimension 8 - D317mm x H690mm 12 - D417mm x H690mm</td> </tr> <tr> <td data-bbox="625 1659 687 1704">(c)</td> <td data-bbox="687 1659 1449 1704">Power consumption watt per set</td> </tr> </table>	(a)	Model / Type Glassfibre insulation purifier heating jacket	(b)	Dimension 8 - D317mm x H690mm 12 - D417mm x H690mm	(c)	Power consumption watt per set
(a)	Model / Type Glassfibre insulation purifier heating jacket						
(b)	Dimension 8 - D317mm x H690mm 12 - D417mm x H690mm						
(c)	Power consumption watt per set						
Certification							



# FBJH-GB

Glassfibre insulated heating jacket for IBC chemical container

<p>Use</p>	<p>Heat-up and temperature maintenance for IBC chemical containers Chemical industries Hazardous and non-hazardous locations</p>								
<p>Specification</p>	<p>Max. maintenance temperature 135°C Heat-up control range 0 to +90°C Rated voltage and current 110 - 277Vac, 30A Power consumption 2 x 1,100W max. per set Min. installation temperature -40°C Temperature sensors 2 x Pt100 RTD Dimension when assembled L1,000mm x W1,200mm x H1,000mm Dimension when opened H1000mm x L4400mm Customized dimension available on request Silicone coated glassfibre fabric 400°C Ingress protection IP65 min Explosion-proof termination enclosure IP66 Built-in capillary thermostat</p>								
<p>Features</p>	<p>Explosion proof heated jacket for IBC chemical container Easy and fast installation with heat resistance velcro Glassfibre fabric for thermal endurance Flexible and excellent mechanical strength Resistance to heat, oil and chemicals Long service life</p>								
<p>Selection Code</p>	<p><b>FBJH-GB</b> / <b>1</b> - <b>2200</b> <b>PTC</b>  <span style="margin-left: 20px;">(a)</span> <span style="margin-left: 100px;">(b)</span> <span style="margin-left: 100px;">(c)</span> <span style="margin-left: 100px;">(d)</span></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30px; text-align: center;">(a)</td> <td>Model / Type Glassfibre fabric based heating jacket for IBC container</td> </tr> <tr> <td style="text-align: center;">(b)</td> <td>Rated voltage 1 - 100 - 120Vac 2 - 200 - 277Vac</td> </tr> <tr> <td style="text-align: center;">(c)</td> <td>Power consumption watt per set</td> </tr> <tr> <td style="text-align: center;">(d)</td> <td>Heating cable None series heating cable PTC self-regulating (PTC) heating cable</td> </tr> </table>	(a)	Model / Type Glassfibre fabric based heating jacket for IBC container	(b)	Rated voltage 1 - 100 - 120Vac 2 - 200 - 277Vac	(c)	Power consumption watt per set	(d)	Heating cable None series heating cable PTC self-regulating (PTC) heating cable
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<p>Certification</p>	<p><b>CE</b> <small>1180</small></p>								

# Liquid Leak Detection





LEAKBAN LDS

LBMM-100

LBSM-200/300

LBSC-1000

LBSC-3000

LBSC-7000

Components for Ex Certified LDS

# LEAKBAN LDS

Leak detection system

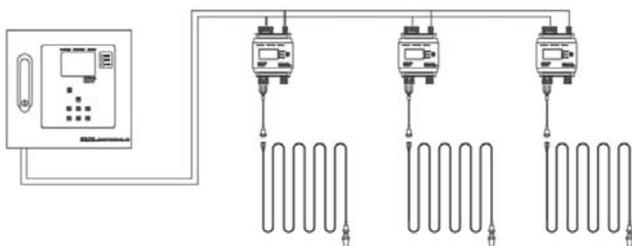
The fluid leakage in the building such as data centre or command room can stop all electrical and electronic equipment and the relevant safety systems from correct appropriate operation. Furthermore it can cause serious losses such as environmental pollution, fire, explosion and/or casualties. LEAKBAN leak detection cable system can detect various types of leakage from pipes and other equipment. Furthermore, it pinpoints the position where the leakage occurred with high accuracy. LEAKBAN LDS is an essential part for safety and a preventive operation system in industrial and commercial areas.

