

www.pyroelec.com

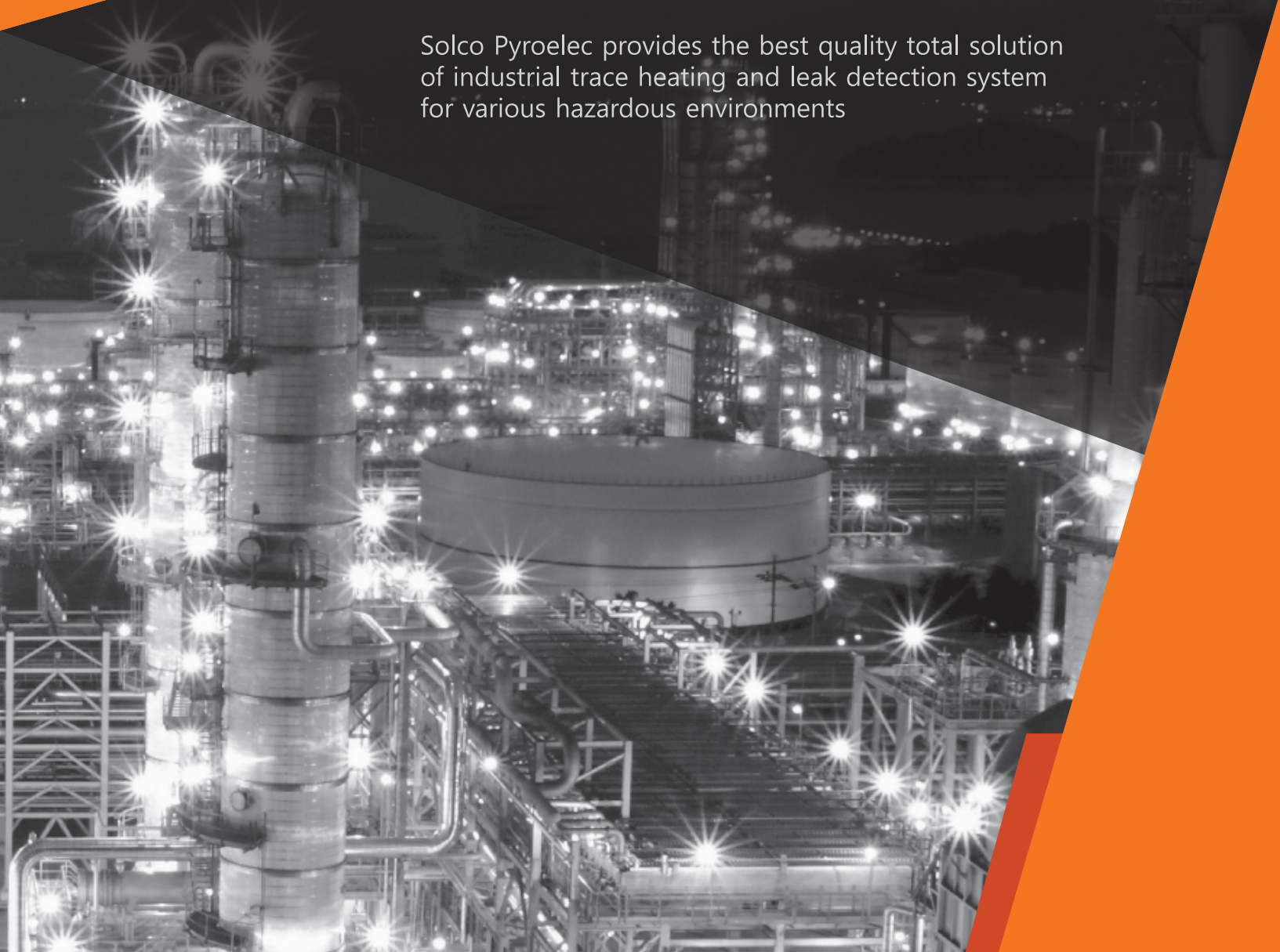
SOLCO.
PYROELECTM

INDUSTRIAL
SOLUTION

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





Heating Cables

FBL
FBH
FBX
FBZ
HSR
SFC
LLC
STS
MI

Connection Kits

PYEX-EP-JBP
PYEX-EP-JBP-LP/LE
PYEX-EP-JBS
PYEX-AE
HACC
PYEX-SS-JB
PYEX-EP-PK
PYEX-SS-EK
PYEX-EP-SPK

Components

PYEX-PTK-M
PYEX-ETK-M
PYEX-PTK-S
PYEX-ETK-S
PYEX-EP-PG25
PYEX-SP-M25
PYEX-SS-BR
PYEX-CL-S
PYEX-GT
PYEX-AT
PYEX-FS

Monitoring and Control

PYEX-EP-MTS12
PYEX-EP-RTD
PYEX-EP-JB-LE
Ex RTD
PYEX-BT
PYEX-Z2BT
SKY Trace
BLUE Trace
IOTKEY
HACC-TSK-P
HACC-ELK-P



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Technical Support

Pyrotechnician
(design software)
Typical Installation

Heating Jacket

FBJH-SR
FBJH-GR

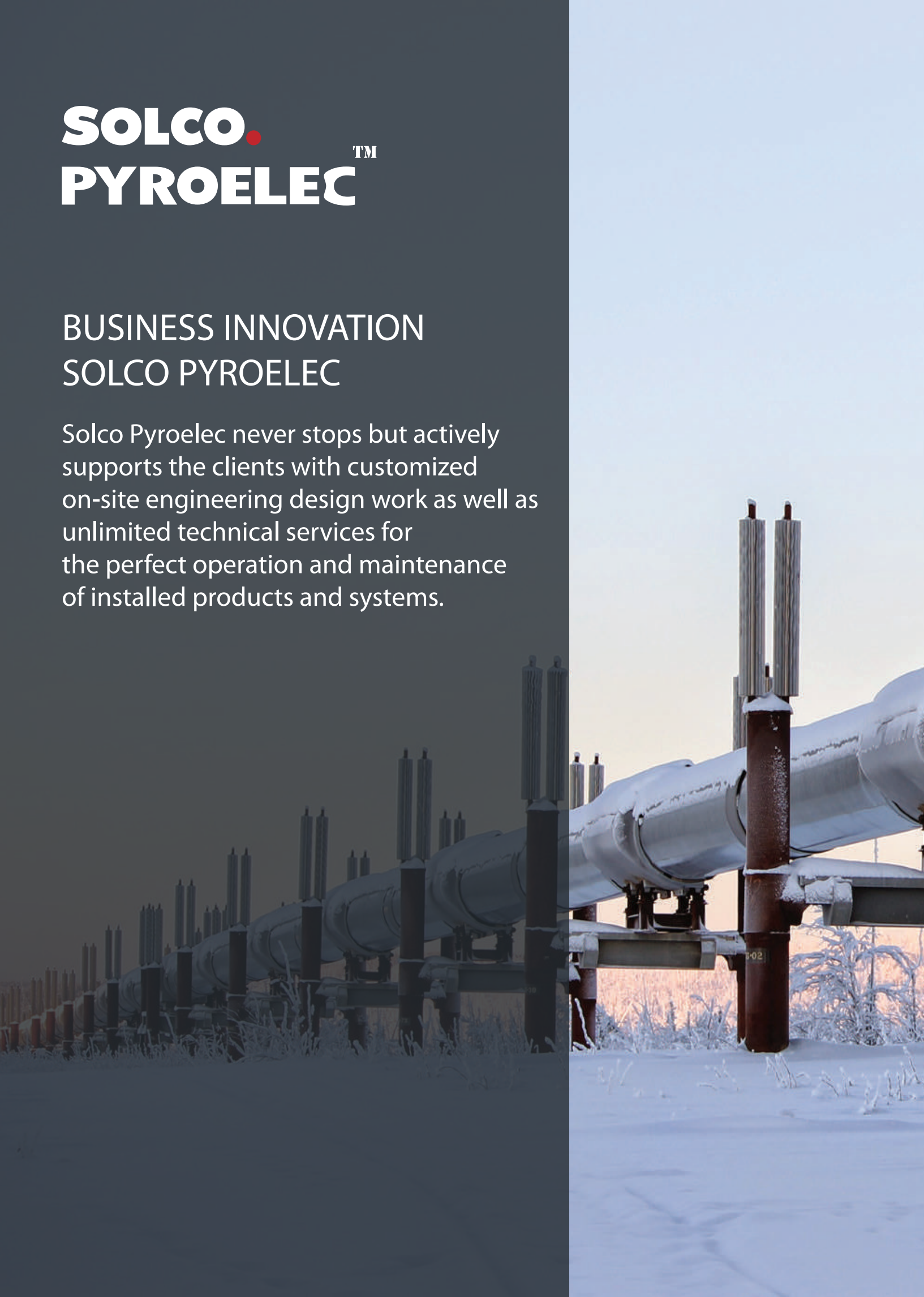
Liquid Leak Detection

LEAKBAN LDS
LBMM-100
LBSM-200/300
LBSC-1000
LBSC-3000
LBSC-7000
Components for Ex Certified LDS

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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 maintenance of installed products and systems.





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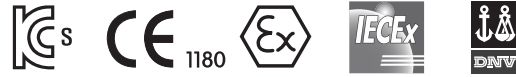
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Heating Cables



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Certification



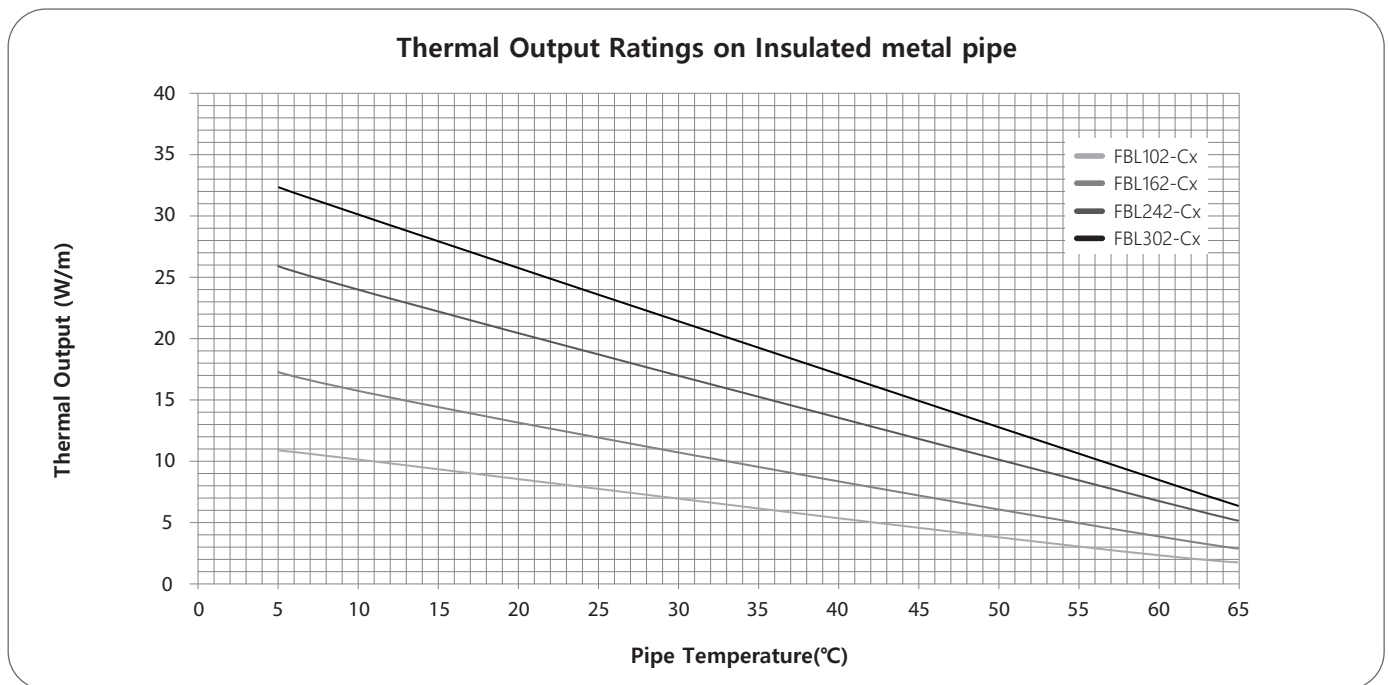
Thermal Output Graph

FBL Self-regulating heating cable complies to the below listed international standards :

IEC 60079-0 : General requirements

IEC 60079-30-1 : Electrical resistance trace heating : General and testing requirements

IEC 60079-7 : Equipment protection by Increased safety "e"



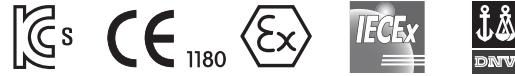
Circuit Breaker Selection

Max. circuit length(m) based on starting temp. (°C) and breaker size (Amps).

Breaker Size(A) Product code	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

* Based on Type C Circuit Breaker, 230Vac

Certification



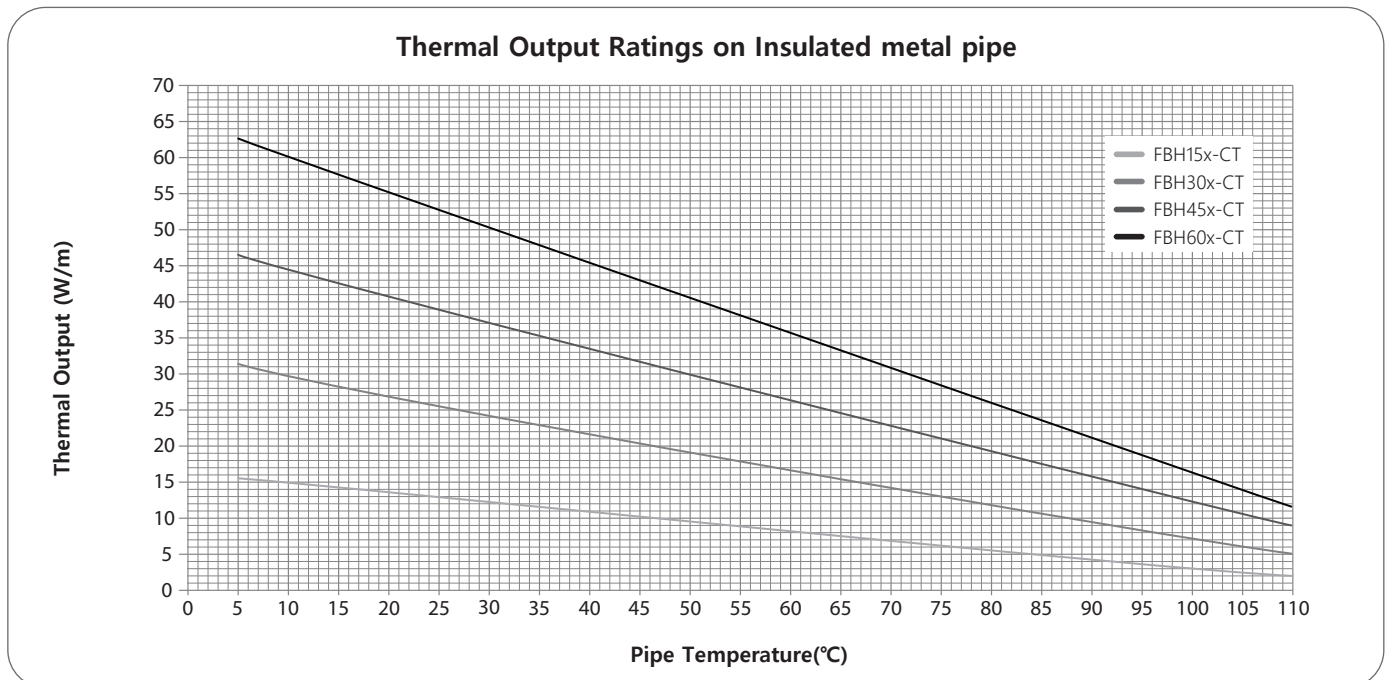
Thermal Output Graph

FBH Self-regulating heating cable complies to the below listed international standards :

IEC 60079-0 : General requirements

IEC 60079-30-1 : Electrical resistance Trace Heating : General and testing requirements

IEC 60079-7 : Equipment protection by Increased safety "e"



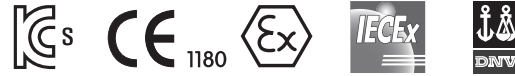
Circuit Breaker Selection

Max. circuit length(m) based on starting temp. (°C) and 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