Use	<p><b>Power plant and sub-station</b> : water and various chemical detection around power generation plants, data centres, central command units</p> <p><b>Digital media centre</b> : water detection including floor surfaces, subfloors and equipment locations</p> <p><b>Semi-conductor, battery, display panel (LCD/LED) factory</b> : water, acid and base leakage detection around pipes, storage tanks, and trenches such as sulphuric acid, sulphurous acid, nitric acid, PAC and sodium hydroxide etc.</p> <p><b>Army bases</b> : Oil and chemical leak detection including pipes and storage tanks</p> <p>SOLCO intrinsically safe leak detection system is approved for installation in ordinary and hazardous areas when used with LBSC-1000 or LBSC-7000 sensing cable with safety barrier being stated in the Ex certificates. Protection Ex ia IIC T4 Ga Certificate No. BASEEFA 15Y0074, IECEx BAS15.0064X</p>
Features of LEAKBAN System	<p>Conforms with relevant EMI/EMC and Electrical Safety requirements</p> <p>Sensing cable can be connected up to 1km</p> <p>Fast response (default 8 seconds)</p> <p>Leak point positioning within <math>\pm 1m / 1,000m</math></p> <p>Sensing wires sit in deep grooves making it fault-free</p> <p>Durable and flexible / Reusable</p> <p>Chemical and abrasion resistance</p>
Certification	

## Product Drawing

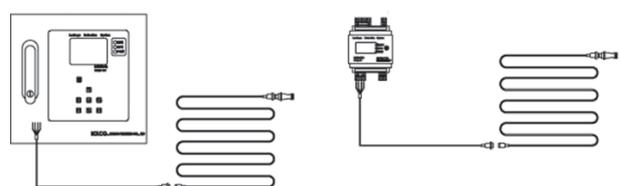
### Network System

LEAKBAN LBMM-100, the main display module, is connected with LBSM, the Submodule, via RS485 and monitors the status of all the linked submodules and sensing cables. When a leakage is detected, it automatically triggers an auditory and visual alarm for recognition and alert from a distance. Max. 32 submodules can be linked with LBMM-100 via RS485, and each submodule can accommodate up to 500m of sensing cable at maximum.



### Stand-Alone System

LBMM-100, main display module can be directly connected with a leak sensing cable without a LBSM. It can accommodate up to 1,000m of sensing cable at max. On the other hand, LBSM-200 or LBSM-300, submodules can be used without the LBMM. If necessary, it can be connected with a Windows PC via the RC-MBT unit for monitoring the status of leak sensing cables and for positioning the point where the leakage occurred.





# LBMM-100

Master module monitoring and alarm

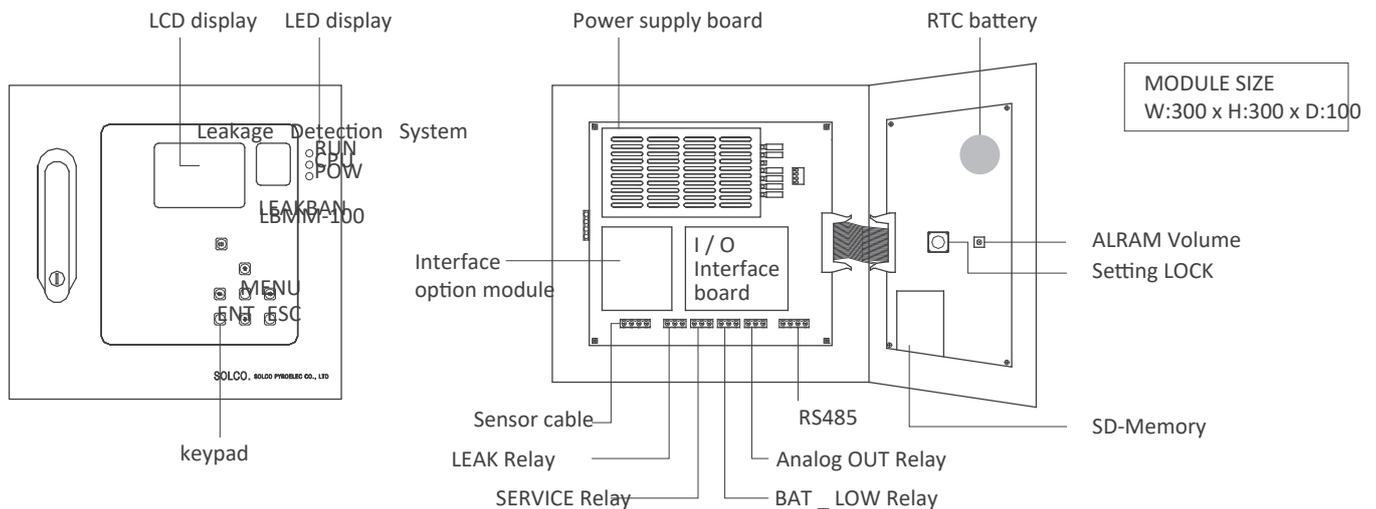
LBMM-100 is the main monitoring unit for the leak detection system and it works with sub-modules and sensing cables. When the LBMM is working in master mode, it is connected with the LBSM, the sub-module via RS485, for monitoring all the events and status of sub-modules on the provided LCD display. When detecting any event with a LBSM in slave mode, it produces a visual and auditory alarm to be noticed from distance with ease. Furthermore, all the data, which is safely stored in the provided external SD-Card, can be read by a personal computer even in the case the product is no longer functional. When the LBMM is working in slave mode, it performs the same functions as the LBSM, sub-module does.