* Based on Type C Circuit Breaker, 230Vac

Certification



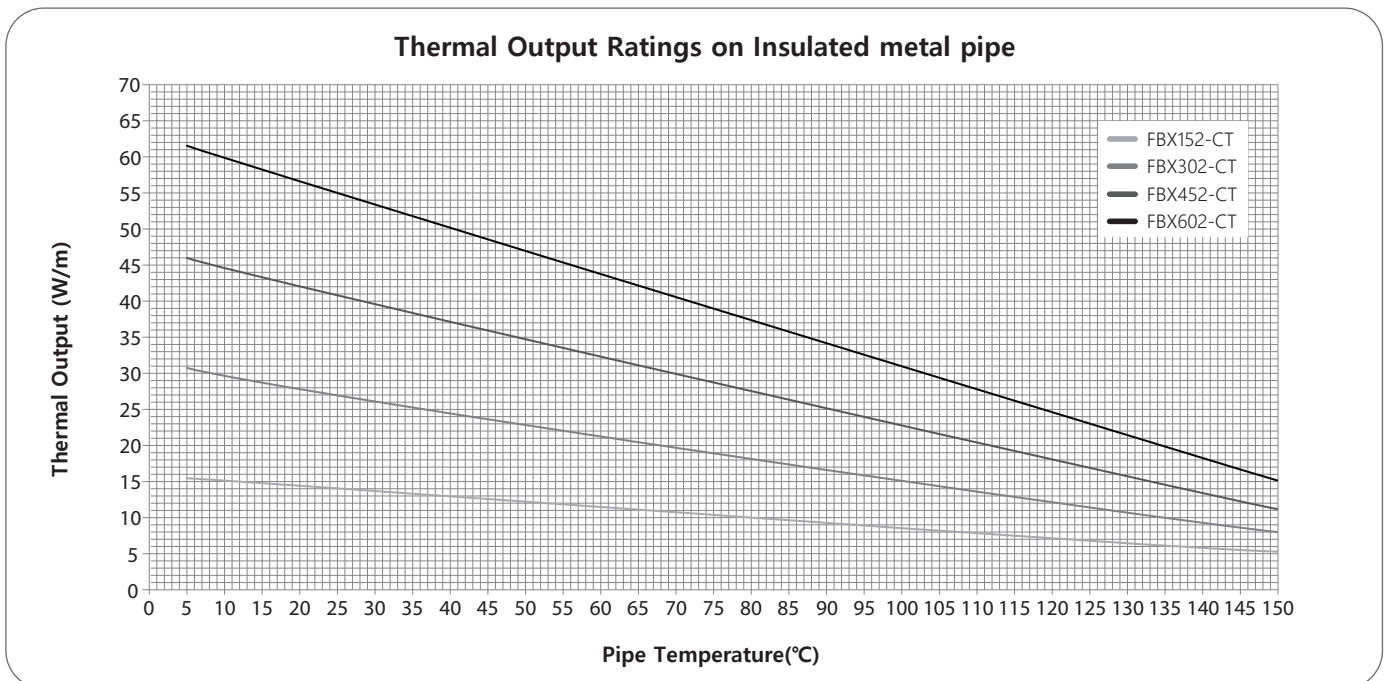
Thermal Output Graph

FBX Self-regulating heating cable complies to the below listed international standards :

IEC 60079-0 : General requirements

IEC 60079-30-1 : Electrical resistance trace heating : General and testing requirements

IEC 60079-7 : Equipment protection by Increased safety "e"



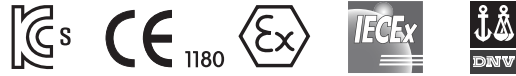
Circuit Breaker Selection

Max. circuit length(m) based on starting temp. (°C) and breaker size (Amps).

Product code	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
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

* Based on Type C Circuit Breaker, 230Vac

Certification



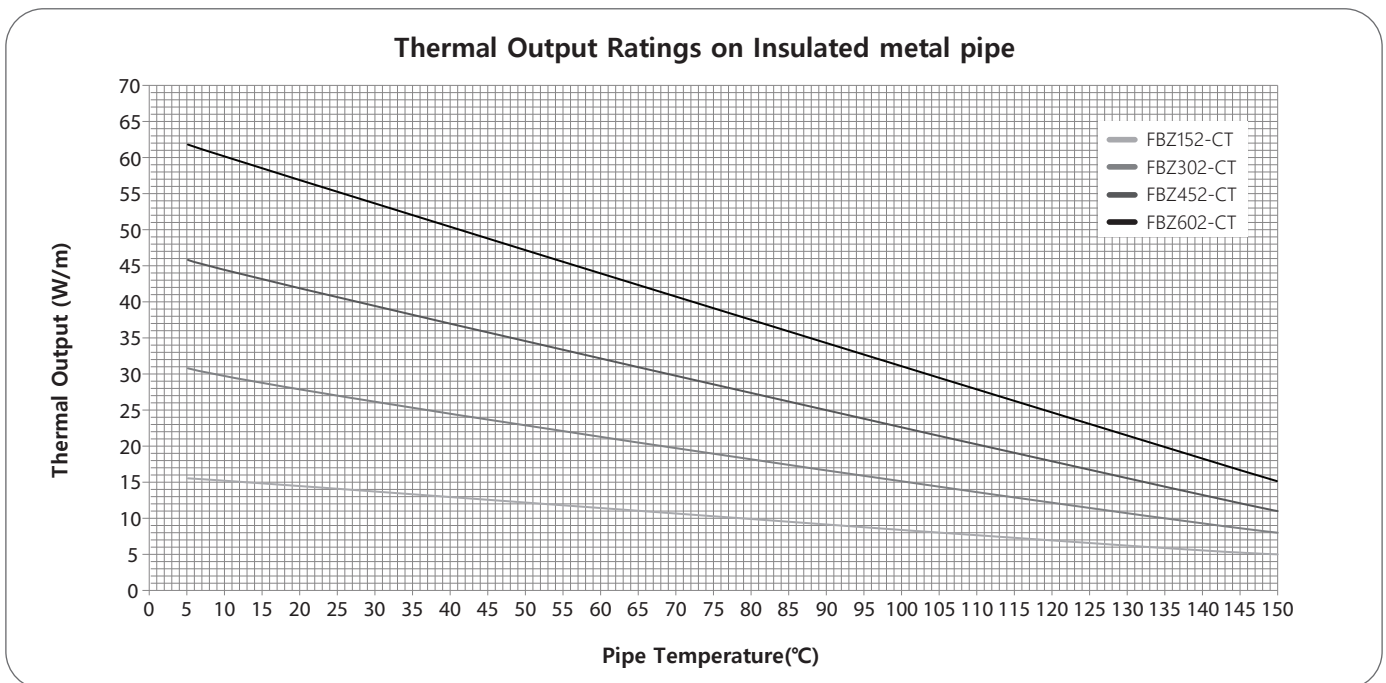
Thermal Output Graph

FBZ Self-regulating heating cable complies to the below listed international standards :

IEC 60079-0 : General requirements

IEC 60079-30-1 : Electrical resistance trace heating : General and testing requirements

IEC 60079-7 : Equipment protection by Increased safety "e"



Circuit Breaker Selection

Max. circuit length(m) based on starting temp. (°C) and 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
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

* Based on Type C Circuit Breaker, 230Vac

Certification



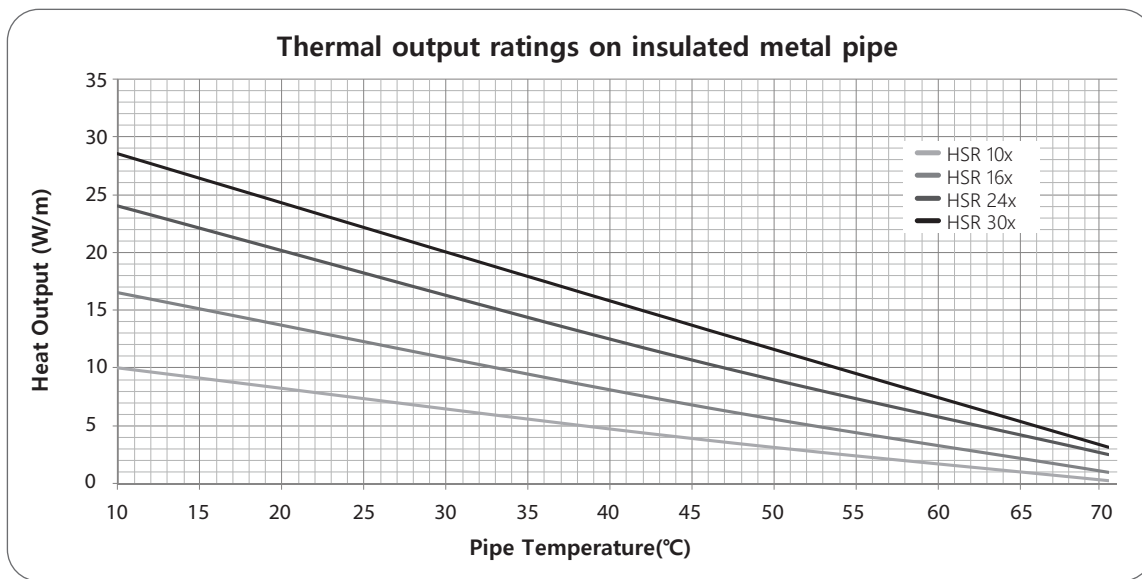
Thermal Output Graph

HSR Self-regulating heating cable complies to the below listed international standards

IIEC 60079-0 : General requirements

IEC 60079-30-1 : Electrical resistance trace heating : General and testing requirements

IEC 60079-7 : Equipment protection by Increased safety "e"

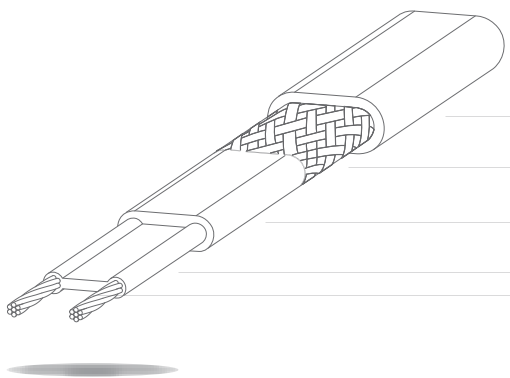


Circuit Breaker Selection

Max. circuit length(m) based on starting temp. (°C) and breaker size (Amps).

Product code	Breaker Size(A)	Start-up Temp. 10°C					Start-up Temp. -20°C				
		10A	15A	20A	25A	30A	10A	15A	20A	25A	30A
HSR 10x		128	173	173	173	173	80	120	160	163	163
HSR 16x		80	120	141	141	141	43	64	85	107	128
HSR 24x		40	60	80	100	120	25	37	49	62	74
HSR 30x		32	48	64	80	96	21	32	43	53	64

* Based on Type C Circuit Breaker, 220Vac



OUTER JACKET

FR Polyolefin or Fluoropolymer

EARTHING

Braided Tinned Copper Wire

PRIMARY INSULATION

Flame-Retardant Polyolefin

POLYMERIC HEATING ELEMENT

PE + C/B

BUS WIRE

Nickel Plated Copper Wire



SFC

Teflon insulated series resistance heating cable for industrial heat-up application

Features

- Easy operation and fast response
- Heat tracing up to 4km with single power source
- Flexible and excellent mechanical strength
- Resist to heat, oil and chemicals
- Long service life
- Save cabling cost and installation cost
- No inrush current

Use

- Freeze protection or temperature maintenance of long distance pipeline
- Freeze protection or temperature maintenance of vessel and tank
- Freeze protection for chemical feeding or process line

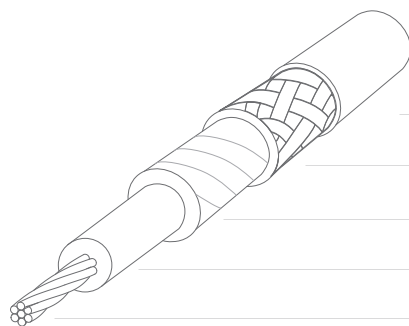
Selection Code

SFC **L** **25** **CT**
 (a) (b) (c) (d)

(a)	Model
(b)	None : Heating cable L : Cold lead cable
(c)	dc resistance ohm/km at 20°C
(d)	Outer Jacket T : Fluoropolymer

Specification

- Max. Continuous exposure temp.(Power-on) 150°C (302°F)
- Max. Intermittent exposure temp.(Power-off) 250°C (482°F)
- Rated Voltage : 600 Vac
- Max. heat density 40 watt/m
- Cable size varies depending on conductor size.
- Various conductor size and outjacket selection
- Non hazardous and hazardous location
- Circuit length up to 4,000m
- Outer jacket
 - T : High temperature fluoropolymer



- OUTER JACKET High temperature fluoropolymer
- EARTHING Braided Tin Plated Copper Wire
- 2nd INSULATION Glassfiber tape
- PRIMARY INSULATION Fluoropolymer
- CONDUCTOR Tin Plated Copper Wire

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	SFCL3.5-CT	Copper	2.3	6	5.8
SFC31.5-CT	Copper	1.0	31	4.4	SFCL4.0-CT	Copper	2.8	4	6.3
SFC50-CT	NiCu Alloy	1.8	49	5.9	SFCL6.0-CT	Copper	3.2	3	6.7
SFC65-CT	NiCu Alloy	1.6	67	5.6	SFCL10-CT	Copper	4.1	2	7.6
SFC80-CT	NiCu Alloy	1.4	82	5.5	SFCL16-CT	Copper	5.2	1	8.6
SFC100-CT	NiCu Alloy	1.6	97	5.6	SFCL25-CT	Copper	6.5	1	10.0
SFC150-CT	NiCu Alloy	1.3	151	5.3					
SFC200-CT	NiCr Alloy	1.1	201	5.1					
SFC320-CT	NiCr Alloy	1.2	324	5.3					
SFC380-CT	NiCr Alloy	1.1	377	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

LLC

Teflon insulated series heating cable for long distance pipe tracing

Features

- Easy operation and fast response
- Heat tracing up to 4km with single power source
- Save cabling cost for power supply
- Flexible and excellent mechanical strength
- Resist to heat, oil and chemicals
- Flat cable for optimized thermal performance
- Long service life

Use

- Freeze protection of fire hydrant water supply in tunnel
- Freeze protection for chemical feeding or process line
- Non hazardous and hazardous location

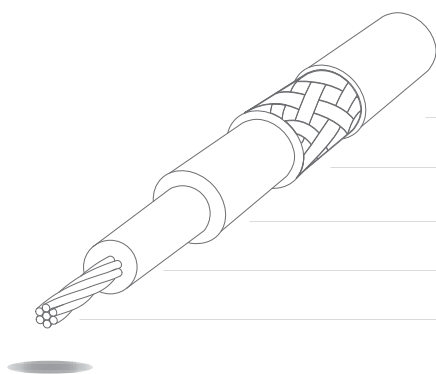
Selection Code

LLC **1** **T** **015** - **C** **X**
(a) (b) (c) (d) (e)

(a)	Model (Longline Cable)
(b)	No. of Conductors 1,3
(c)	Inner Sheath X : XLEVA T : Fluoropolymer
(d)	Conductor Size 1.5 / 2.5 / 4.0 6.0 / 8.0 / 10.0 mm ² Others on request
(e)	Outer Jacket X : XLEVA T : Fluoropolymer

Specification

- Max. Maintain temp. (Power-on)
LLC1X, LLC3X series 90°C (194°F)
LLC1T, LLC3T series 150°C (302°F)
- Max. Withstand temp. (Power-off)
LLC1X, LLC3X series 135°C (275°F)
LLC1T, LLC3T series 240°C (464°F)
- Rated voltage: 1000V
- Max. heat density: 40 watt/m
- Circuit length up to 4,000m
- Cable size varies depending on conductor size
- Outer jacket
- X : XLEVA
- F : Fluoropolymer



- OUTER JACKET XLEVA or Fluoropolymer
- EARTHING Braided Tin Plated Copper Wire
- 2nd INSULATION XLEVA
- PRIMARY INSULATION Fluoropolymer
- HEATING ELEMENT Ni-Cu Alloy

Certification



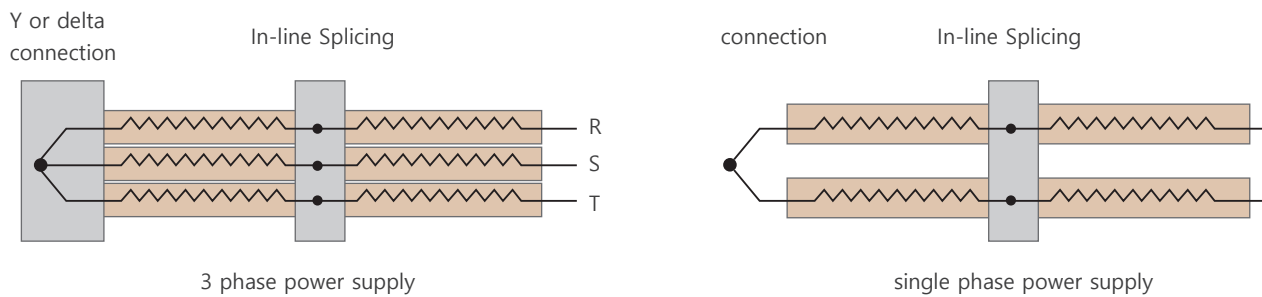
Freeze Protection System for Long Distance Pipeline

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

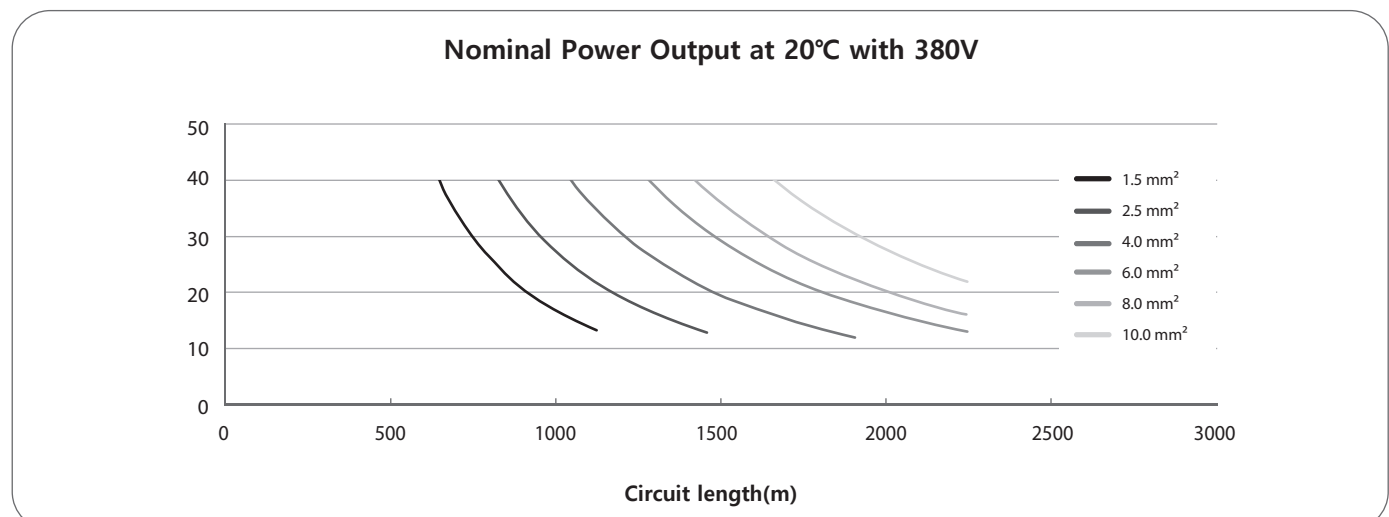
- Long distance chemical feed pipeline
- Fire hydrant for tunnel
- Offshore petrochemical transportation line

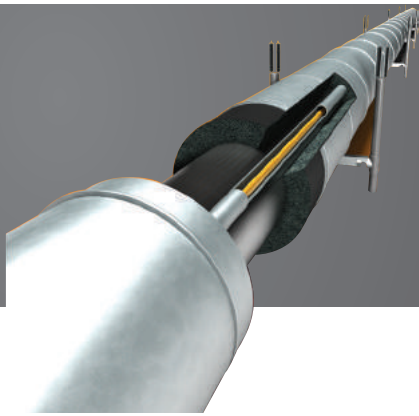
Typical Circuit Arrangement



Thermal Output Graph

The below thermal 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.





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STS

Skin trace heating system

Features

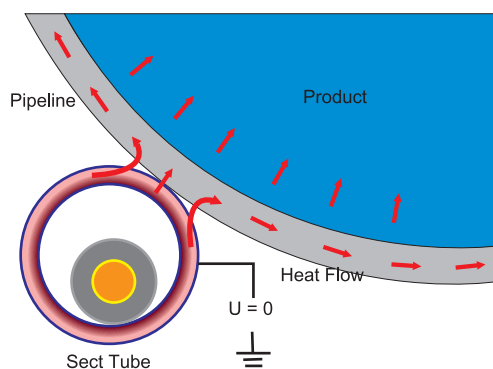
- The only one method of heating pipelines up to 30km with single power supply
- The ultimate heat efficiency
- Save cabling cost for power supply
- Heat output up to 120 watt/m
- Zero electrical potential on outer surface of heat tube
- Max operating temperature 150°C
- Long service Life

Use

- Temperature maintenance of oil transportation pipeline
- Trans-continent gas transportation pipeline
- Freeze protection for chemical feeding line

Specification

- Max. Maintain temp.(Power-on) 150°C (302°F)
- Max. Continuous exposure temp.(Power-off) 250°C (482°F)
- Applying voltage : 6k Vac
- Max. heat density : 120 watt/m
- Circuit length : up to 30km
- Cable size varies depending on cable and heat tube to be customized by project



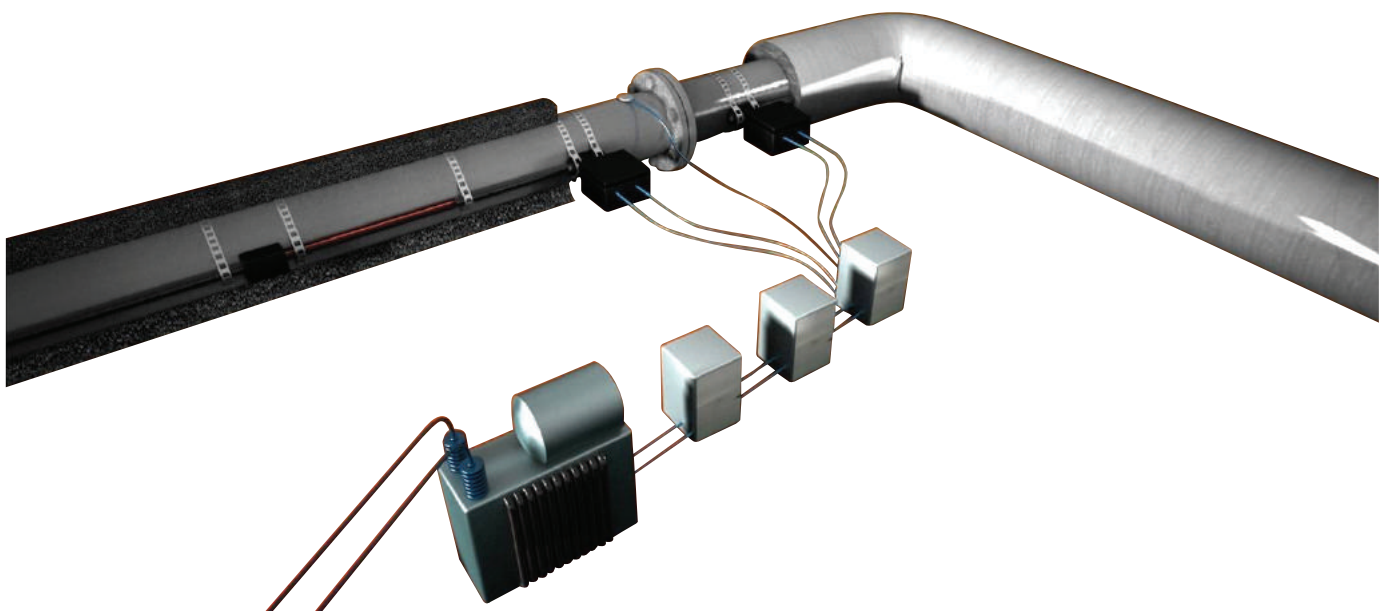
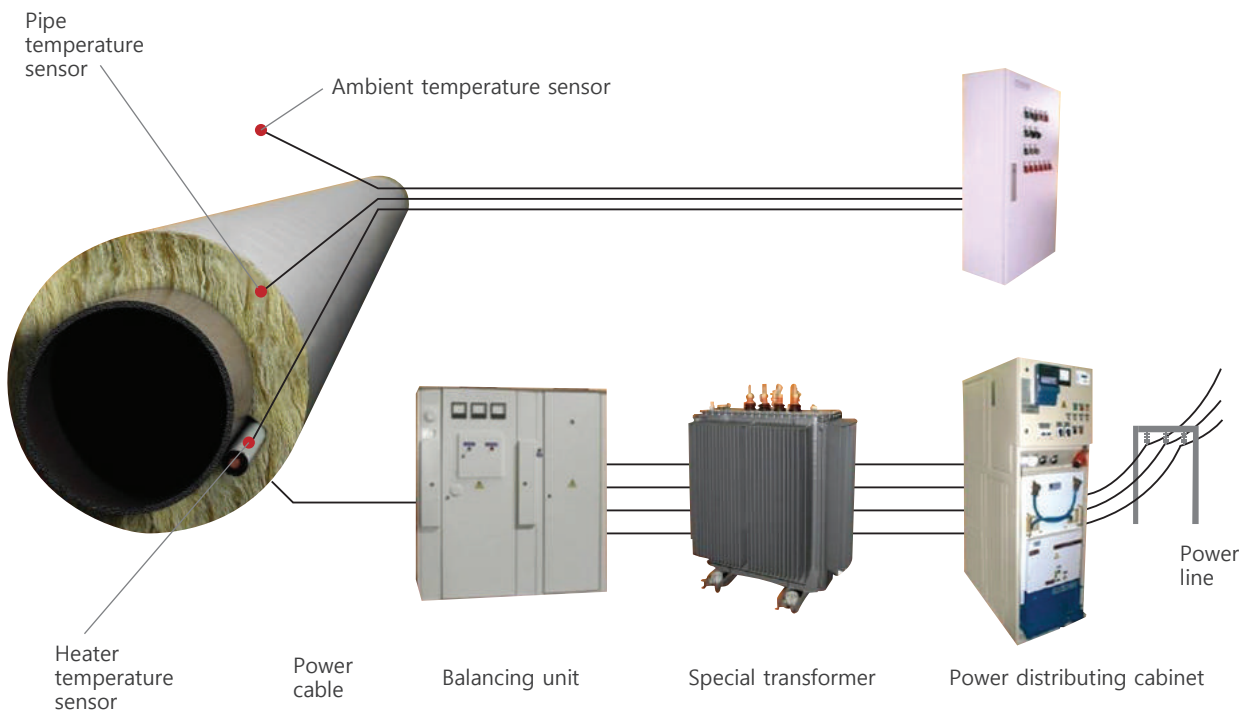
System Principles

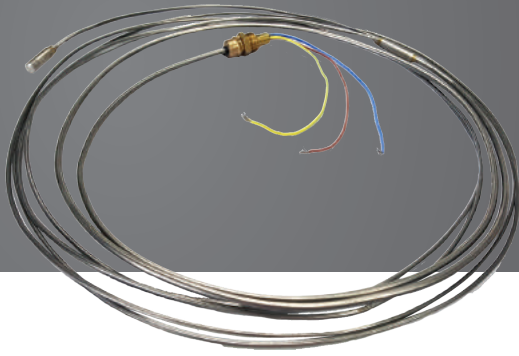
The STS skin trace heating system consists of a ferromagnetic steel tube with outer diameter of 20-60mm. There is an insulated copper or aluminium conductor with cross-section of 10-50mm² pulled inside the tube. The conductor is electrically connected to the tube at the end of a heating run while AC voltage is supplied between the conductor and the tube at the front end the voltage value is calculated based on the required heat output and the heating run length. The currents of the conductor and the tube having opposite directions and thus skin effects originate in the system. The conductor is non-magnetic, so it features no significant skin effect and AC flows throughout the cross-section of the conductor. Typically the heat tube generates heat more than 80% of the whole system output.

Certification



Typical Installation





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MI

Mineral insulated heating cable

Features

MI cables and elements are ideal for industrial freeze protection, high temperature process maintenance heat tracing and areas where good corrosion resistance are required. Enable the cables 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 most important. MI cable offers excellent corrosive properties against a wide range of organic acids and alkalis in combination with a high temperature withstand capability.

Use

Oil and gas, chemical and petrochemical, power generation, gas storage and many other industrial application.

Specification

Sheath material : one of the following

- Copper
- Stainless steels of AISI 300x range
- Cupronickel 70/30
- Alloys 825, Inconel 600

No. of conductors : 1 or 2

Conductor material : one of the following

- Nichrome
- Copper
- Constantan
- Copper-Nickel alloys

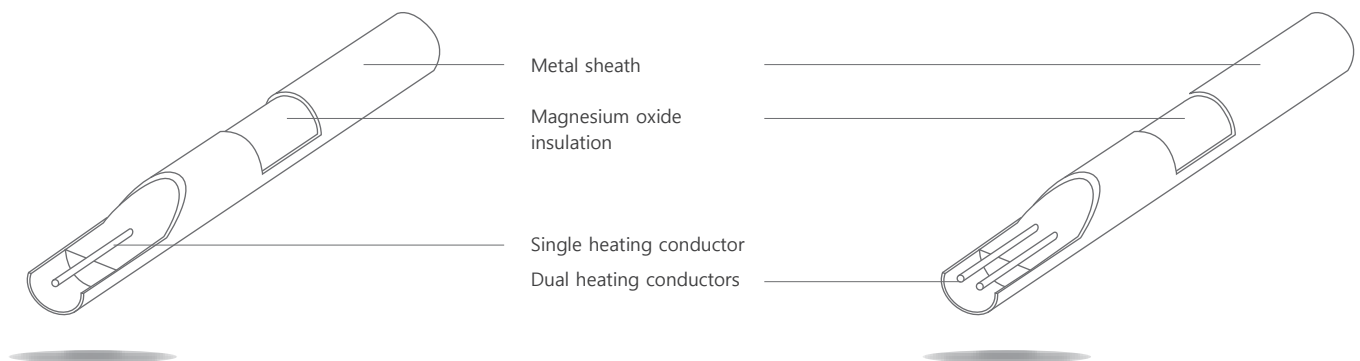
Insulation Material : Magnesium Oxide (MgO)

Maximum operating temperature

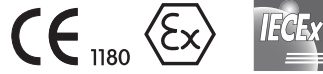
- Copper sheath : 200°C
- Cupronickel sheath : 400°C
- Stainless steel and nickel alloy sheath : 600°C

Electrical Parameters

- Supply voltage up to 500Vac (assembled unit)
- Supply voltage up to 750Vac (cable)



Certification



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

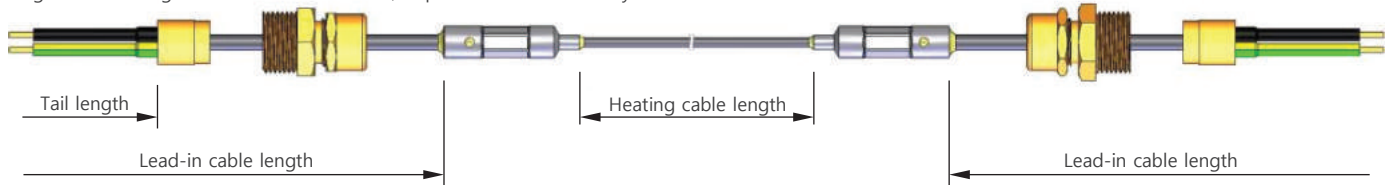
W 122 - 1 C 10 - 750V - HDPE

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

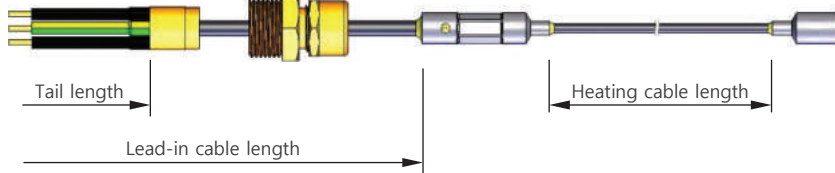


Single core heating cable with Copper sheath bare (right) or HDPE served (left)



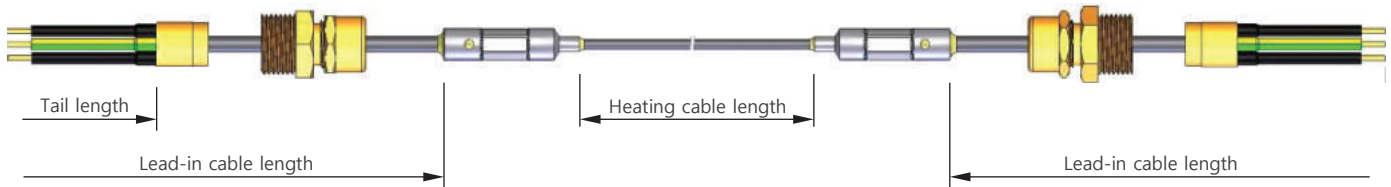
Design D

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

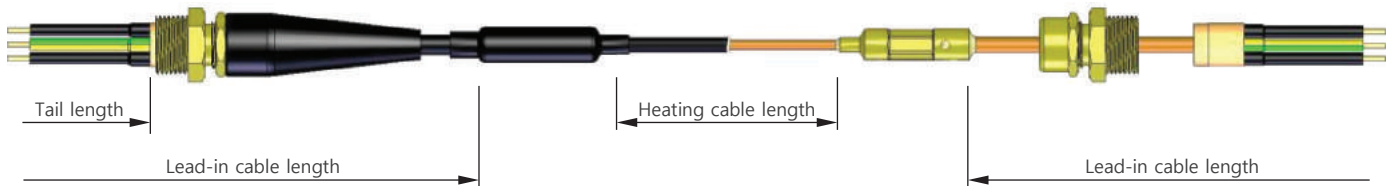


Design E

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

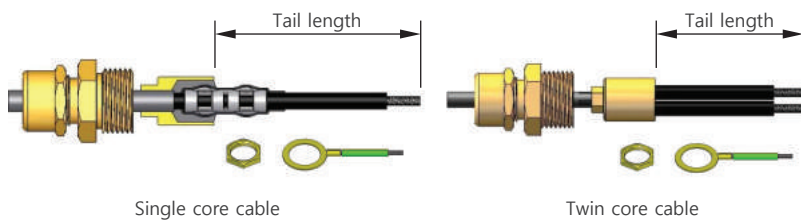


Twin core heating cable with Copper sheath bare (right) or HDPE served (left)