## Product Specification

Conform with EMI/EMC requirements

Power Supply Functions	110 ~ 250Vac / 50, 60Hz (DC Smps Built in)
Display/Alarm Sensing Time	Leak detection and positioning / Contamination check of sensing cable / Continuity check of sensing cable
Sensing Length	3.5 Inch TFT-LCD / Built in
Operating Temp. / Humidity Output	Max. 8 seconds (default) max 1.000M / 1M accuracy -10 ~ 85°C / 30 ~ 80% RH
RTC Battery / Memory	Replay – 3 Channels 250Vac - 10A , 30Vdc - 10A
Parameter Setting	Analog Output; 1 Channel (0 - 20mA) 1 Channel (0 - 10Vdc)
Communication Method	Built in / SD-CARD
Protocol	KEY & Modbus RTU
Communication Distance / Number of Multi-Drop	RS485 – 2wire
Data Transferring Speed	Modbus-RTU
Data bit / Stop bit / Parity bit	1.2km / 32
Housing	9600BPS
	8bit / 1bit / none (Fixed)

## Product Drawing



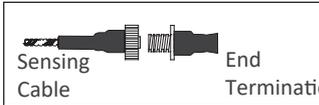
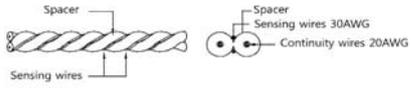
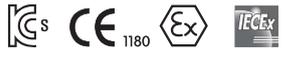




# LBSC-1000

Water sensing cable

The LeakBan LBSC-1000 sensing cable detects the presence of water at any point along the length. Being installed with LBMM, master module and LBSM, slave module (sub-module), LBSC-1000 senses leakage or intrusion instantly and sends event signal to LBMM via LBSM by RS485 communication protocol. Upon reception, LBMM and LBSM trigger an alarm and find the position where the leakage occurs. LBSC-1000 sensing cable can be supplied in standard supply lengths, which are factory-terminated with a pair of circular plastic connectors to plug together. These are keyed to avoid incorrect polarity/connection for easy and quick installation. Multiples of pre-terminated sensing cables can be easily connected up to 1 km to suit on-site layouts and conditions. LBSC-1000 sensing cable consists of two continuity cables and two sensing wires being coated with a conductive material for corrosion resistance. The sensing wires are spirally wound and positioned in the groove of the twisted spacer. As the groove is deep enough, it eliminates any single chance of false alarms even when the sensing cable lies on a metal surface. The spacer of LBSC-1000 cable is constructed with crosslinked rigid plastic so it exhibits excellent abrasion resistance as well as chemical resistance. LBSC-1000 is thin, lightweight, flexible and less elastic so keeps its position after installation.

<p><b>Use</b></p>	<p><b>LBSC-1000 sensing cable is designed for various applications :</b>  data centre sub-floor telecommunication centre HVAC equipment insulated pipelines  electrical vaults storage areas roof or bathroom</p>	
<p><b>Technical Information</b></p>	<p>Cable diameter  Continuity wire  Sensing wire  Spacer  Maximum continuous operating temperature  Humidity  Flame retardant  Min. bending radius  Min. installation Temperature  Pre-terminated standard length  CPC connector polyester/glass-filled nylon</p>	<p>approx. 6 mm  AWG 20 x 2  AWG 30 x 2  alloy with conductive coating  XLEVA, orange color  80°C  up to 80% RH  VW-1  35mm  -40°C  3.5m, 7m or 15m  Max. Ø25mm</p>
<p><b>Characteristics</b></p>	<ul style="list-style-type: none"> <li>- Conforms with EMI/EMC and Electrical Safety requirements</li> <li>- Sensing cable can be extended up to 1km</li> <li>- Fast response (default 8 seconds)</li> <li>- Leak Point Accuracy (± 1m /1,000m)</li> <li>- Resistance to abrasion, chemicals</li> <li>- Standard supply 3.5m, 7m, 15m</li> <li>- Operating temp. -40°C ~ 80°C</li> </ul>	
<p><b>Termination</b></p>	 <p>Cable Connection</p>  <p>End Termination</p>	 <p>LBSC-1000 - 15 - EX</p> <p>Model    Pre-terminated    Supply Form  cable length(m)    None : for Safe Area  3.5, 7, 15            EX : for Hazardous Area</p>
<p><b>Certification</b></p>		



# LBSC-3000

Acid sensing Cable

The LeakBan LBSC-3000 sensing cable detects the presence of acids such as sulphuric/sulphurous acid, hydrochloric acid and PAC etc. at any point along the length. Being installed with LBMM, master module and LBSM, slave module (sub-module), LBSC-3000 senses leakage or intrusion instantly and sends an event signal to LBMM via LBSM by RS485 communication protocol. Upon reception, LBMM and LBSM trigger an alarm and find the position where leakage occurs. LBSC-3000 sensing cable can be supplied in standard supply lengths, which are factory-terminated with a pair of circular metallic connectors to plug together. These are keyed to avoid incorrect polarity/connection for easy and quick installation. Multiples of pre-terminated sensing cables can be easily connected up to 1 km to suit on-site layouts and conditions. LBSC-3000 sensing cable consists of two continuity wires and two sensing wires. The sensing wires are spirally wound and positioned in the groove of the twisted spacer. As the sensing wires are coated with a special material, it eliminates any chance of false alarm even when the sensing cable is installed outdoor and exposed to water, rain or flying conductive dusts. The flame-retardant woven-fibre covering is therefore optional for outdoor use and not provided for protection against water, rain or dusts. The spacer of LBSC-3000 is constructed with crosslinked rigid plastic so it exhibits excellent abrasion and chemical resistance. LBSC-3000 is thin, lightweight, flexible and less elastic so keeps its position after installation.

<p>Use</p>	<p><b>LBSC-3000 sensing cable is designed for various applications :</b>          semi-conductor factory battery factory display panel (LCD/LED) factory          all other chemical plants          Applicable chemical : sulphuric acid, hydrochloric acid, nitric acid, and PAC etc.</p>																				
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<p>Characteristics</p>	<ul style="list-style-type: none"> <li>- Conforms with EMI/EMC and Electrical Safety requirements</li> <li>- Sensing cables can be extended up to 1km</li> <li>- Fast response less than 15 minutes depending on the acid type</li> <li>- Leak positioning accuracy (<math>\pm 1m / 1,000m</math>)</li> <li>- Resistance to abrasion, chemicals</li> <li>- Standard supply 3.5m, 7m, 15m</li> <li>- Operating temp. -40°C ~ 80°C</li> </ul>																				
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# LBSC-7000

Multi-purpose sensing Cable

The LeakBan LBSC-7000 sensing cable detects the presence of any conductive liquids such as acids, bases and water at any point along the length hence is multi-purpose. Being installed with LBMM, master module and LBSM, slave module (submodule), LBSC-7000 senses leakage or intrusion instantly and sends event signal to LBMM via LBSM by RS485 communication protocol. Upon reception, LBMM and LBSM trigger an alarm and find the position where leakage occurs. LBSC-7000 sensing cables can be supplied in standard supply lengths, which are factory-terminated with a pair of circular plastic connectors to plug together. These are keyed to avoid incorrect polarity/connection for easy and quick installation. Multiples of pre-terminated sensing cables can be easily connected up to 1 km to suit on-site layouts and conditions. LBSC-7000 sensing cable consists of two continuity wires and two sensing wires. The sensing wires are spirally wound and positioned in the groove of the twisted spacer. As the sensing wires are coated with a conductive polymer, they have excellent corrosion resistance so perform for an extended period of time even when installed in corrosive and wet environments. The spacer of the LBSC-7000 is constructed with crosslinked rigid plastic so that it has good abrasion and chemical resistance. LBSC-7000 is thin, lightweight, flexible and less elastic so keeps its position after installation.