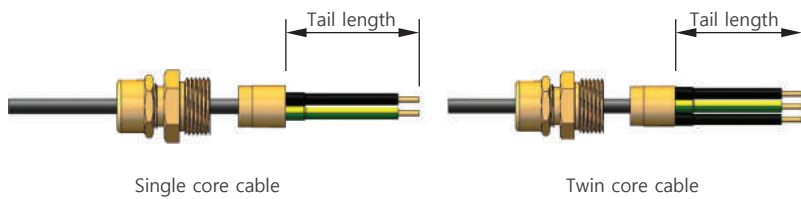
Termination Types

Type 1



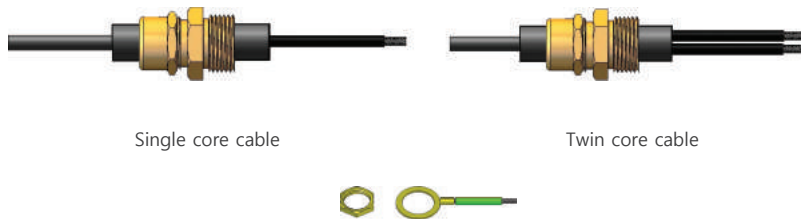
Seal reference	T1
Description	ATEX approved seal for use in hazardous area terminations
Conductor Type	Flexible
Earth tail type	Flexible earth tag with locknut
Pot type	Crimp on pot
Gland thread	M20x1.5 Other sizes on request
Standard tail lengths	150 mm, 300 mm, 450 mm

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

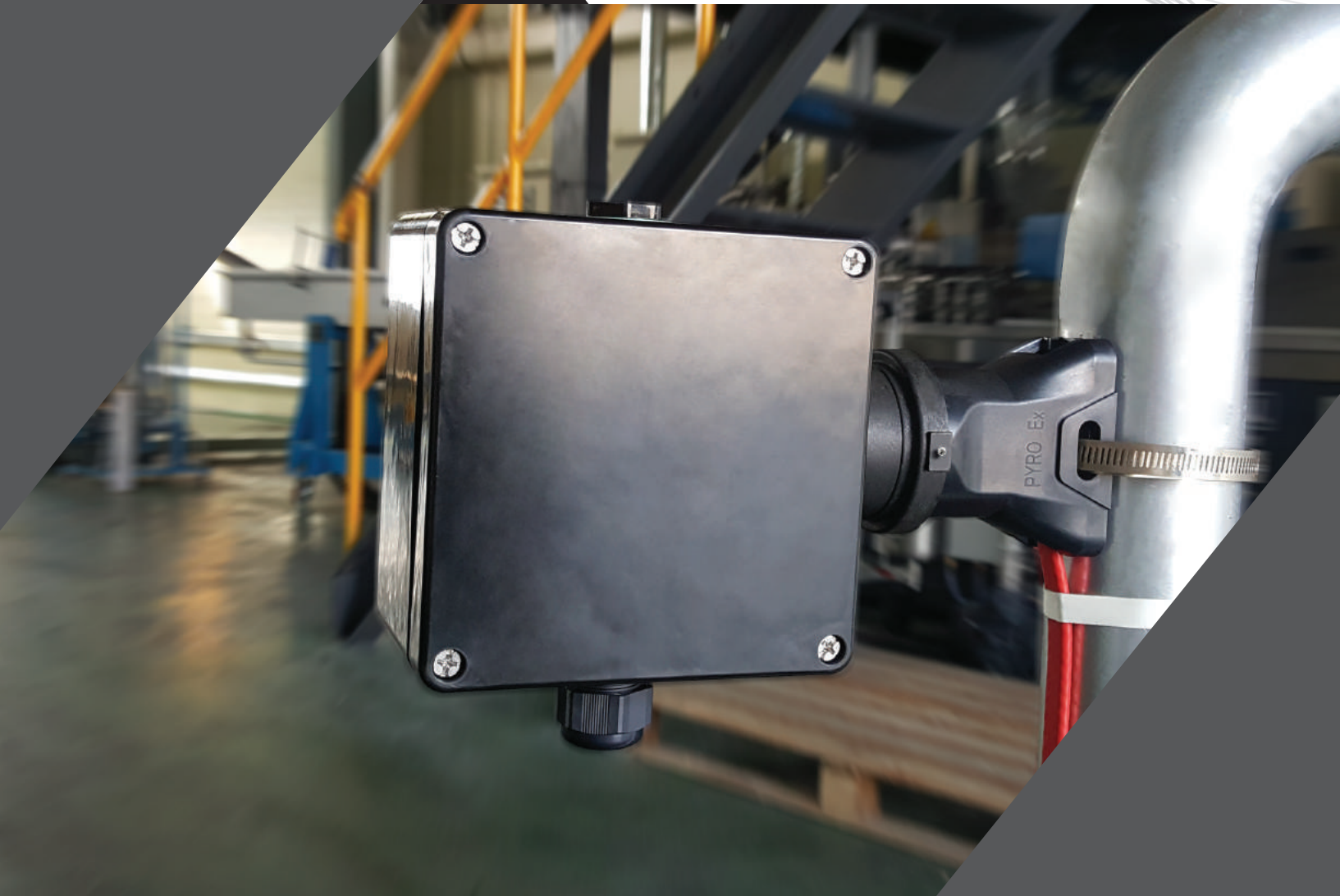


Seal reference	T4
Description	Long reach seal with on-pot gland CSA and ATEX approved for use in hazardous area terminations
Conductor Type	Flex
Earth tail type	Flexible earth tag with locknut (optional depending on application)
Pot type	Braze on long reach pot
Gland thread	M20x1.5 Other sizes on request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



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Connection Kits



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PYEX-EP-JBP

GRP enclosure connection system
Ex 'e' engineering plastic enclosure with plastic pipe-mount for convenient heating cable connection

Features

The PYEX-EP-JBP is an Ex certified GRP enclosure system being 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 plants etc.

The additional suffix describes the specific use of PYEX-EP-JBP enclosure set for the installation with trace heating cables.

-P : Power connection / -E : End termination / -T : Tee splicing

The junction box is made of fiberglass reinforced polyester while the pipe -mount is made of fiberglass reinforced PPS for ultimate thermal endurance and mechanical strength. The surface of junction box is UV resistant as well as electrically conductive, less than 10 ohm, to reduce the risk from static hazard. Each kit includes an IP67 junction box, pipe-mount, stainless steel captive lid screws, foamed silicone gasket, terminal blocks. The molded power termination kit, PYEX-PTK-M and PYEX-ETK-M are optional parts.

Specification

Protection Type : Ex e IIC Gb

Ingress Protection : IP66 (when assembled with tracing cables)

Impact Resistance : 7J

Temperature range :

-50°C to 50°C for T6 (FBL)

-50°C to 50°C for T4 (FBH)

-50°C to 50°C for T3 or T2 (FBX or FBZ)

Surface Resistance : < 10 Ω

Flammability : Self-extinguishing UL 94/V-0

Material Glassfibre reinforced polyester / UV stabilized

Color : Graphite Black / Pipe-mount : PPS

Maximum conductor cross-section : 10mm²

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

Seal Selection and Applicable Heaters

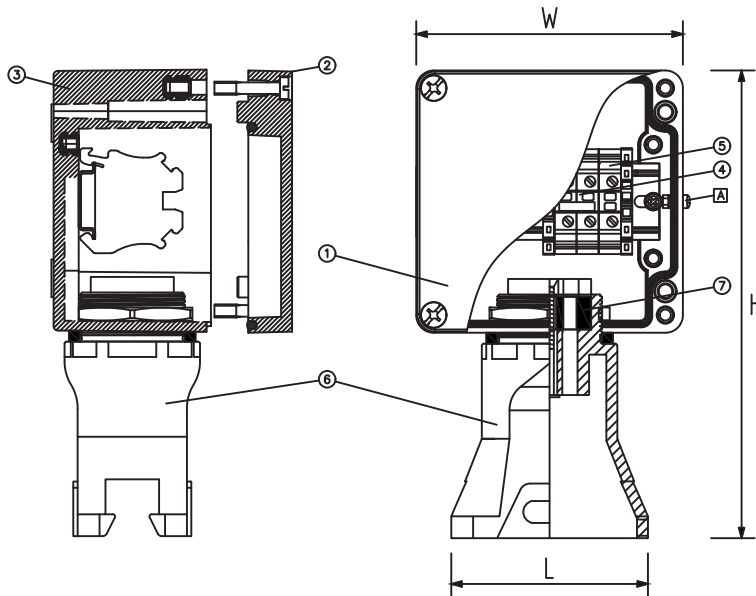
Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
JBP-HS116	11.6	5.6	FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
JBP-HS122	12.2	4.6	FBX FBZ 15,30,45,60	Fluoropolymer -CT
JBP-HS127	12.7	5.2	FBH 15,30,45	Fluoropolymer -CT
JBP-HS136	13.6	5.6	FBL 30	Fluoropolymer -CF / Polyolefin -CP
JBP-HS143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

* All dimensions in mm.

Certification



Product Drawing



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

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



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PYEX-EP-JBP-LP

GRP Enclosure Monitoring & Connection
PYEX-EP-JBP Power Connection with signal lamp for monitoring

PYEX-EP-JBP-LE

GRP Enclosure Monitoring & Termination
PYEX-EP-JBP End Termination with signal lamp for monitoring

Features

The PYEX-EP-JBP-LP and PYEX-EP-JBP-LE being designed and manufactured to meet all requirements of relevant standards for industrial heat tracing cable system of hazardous location such as petrochemical plant, gas plant, ship and off-shore plant etc comprise an Ex certified GRP enclosure with plastic pipe-mount for self-regulating heating cables connection and termination and a signal lamp for monitoring. For monitoring an Ex certified LED signal lamp is installed on the GRP enclosure of PYEX-EP-JBP-LP and PYEX-EP-JBP-LE and for connection Ex certified terminals are installed inside of GRP enclosure of PYEX-EP-JBP-LP and PYEX-EP-JBP-LE. PYEX-EP-JBP-LP and PYEX-EP-JBP-LE for connection and monitoring are certified with PYEX-EP-JBP other models for connection without monitoring component.

Specification

Protection Type : Ex e d IIC
Ingress Protection : IP66 (when assembled with tracing cables)
Impact Resistance : 7J
Temperature range :
-50°C to 50°C for T6 (FBL)
-50°C to 50°C for T4 (FBH)
-50°C to 50°C for T3 or T2 (FBX or FBZ)
Surface Resistance : < 10 Ω
Flammability : Self-extinguishing UL 94/V-0
Material Glassfibre reinforced polyester / UV stabilized
Color : Graphite Black / Pipe-mount : PPS
Maximum conductor cross-section : 10mm²
Thread for power cable entry : Max. M25, PF3/4, NPT3/4-14
Gasket and Seal : Flame-proof silicone rubber
Power consumption of the lamp : 1W
Approval : KCs
Reference standards: IEC60079-0, IEC60079-1, IEC60079-7, IEC60079-30-1

Seal Selection and Applicable Heaters

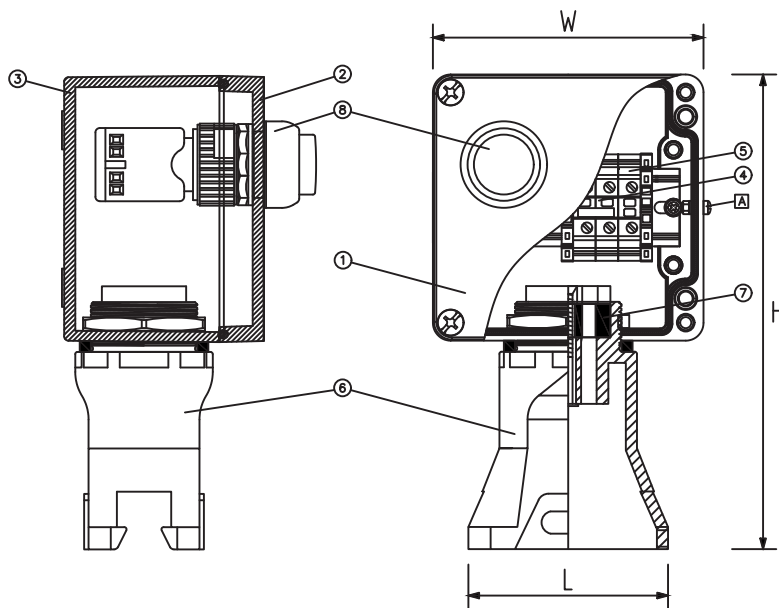
Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
JBP-HS116	11.6	5.6	FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
JBP-HS122	12.2	4.6	FBX FBZ 15,30,45,60	Fluoropolymer -CT
JBP-HS127	12.7	5.2	FBH 15,30,45	Fluoropolymer -CT
JBP-HS136	13.6	5.6	FBL 30	Fluoropolymer -CF / Polyolefin -CP
JBP-HS143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

* All dimensions in mm.

Certification



Product Drawing



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

Name	W	H	L
PYEX-EP-JBP-12	122	214	90
PYEX-EP-JBP-16	160	254	90

Components

No.	Part Name	Description
1	PYEX-EP-JB	-12 : 122x120x90 -16 : 160x160x90
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)



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PYEX-EP-JBS

GRP enclosure connection system
Ex 'e' engineering plastic enclosure with plastic pipe-mount for convenient heating cable connectio

Features

The PYEX-EP-JBS is an Ex certified GRP enclosure system being 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 plants etc.

The additional suffix describes the specific use of PYEX-EP-JBS enclosure set for the installation with trace heating cables.

-P : Power connection / -E : End termination / -T : Tee splicing

The junction box is made of fiberglass reinforced polyester for ultimate thermal endurance and mechanical strength. The surface of junction box is UV resistant as well as electrically conductive, less than 10 ohm, to reduce the risk from static hazard. Each kit includes an IP 67 junction box, stainless steel captive lid screws, foamed silicone gasket, spring-type terminal blocks. Also it includes a pair of stainless steel pipe-mounts for mounting on to high temperature pipelines up to 300°C.

The molded power termination kit, PYEX-PTK-M and PYEX-ETK-M are optional parts.

Specification

Protection Type : Ex eb IIC Gb

Ingress Protection : IP66 (when assembled with tracing cables)

Impact Resistance : 7J

Temperature range :

-50°C to 50°C for T6 (FBL)

-20°C to 50°C for T4 (FBH)

-50°C to 50°C for T3 or T2 (FBX or FBZ)

Surface Resistance : < 10⁹ Ω

Flammability : Self-extinguishing UL 94/V-0

Enclosure Material : Glassfibre reinforced polyester / UV stabilized

Metallic Pipe-Mount : SUS304 or SUS316L

Color : Graphite Black

Maximum conductor cross-section : 10mm²

Thread for power cable entry : M25, 3/4"-14NPT

Gasket and Seal : Flame-proof silicone rubber

Approval : ATEX, IECEx

Reference standards : IEC60079-0, IEC60079-7, IEC60529, IEC60079-30-1

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

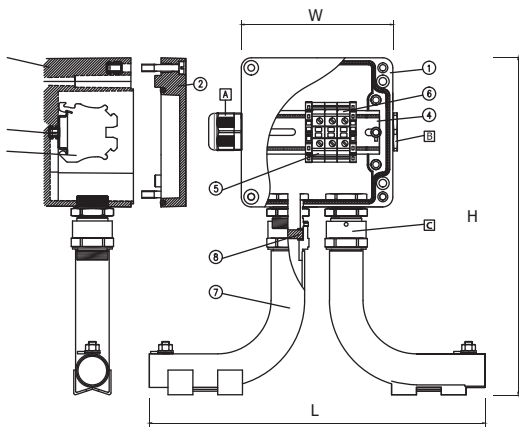
* All dimensions in mm.

Certification

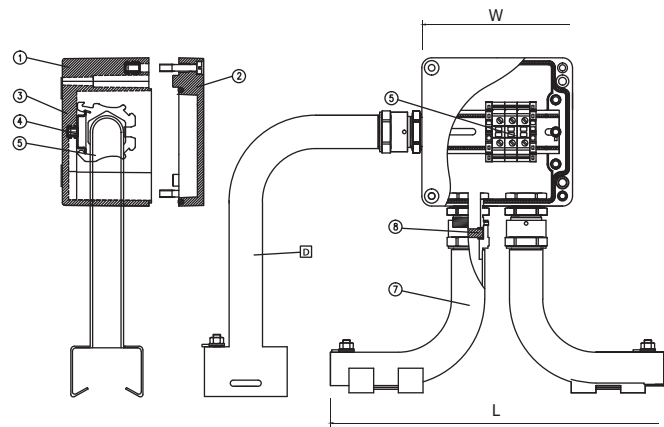


Product Drawing

① PYEX-EP-JBS-P/E



② PYEX-EP-JBS-T



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

* 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 -16 : 160x160x90 -26A : 260x160x90 -26B : 255x250x90	1
2	PYEX-EP-L	Enclosure Lid	1
3	PYEX-EP-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	Pipe-Mount Assembly	1
8	PYEX-HS	Heater Seal	2
A	PYEX-EP-PG25	Ex Plastic Cable Gland (Optional)	1
B	PYEX-SP-M25	Ex Stopping Plug (Optional)	1
C	PYEX-BR-PMG25	Metallic Cable Gland for Pipe Mount (Optional)	2
D	PYEX-SS-SE	SUS Side Elbow Pipe-Mount (Optional)	1



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Certification



PYEX-AE-P PYEX-AE-E

Ex 'e' explosion-proof aluminum enclosure for heating cable connection

Features

PYEX-AE is the explosion-proof aluminium enclosure specially for heating cable installation. The additional suffix describes the specific use of PYEX-AE enclosure set for the installation with trace heating cables. -P : Power connection / -E : End termination It is designed and manufactured to meet all the technical requirements for hazardous locations rating 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. It accommodates various power cables and heating cables up to 15mm in diameter.

Specification

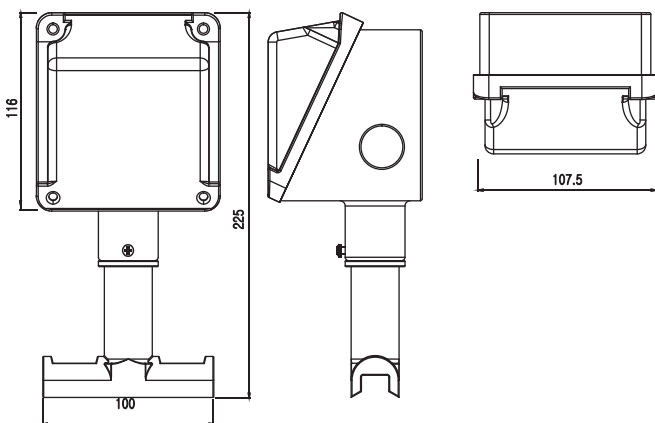
Assembled Height : 225mm, Floor area : 92 x 92 mm, depth : 35mm ~ 74mm
 Protection type : Ex e IIC Gb
 Ingress Protection : IP66
 Operating Temperature : -55°C < Ta < 40°C
 Gasket and Seal : Flame-proof silicone rubber
 Use in hazardous location

Heater Seal Selection and Applicable Heaters

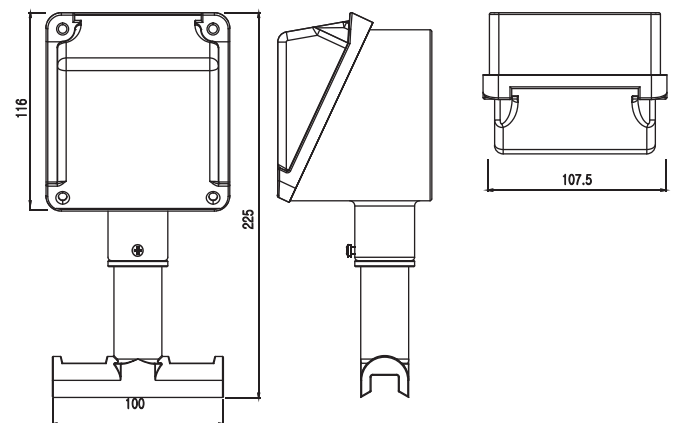
Designation	Width(A)	Height(B)	Height(B)
SR-CS10	10.6	4.8	All FBX FBZ Models
SR-CS11	11.5	5.6	FBL 10, 16, 24
SR-CS12	12.7	5.2	FBH 15, 30, 45
SR-CS13	13.6	5.6	FBL 30
SR-CS14	14.3	5.4	FBH 60

Product Drawing

① PYEX-AE-P



② PYEX-AE-E





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Certification



PYEX-AE-TC

Temperature control enclosure
Ex 'e' explosion-proof aluminum
enclosure for temperature control

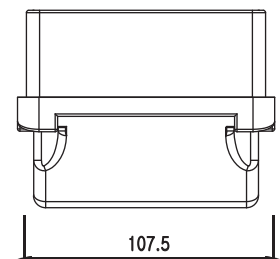
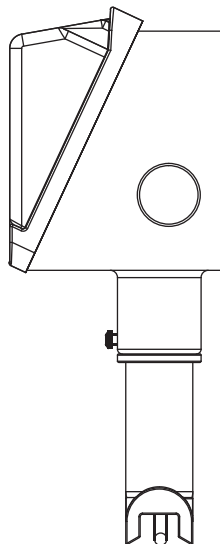
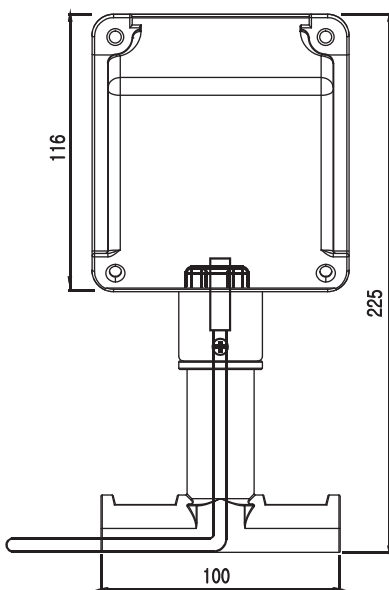
Features

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 meets 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 Gb
Ingress Protection IP66
Operating Temperature $-55^{\circ}\text{C} < T_a < 40^{\circ}\text{C}$
Gasket and Seal : Flame-proof silicone rubber
Protection Class Rating - FBL : Ex e II T6 Gb, FBX : Ex e II T5 Gb
RTD Sensor Diameter 5.20mm, SUS

Product Drawing





SOLCO
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Certification



HACC-PK-P HACC-TK-P

Ex 'd' explosion-proof aluminum enclosure for heating cable connection

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.

HACC-PK-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 gaskets stops the ingress of water and dust. It accommodates various power cables and heating cables up to 15mm in diameter.

Specification

After assembled height : 257mm(HACC-PK-P), 287mm (HACC-TK-P),
width : 132mm, depth : 64mm.

Ex d IIC T6 (Flame-proof), ingress protection IP65

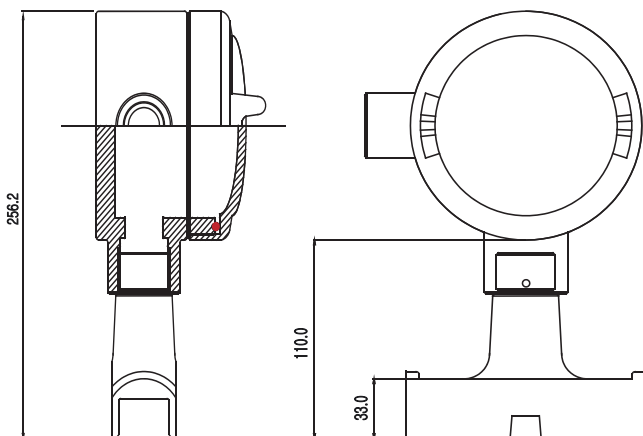
Operating Temp $-20^{\circ}\text{C} < T_a < 50^{\circ}\text{C}$

Cable entry 3/4"PF compatible to conventional pipe thread

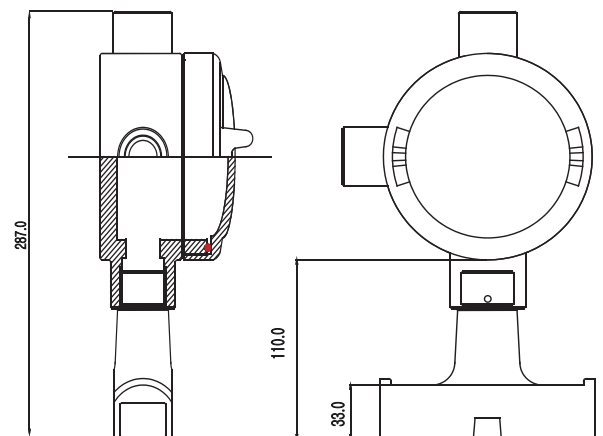
Gasket and cable seal : Flame-proof silicone rubber

Product Drawing

① HACC-PK-P



② HACC-TK-P





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PYEX-SS-JB

Pipe mounted junction enclosure
for trace heating installations

Features

- Designed for trace-heating in harsh environment
- High ingress protection IP66 or higher
- Manufactured of acid -resistant stainless steel
- Tailored size and performance
- High strength and corrosion resistance / Long lifetime
- Several earthing alternatives
- Drain plug in box without water ingression
- The additional suffix describes the specific use of PYEX-SS-JB enclosure set for the installation with trace heating cables.
- P : Power connection / -T : Tee splicing / -E : End termination

Use

- Electrical installation in both hazardous and safe location
- Trace heating for ship-building and off-shore plant
- Oil well and petro-chemical plant
- Control station
- Instrument installation

Specification

- Protection Type : Ex eb IIC Gb Db T6...T2
- Ingress Protection : IP66/IP67
- Material : Stainless Steel AISI 304 or 316L
- Finish Acid treatment
- Ambient temperature : -50°C < Ta < +50°C
- Applicable trace-heating cable : FBL, FBH, FBX, FBZ
- Terminal block : Pheonix Contact UT2.5/4/6/10/16
- Max. conductor size : 16mm²
- Rated voltage : up to 750V

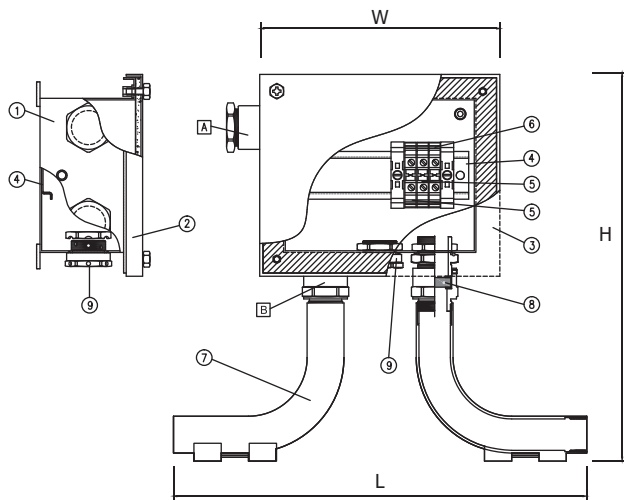
Seal Selection and Applicable Heaters

Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
SJB-HS116	11.6	5.6	HSR 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

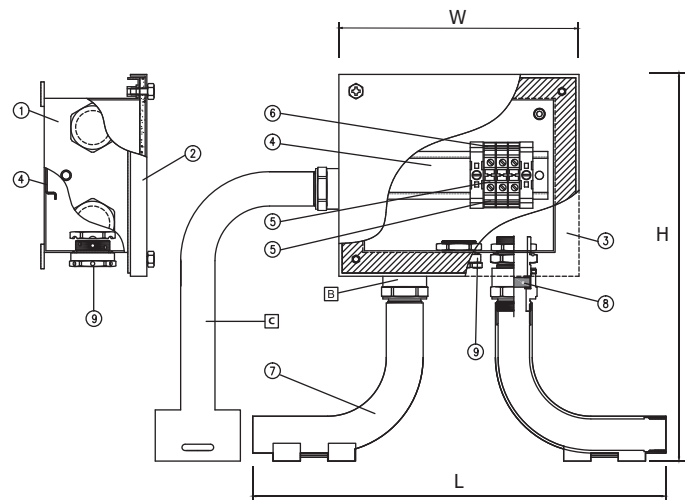
* All dimensions in mm.

Product Drawing

① PYEX-SS-JB-P/E



② PYEX-SS-JB-T



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

* 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



SOLCO
PYROELECTM

PYEX-EP-PK

Cold applied power connection kit for heat tracing cable system

Features

The PYEX-EP-PK is a complete kit for entering all Solco Pyroelec FBL, FBH, FBX and FBZ parallel heating cables to an Ex certified junction box, whilst maintaining electrical insulation of the heating cable conductors and core. It mainly consists of PYEX-EP-PG25, the Ex certified non-metallic cable gland, and PYEX-PTK-M, the molded power termination kit.

This kit is certified for ATEX and IECEx for use in hazardous areas. The silicone molded power tube within PYEX-PTK-M kit does not require a heat gun or torch for insulating heating core. It means the installer does not require hot work permit anymore. 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 heating cable to use with. An additional locknut is provided for unthreaded enclosure entry.

Use

Freeze protection for water pipeline
Temperature maintenance for fuel feedline

Specification

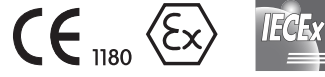
Protection Type : Ex eb IIC Gb
Ingress Protection : IP66
Thread size : M25X1.5
Min. Ambient Temperature : -50°C
Max. Exposure Temperature : 110°C
Construction Material(Gland) : Fiberglass reinforced nylon
Approval : ATEX, IECEx
Reference standards : IEC60079-0, IEC60079-7, IEC60529, IEC60079-30-1

Seal Selection Applicable Heating Cables

Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
PG-HS116	11.6	5.6	HSR FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
PG-HS122	12.2	4.6	FBX FBZ 15,30,45,60	Fluoropolymer -CT
PG-HS127	12.7	5.2	FBH 15,30,45	Fluoropolymer -CT
PG-HS136	13.6	5.5	FBL HSR 30	Fluoropolymer -CF / Polyolefin -CP
PG-HS143	14.3	5.4	FBH 60	Fluoropolymer -CT

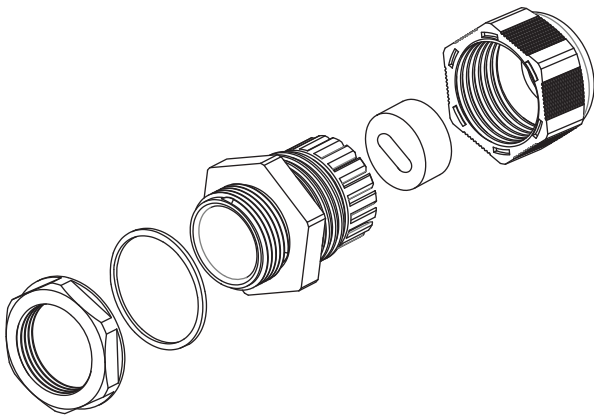
* All dimensions in mm.

Certification

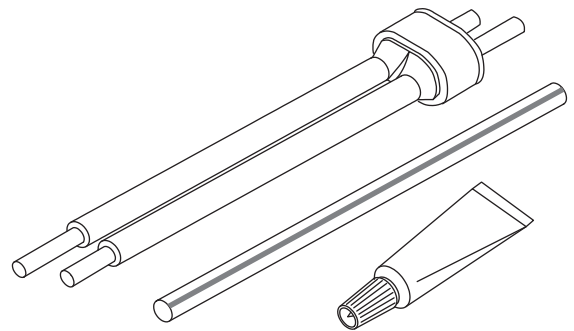


Component

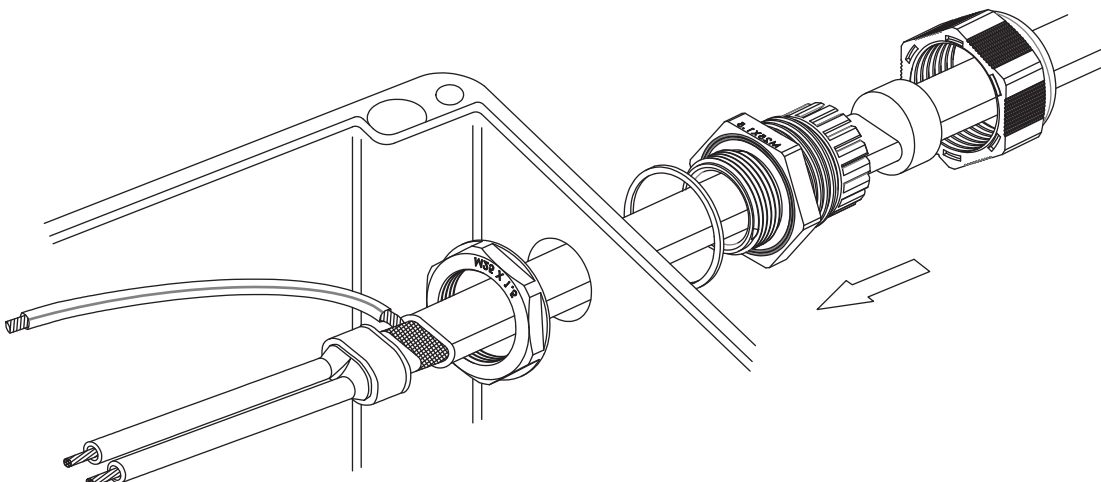
① PYEX-PG25



② PYEX-PTK-M



Assembly Guide





SOLCO
PYROELECTM

PYEX-SS-EK

Cold applied end termination kit for heat tracing cable system

Features

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 110°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 no permit for hot work is required.

Use

Freeze protection for water pipeline.

Temperature maintenance for fuel feedline.