<p><b>Use</b></p>	<p><b>LBSC-7000 sensing cable is designed for various applications :</b>          semi-conductor factory battery factory display panel (LCD/LED) factory all other chemical plants          Applicable chemical : sulphuric acid, hydrochloric acid, nitric acid, and PAC etc.</p>																								
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<p><b>Characteristics</b></p>	<ul style="list-style-type: none"> <li>- Conforms with EMI/EMC and Electrical Safety requirements</li> <li>- Sensing cables can be extended up to 1km</li> <li>- Fast response 8 seconds max. depending on liquid type</li> <li>- Leak positioning accuracy (<math>\pm 1m / 1,000m</math>)</li> <li>- Resistance to abrasion, chemicals</li> <li>- Standard supply 3.5m, 7m, 15m</li> <li>- Operating temp. -40°C ~ 80°C</li> </ul>																								
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<p><b>Certification</b></p>																									

# Components for Ex Certified LDS



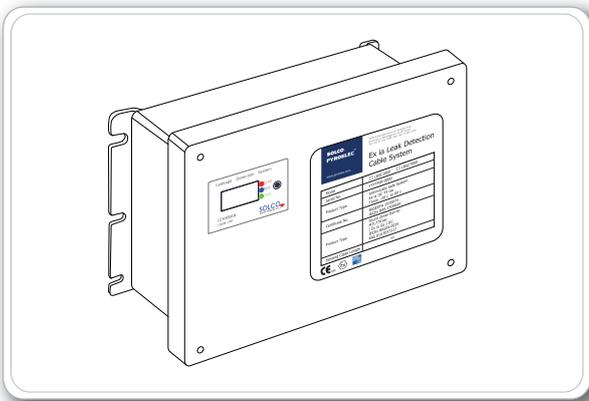
## Water sensing cable

Model	: LBSC-1000 Ex
Protection Type	: Ex i IIC T4 Ga
Ambient Temp	: $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$
Cable diameter	: approx. 6 mm
Continuity wire	: AWG 20 x 2
Sensing wire	: AWG 30 x 2
Spacer	: XLEVA
Outer governing	: Flame retardant nylon fibre
Color	: Black with Red Stripe



## Multi-purpose sensing cable

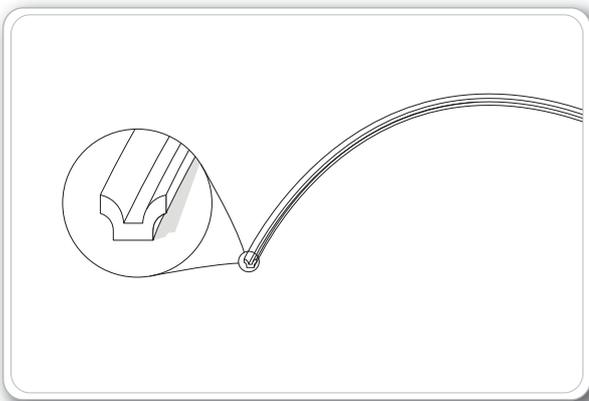
Model	: LBSC-7000 Ex
Protection Type	: Ex i IIC T4 Ga
Ambient Temp	: $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$
Cable diameter	: approx. 6 mm
Continuity wire	: AWG 20 x 2
Sensing wire	: AWG 30 x 2
Spacer	: XLEVA
Outer governing	: Flame retardant nylon fibre
Color	: Black with Blue Stripe



## Safety barrier kit

Model	: LBZK-P or LBZK-M
Component	: ① LBSM-200 Submodule ② SMPS 12V ③ *Safety barrier X 2 ④ weather-proof enclosure IP66

\* Please refer to Sales representatives for more information on Ex Certified safety barrier.



## Insulative fixing clip

Model	: LBIG
Material	: Flame retardant PVC
Dimension	: 15mm X 20mm





**SOLCO.**

advanced trace heating solution

# 615 Pyeongchon-dong IS Biz Tower, 57-2, Heungan-daero 427beon-gil,  
Dongan-gu, Anyang-si, Gyeonggi-do, South Korea  
Solco Thermal Co., Ltd. T 82-31-8091-3050 E 3053@solcothermal.com