Specification

Protection Type : Ex eb IIC Gb

Ingress Protection : IP66

Min. Ambient Temperature : -50°C

Max. Exposure Temperature : 240°C

Construction Material : Stainless Steel & Silicone Rubber

Approval : ATEX, IECEx

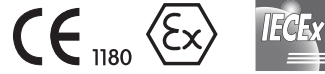
Reference standards : IEC60079-0, IEC60079-7, IEC60529, IEC60079-30-1

Hole Sizes and Applicable Heaters

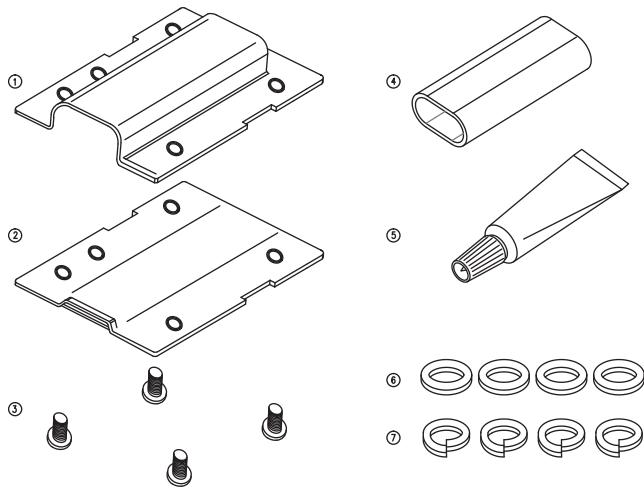
Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
EX-ES11	11.6	5.6	HSR FBL 10,16,24	Fluoropolymer -CF / Polyolefin -CP
EK-ES12	12.7	5.2	FBX FBZ 15,30,45,60 FBH 15,30,45	Fluoropolymer -CT
EK-ES13	13.6	5.6	FBL HSR 30	Fluoropolymer -CF / Polyolefin -CP
EK-ES14	14.3	5.4	FBH 60	Fluoropolymer -CT

* All dimensions in mm.

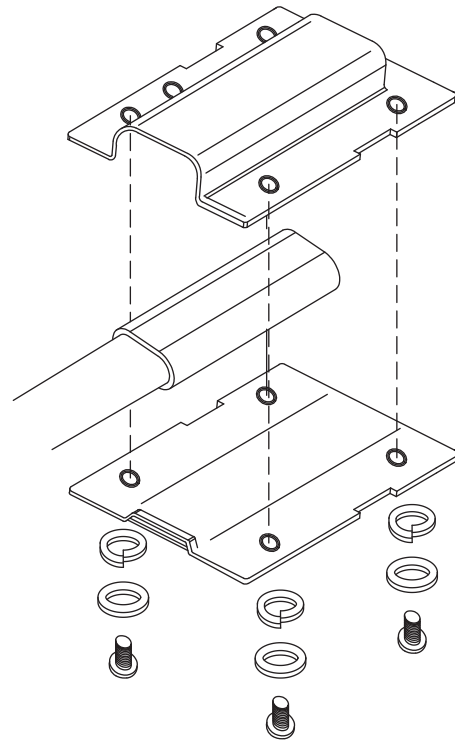
Certification



Component



Assembly Guide



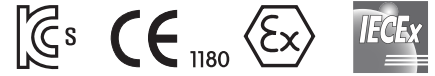
Components

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™

Certification



PYEX-EP-SPK

Low profile splice connection kit
Engineering plastic enclosure
for power and splice connection

Features

PYEX-EP-SPK is the water-proof engineering plastic enclosure for power connection and/or splice connection of heating cable. It is small and water-tight (IP65) so to be installed under insulation. It has an excellent mechanical strength in both extreme weather as it is made of engineering plastic. It can accommodate power cable and heating cable up to 15mm in diameter. It is small enough to suit narrow installation work. The clamping nut can be used as cable gland having 1"PF thread.

Specification

After assembled diameter 40mm, length 120mm.
Ingress Protection : IP65
Operating Temperature : -40°C < Ta < 85°C
Compatible with Conventional Pipe Thread-Both End 1"PF
- FBL 10, 16, 24 : 11.4mm x 5.4mm
- FBL 30 : 13.4mm x 5.4mm

Selection Code

PYEX-EP-SPK - **P**
① ②

①	Model
②	Use P : Powering S : Splice E : End Termination

Heater Seal Selection

Part No	Width(A)	Height(B)	Applicable Heaters	Outer Jacket
JBP-HS116	11.6	5.6	FBL HSR 10,16,24	Fluoropolymer -CF / Polyolefin -CP
JBP-HS136	13.6	5.6	FBL HSR 30	Fluoropolymer -CF / Polyolefin -CP

* All dimensions in mm.



SOLCO.PYROELECTM

Components



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www.pyroelec.com

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 heat tracing cables FBL and FBH parallel constant heating cable 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 and FBX parallel heating cables to Ex certified enclosure.



Heat Shrink End Termination Kit for Self-Regulating Heating Cables

PYEX-ETK-S

The ETK-S is for end terminating FBL, FBH and FBX parallel heating cables to an 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.

COMPONENTS



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-26A, PYEX-EP-JB-26B



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-26A, PYEX-EP-JB-26B



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-26A, PYEX-EP-JB-26B



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

COMPONENTS



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

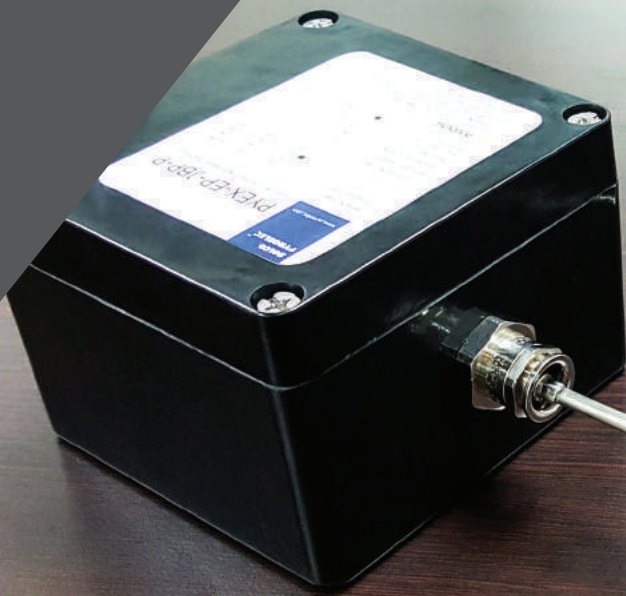
Metal straps for pipe mounting of enclosure connection kit.

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



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Monitoring and Control



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PYEX-EP-MTS12

Explosion proof capillary thermostat

Features

The explosion-proof capillary thermostat PYEX-EP-MTS12 is built to 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.

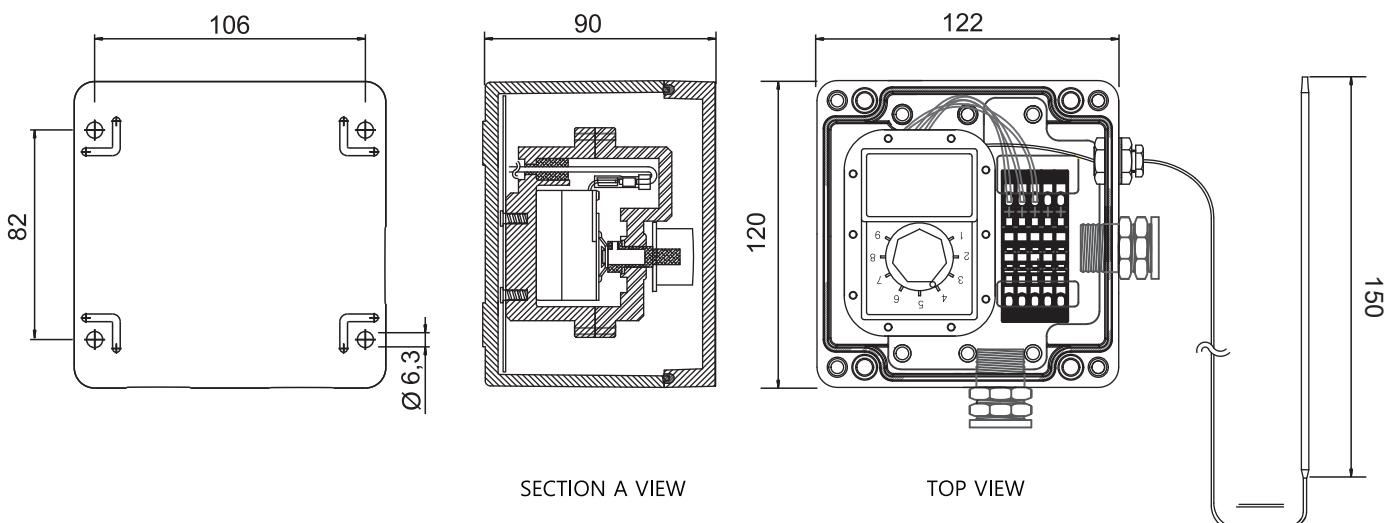
The capillary thermostat is enclosed within Ex d (flameproof) aluminium enclosure and then the whole aluminium enclosure assembly is fitted inside 120 x 120 x 90mm engineering plastic enclosure for easy installation and maintenance on site.

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

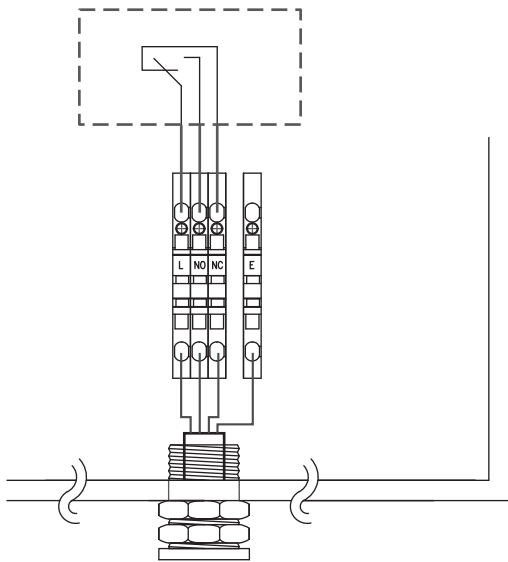
Protection Type	Ex d e IIC T6
Ingress Protection	IP56
Ambient temperature range	- 20 °C to + 40 °C
Switching capacity	max. 250V / 16A
Relay output	Refer to Table 1.
Set point range (optional)	Refer to Table 1.
Housing	Glassfibre reinforced polyester 120 x 120 x 90mm
Cable entry method	Plastic cable gland M16, M20, M25, M32 available
Number of cable entry (optional)	max. 2
Capillary sensor	made of stainless steel Capillary Ø 1.0mm diameter, 870mm in length Capillary bending radius 5.0mm max
Sensor probe	Refer to Table 1.
Connection terminal	Refer to Table 2.

Product Drawing

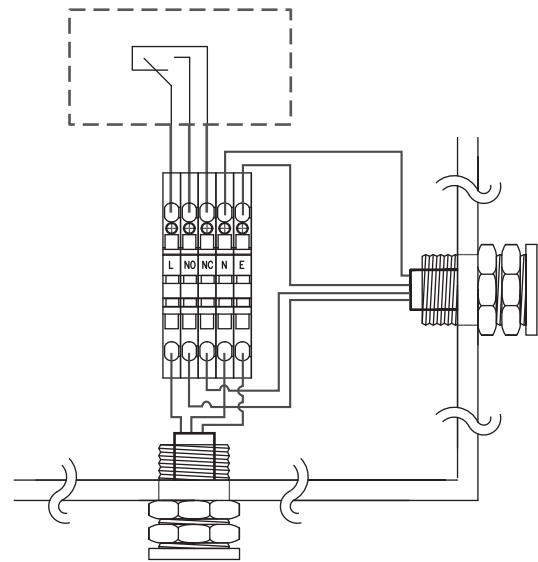




Wiring diagrams



For one cable entry



For two cable entries

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 ²)
1	2.5
2	4.0
3	6.0

Note.

Tension crimping and screw tightening type are available.



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PYEX-EP-RTD

Ex temperature sensing kit
Explosion proof RTD enclosure kit
for heating cable system

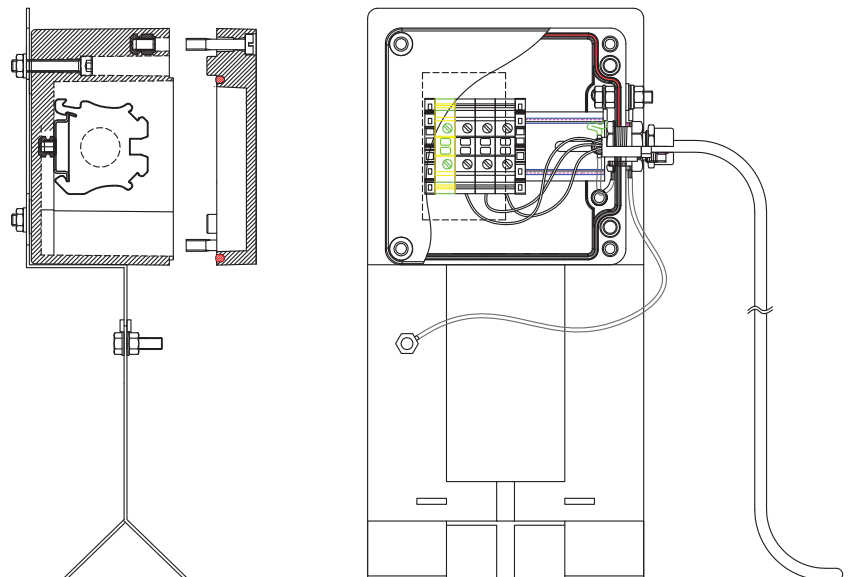
Features

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 ohm to reduce the static hazard risk. Each kit includes an IP67 rated junction box and 2.5mm² 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.

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 Ω
Flammability L Self-extinguishing UL94/V-0
Maximum conductor size for terminal : 2.5mm²
M16 metallic cable gland for compression fitting
The length of RTD sensing probe : Max. 2.0m
Enclosure dimension 122 x 120 x 90mm

Product Drawing





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Certification



PYEX-EP-JB-LE

Features

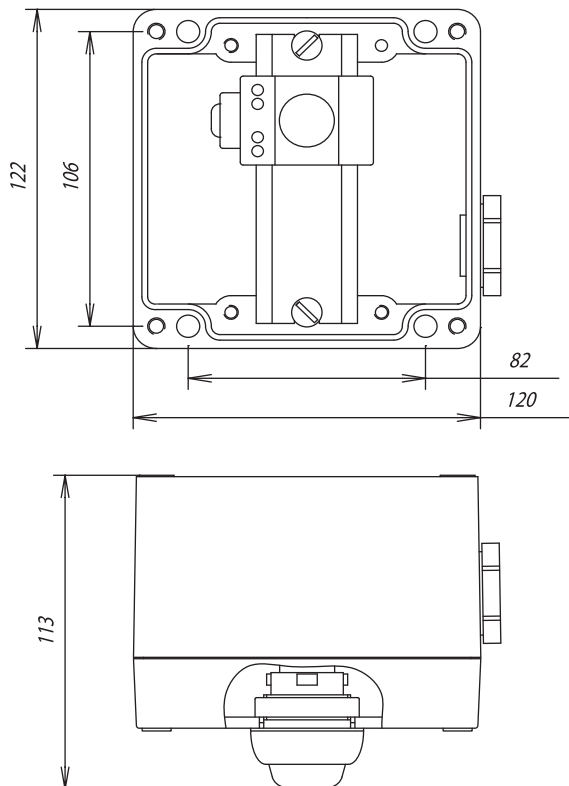
PYEX-EP-JB-LE is the explosion-proof engineering plastic enclosure for end termination of heating cables fitted with LED signal lamp to monitor the power status. It can be used in hazardous(classified) locations as well as ordinary area. It has a high terminal stability, high mechanical strength and corrosion-proof. The junction box can be used with all models of SOLCO PYROELEC parallel heat tracing cables.

Specification

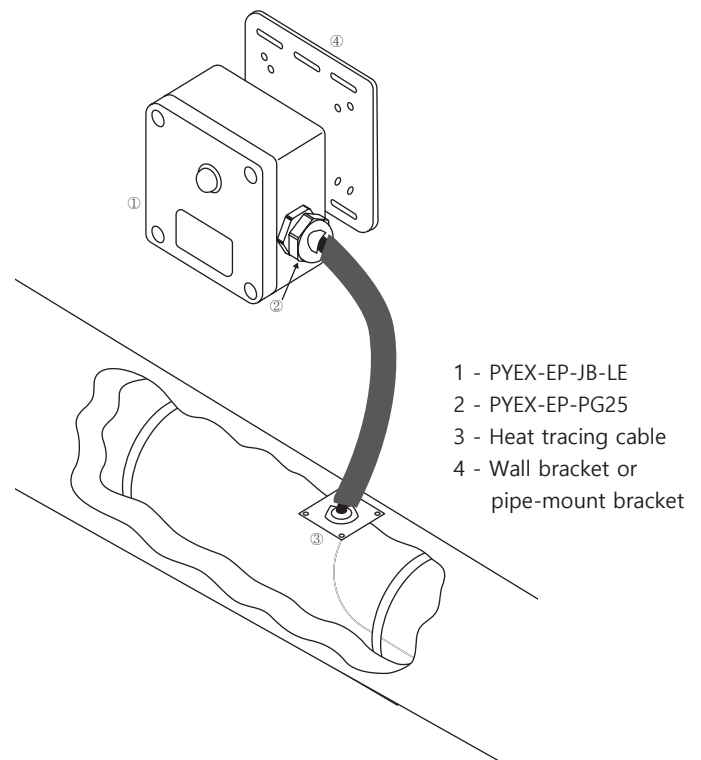
Protection Type : Ex e IIC Gb
 Operating ambient temperature range : -50°C to 50°C
 Ingress protection : IP66
 Maximum voltage : up to 250Vac
 Maximum current : up to 50A
 Power consumption of the lamp : < 1W
 Operating lifetime of the lamp : > 10 hours
 Terminal connecting capacity : up to 2.5mm
 Light color : Green / Yellow / Red / White
 Light coverage : 180°

LED lamp termination kit
 Explosion proof LED lamp kit
 for heating cable termination

Product Drawing



Typical Installation



* All dimensions in mm.



SOLCO
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Ex RTD

Explosion proof capillary
RTD sensor probe

Features

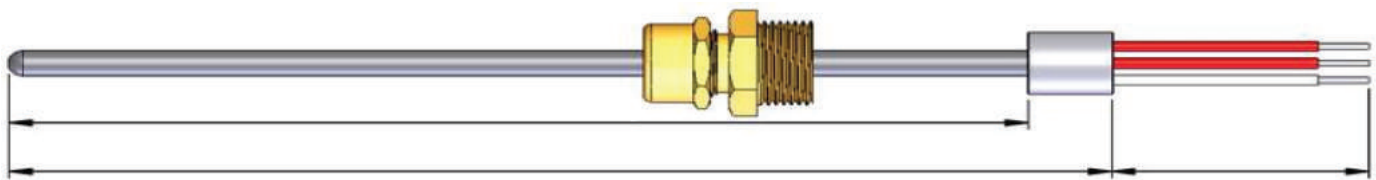
This Ex RTD is three-wire or four wire, ambient sensing platinum RTD(Resistance Temperature Diode) typically used with electronic control systems that require accurate ambient temperature sensing.

The Ex RTD comes with M16 or M20 threaded fitting to be installed with Ex certified IP54 enclosures the appropriate conduit box.

Specification

Ingress Protection : IP66
 Max. tip operating temp.(Power-on) 550°C (1,022°F)
 Min. tip operating temp.(Power-off) -200°C (-392°F)
 Max. termination temp. 100°C (212°F)
 Admissible ambient temperature range : -30°C to 100°C
 Sheath material : 316L stainless steel
 Resistance : 100Ω at 0°C
 Immersion depth : 60mm
 Min. bend radius : cable dia. x 10
 Recommended current : 1mA
 Max. Voltage : 90Vdc

RTD Probe Design Types



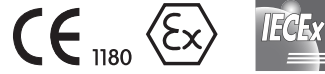
Tail Type

Type	Configuration	Colour code
PTFE insulated flexible	3 wire	2 Red & 1 White
	4 wire	2 Red & 2 White
PTFE insulated solid	3 wire	2 Red & 1 White
	4 wire	2 Red & 2 White
	3 wire & earth tail	2 Red, 1 White & 1 Yellow / Green

Seal Type

Fitting	Configuration	Colour code
Crimp	Plain	3 wire flexible
	Plain	4 wire flexible
Silver Solder	Plain	3 wire solid
	Plain	4 wire solid
	Earth tail	3 wire & earth tail solid

Certification

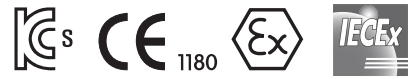


Termination Fittings

Reference	Material	Tail type	Reference	Material	Tail type
TGMV4516	Brass	16 mm ISO Metric	TGMVS4516	Stainless Steel	16 mm ISO Metric
TGMV6016			TGMVS6016		
TGMV4520		20 mm ISO Metric	TGMVS4520		20 mm ISO Metric
TGMV6020			TGMVS6020		

RTD and Transducer Cable Reference

	Description	P	2	D	-	316	-	60	A		
		R	4	C	-	316L	-	0500		-	C5
Category	"P" - Premium grade probe "T" - Commercial grade probe "R" - Transducer cable	↑	↑	↑		↑		↑	↑		↑
Number of conductors	2 - Two conductors (Simplex) 4 - Four conductors (Duplex) 6 - Six conductors (Triplex)		↑	↑		↑		↑	↑		↑
Conductors material	"C" - Copper "D" - Nickel "A" - Nichrome "W" - AISI 310			↑		↑		↑	↑		↑
Sheath material	"321" - AISI 321 Stainless Steel "316L" - AISI 316L Stainless Steel "316Ti" - AISI 316Ti Stainless Steel					↑		↑	↑		↑
Cable diameter	2 or 3 digits metric range in 1/10mm							↑	↑		↑
RTD Class Tolerances (probes only)	"A" - Class A to EN 60751 "B" - Class B to EN 60751								↑		↑
Additional features	"C1" - 3 conductors wide spaced "C5" - 4 conductors wide spaced "ATEX" - ATEX approved design										↑



PYEX-BT

Explosion-proof bimetal thermostat
Safety device for temperature limit

Selection Code

PYEX-BT - **1/2** - **70**
 (a) (b) (c)

(a)	Model
(b)	Type / Construction 1/2 - 1/2 inch cylindrical bar 3/8 - 3/8 inch cylindrical bar B1418 - rectangular bar
(c)	Limiting temperature 0 to 100°C

Features

- 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

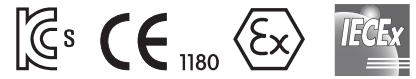
Use

- Temperature limiting for surface heating system
- Semiconductor, display and petro-chemical industry
- Hazardous and non-hazardous locations

Specification

- 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 24.0 x 32.5mm (Type 1/2)
 14.0 x 18.0 x 31.0mm (Type B1418)
- Ingress protection IP67
- Leadwire AWG 22





PYEX-Z2BT

Explosion-proof bimetal thermostat
Safety device for temperature limit

Features

- 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

Use

- Temperature limiting for surface heating system
- Semiconductor, display and petro-chemical industry
- Hazardous and non-hazardous locations

Specification

- 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/30mA, 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

Selection Code

PYEX-Z2BT - **70**
 (a) (b)

(a)	Model
(b)	Limiting temperature 0 to 100°C





Certification



SKYTRACE

Web-based monitoring solution for industrial trace heating applications



Features

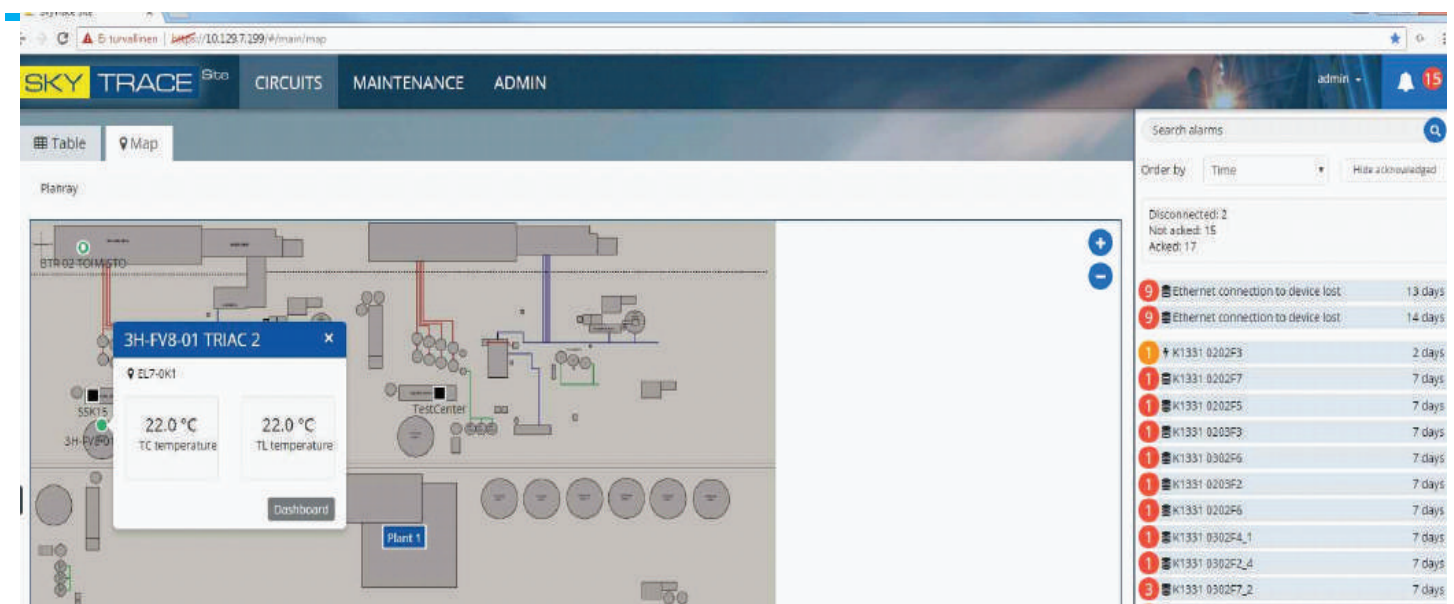
- Web-based monitoring and control solution for trace heating system
- Saving saves energy and labor costs up to 90%
- Proactive maintenance analysis
- Prioritized alarm 1 to 9
- Heating cable performance analysis
- Excellent security
- Remote control via VPN to LAN network
- Integrate to client own automation system
- Extendable to 'SKTRACE analytics' via cloud service
- Mobile user interface
- Proactive maintenance montly report

Use

- Avoid process downtime
- Find hidden kWh cost and save money
- Identify and solve mysterious problems
- Confirm heating cable quality and maintenance schedule change

Specification

- Trace heating circuit analysis by table and by site map
- Control panel and circuit location can be customized after the completion of installation
- Dashboard for controlling and monitoring of individual circuit
- Monitoring temperature, load current, leakage current and sensor status
- Energy consumption statistics - Top 10 circuits with higher consumption
- Top 10 alarm count per circuit





Certification



BLUETRACE

Single circuit controller for industrial trace heating system

Features

- 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

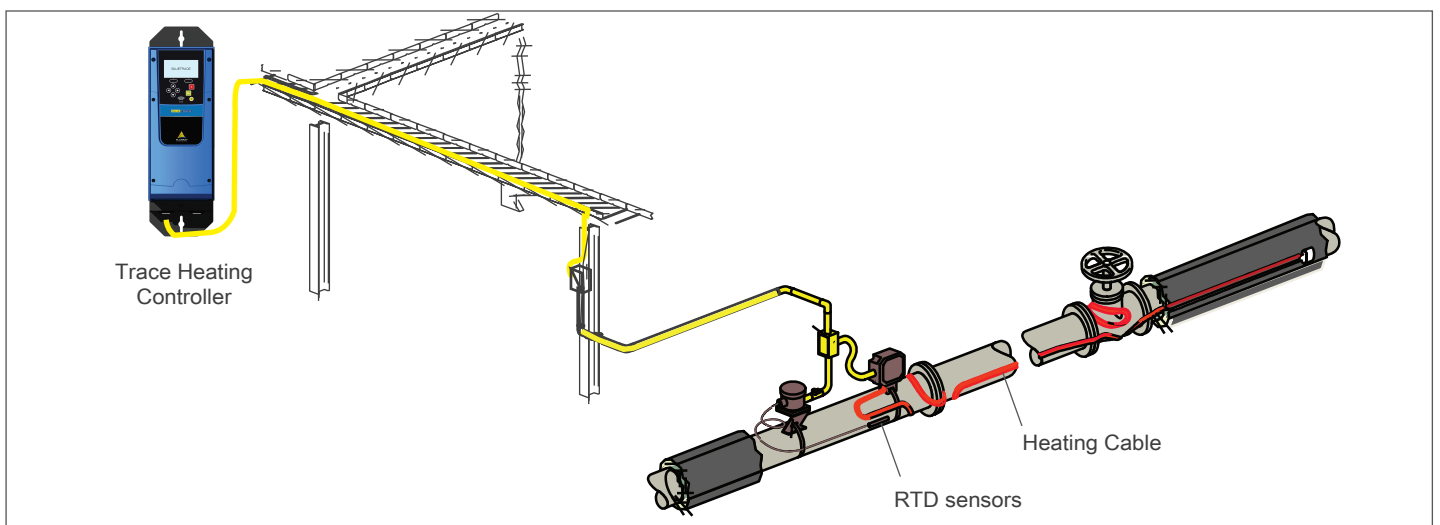
Use

- Tanks, Vessels
- Pipelines
- Conveyors, filter stations
- Gutter, roof drains
- Ventilation grids, pumps
- Ramps, slabs



Specification

- 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





LoRa Alliance Certified™

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

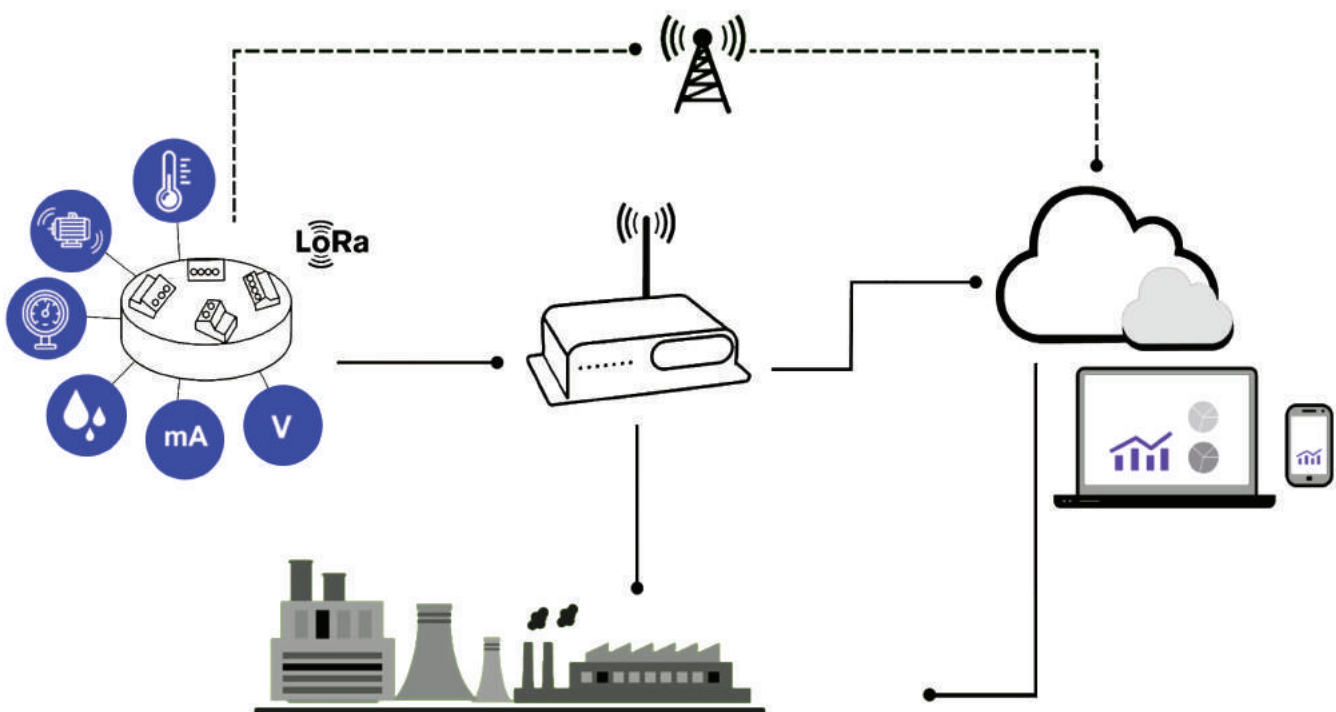
SMARTER MAINTENANCE FOR BETTER PRODUCTIVITY

- 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 intergrated 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.

System Configuration



Certification



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

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





SOLCO
PYROELECTM

Certification



HACC-TSK-P

Line sensing thermostat enclosure
Ex 'd' explosion-proof enclosure
thermostat control

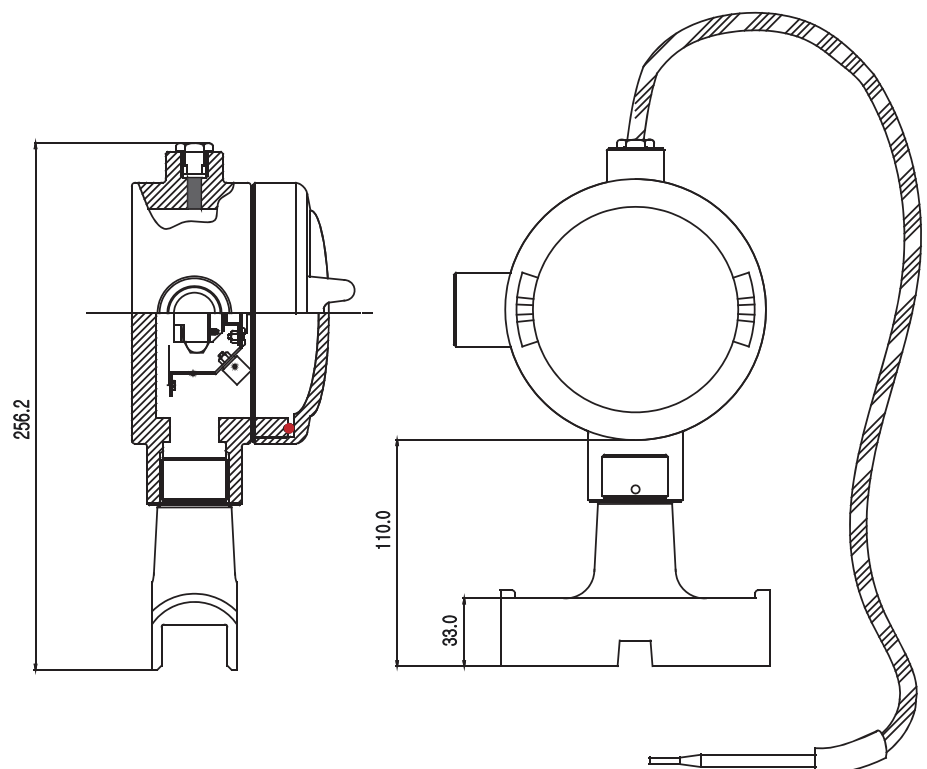
Features

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.

Specification

Assembled height : 257mm, width : 132mm, depth : 64mm.
Ex d IIC T6 (flame-proof), Ingress protection IP65
Operating temp $-20^{\circ}\text{C} < T_a < 50^{\circ}\text{C}$
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

Product Drawing





SOLCO
PYROELEC™

Certification



HACC-ELK-P

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

Features

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.

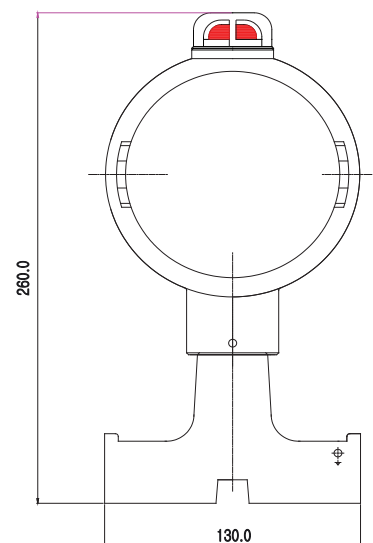
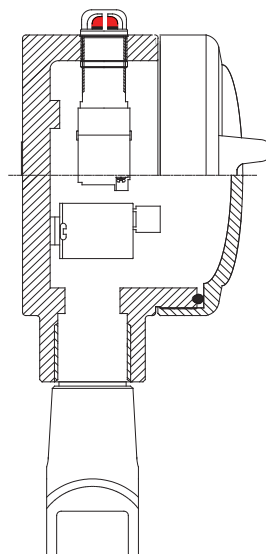
Specification

After assembled height 257mm, width 132mm, depth 64mm
Ex d IIC T6 (Flameproof), Ingress Protection IP65
Gasket and cable seal : Flameproof silicone rubber

Part List

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

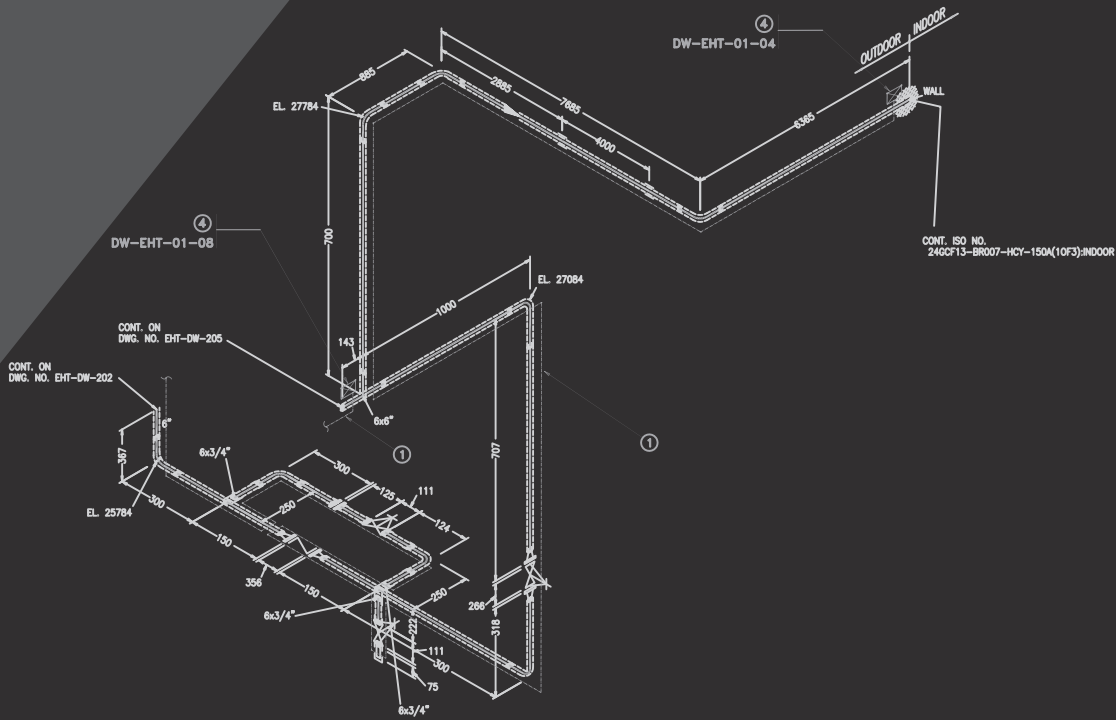
Product Drawing





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Technical Support



DESIGN DATA INDOOR OUTDOOR

FLUID		DW
MAX. PIPE TEMP. (INTERMITTENT)	60	°C
NORMAL OPER. TEMP.	10	°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
Perline	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 THERMOS
13		TEMP. S
14		
15		
16		
17		

Solco Pyroelec

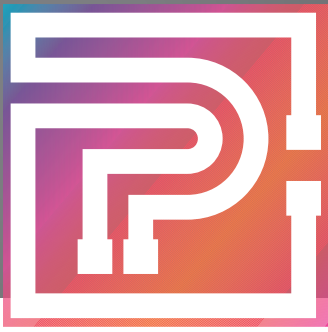
PROJECT NAME
수처리시설

TITLE
ELECTRICAL

END USER

AREA	DEMI AREA	UNIT
6"	22.0	24.2
		1.0

Δ		
Δ	2014	FOR FINAL
	03.05	
	1.003.0	



SOLCO
PYROELECTM

Pyro Technician

Pyro-Technician, the design software for trace heating application provides the outstanding design-aid performance via user-friendly interface.

It has all the features you need such as

- site condition and process condition can be tailored for each pipeline
- pipe heat loss calculation,
- automated heating cable and component selection
- electrical load and maximum exposure temperature for each circuit
- selection of control and monitoring method
- automated generation of design summary and bill of material(BOM)

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

Trace heating design software

Project Window

The screenshot displays the Pyro Technician software interface. The main window shows a piping diagram with various segments labeled (e.g., Segment 1, Segment 2, Segment 3, Segment 4, Segment 5, Segment 6, Segment 7, Segment 8, Segment 9, Segment 10, Segment 11, Segment 12, Segment 13, Segment 14, Segment 15, Segment 16, Segment 17, Segment 18, Segment 19, Segment 20, Segment 21, Segment 22, Segment 23, Segment 24, Segment 25, Segment 26, Segment 27, Segment 28, Segment 29, Segment 30, Segment 31, Segment 32, Segment 33, Segment 34, Segment 35, Segment 36, Segment 37, Segment 38, Segment 39, Segment 40, Segment 41, Segment 42, Segment 43, Segment 44, Segment 45, Segment 46, Segment 47, Segment 48, Segment 49, Segment 50, Segment 51, Segment 52, Segment 53, Segment 54, Segment 55, Segment 56, Segment 57, Segment 58, Segment 59, Segment 60, Segment 61, Segment 62, Segment 63, Segment 64, Segment 65, Segment 66, Segment 67, Segment 68, Segment 69, Segment 70, Segment 71, Segment 72, Segment 73, Segment 74, Segment 75, Segment 76, Segment 77, Segment 78, Segment 79, Segment 80, Segment 81, Segment 82, Segment 83, Segment 84, Segment 85, Segment 86, Segment 87, Segment 88, Segment 89, Segment 90, Segment 91, Segment 92, Segment 93, Segment 94, Segment 95, Segment 96, Segment 97, Segment 98, Segment 99, Segment 100). The diagram includes a central Pyro Technician logo. To the right, a 'Properties of Segment named Segment 1' panel lists various parameters such as Name, Material, Work Package, Area, Customer Line No., Kit Reference No., Customer Drawing No., Size, Length, Insulation, Layer Count, Inner Layer Type, Inner Layer Thickness, Outer Layer Type, Outer Layer Thickness, Spacing, Weather Station, Exothermic, Temperature, Hot Ambient, Max Ambient, Strapping Ambient, Instrument, Chemical Exposure, Wind, Safety Factor, Heat, Heat Loss Allowance, Temperature Allowance, Microclimate Allowance, Additional Power Req., Values, Flanges, and Pumps. Below the diagram, a 'Design Results of Circuit 1' table shows:

Result	Value	Unit
Temperature Control		
Control Method	Ballasted Ambient Sensing	
Circuit Data		
Total Heater Length	31.08 m	
Operating Current	477.21 A	
Operating Current	9.37 A	
Maximum Current	9.37 A	

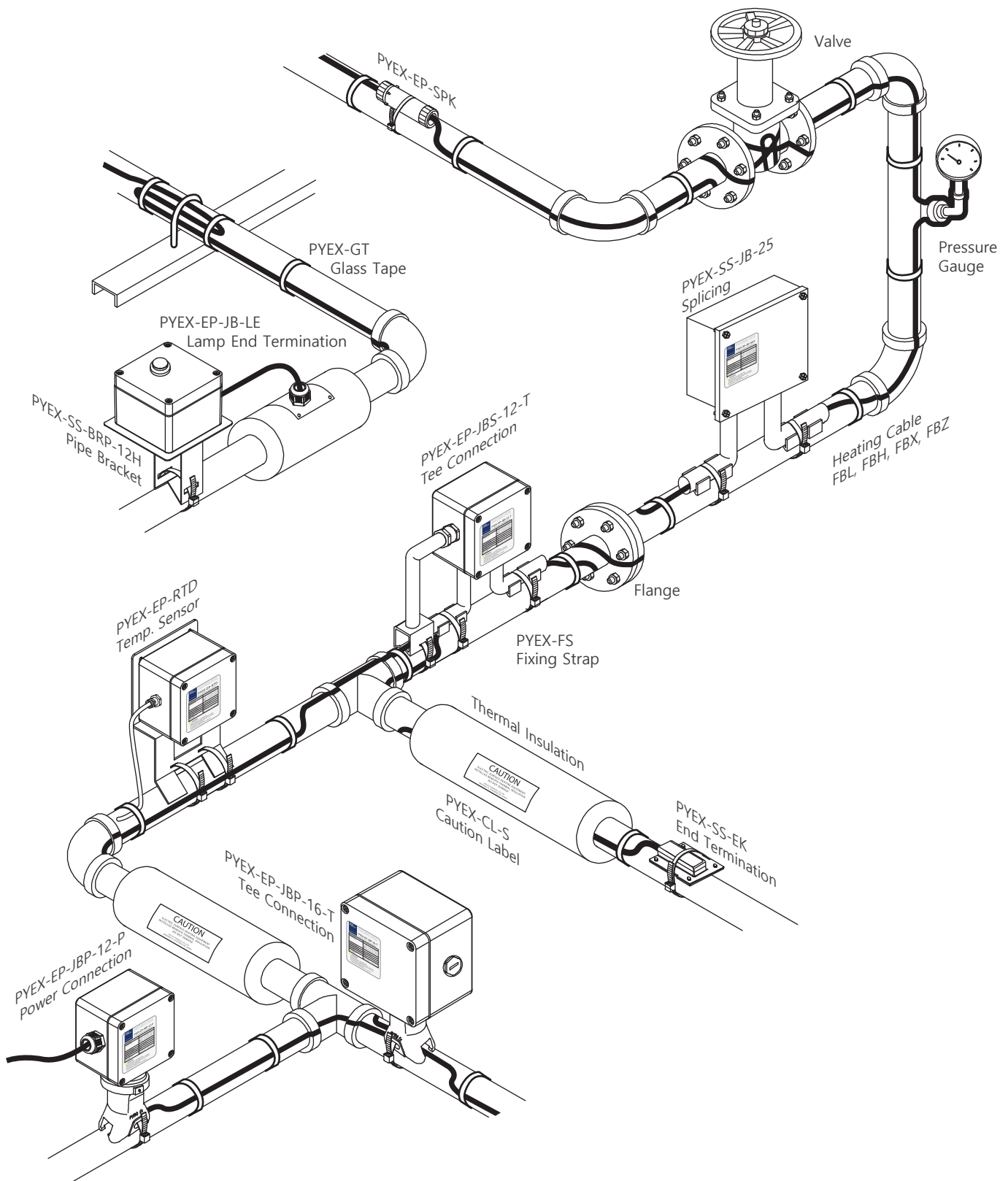
Another 'Design Results of Segment 1' table shows:

Item	Name	Value	Unit
Heat Loss		41.03 kW	
Total Heater Length		31.08 m	
Pipe Flaying		30.08 m	
Pipe Flanges		0.00 m	
Pipe Pumps		0.00 m	
Pipe Supports		0.00 m	
Pipe Valves		0.00 m	
Microclimate Allowance		0.00 m	
Pipe Temperature		0.00 m	

At the bottom, a 'Design Results of Segment 1' table shows:

Item	Name	Value	Unit
Heat Loss Allowance		0.00 m	
Temperature Allowance		0.00 m	
Microclimate Allowance		0.00 m	
Additional Power Req.		0.00 m	

Typical Installation

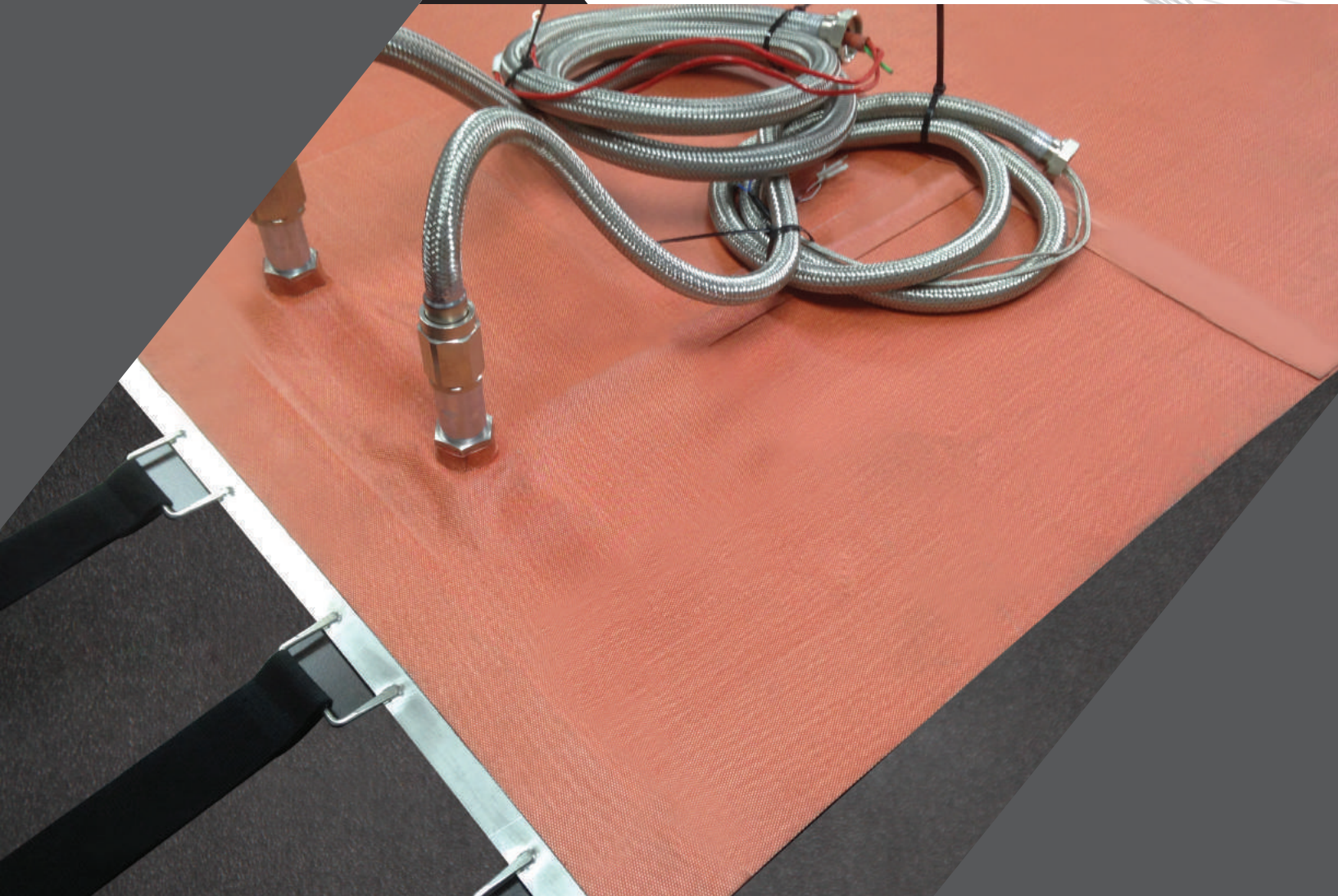


SOLCO PYROELEC self-regulating cables are to be installed with genuine components being supplied by SOLCO PYROELEC representatives to guarantee optimum performance as well as to validate extended warranty scheme. To benefit from SOLCO PYROELEC product warranty, the customer must complete and retain the 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.

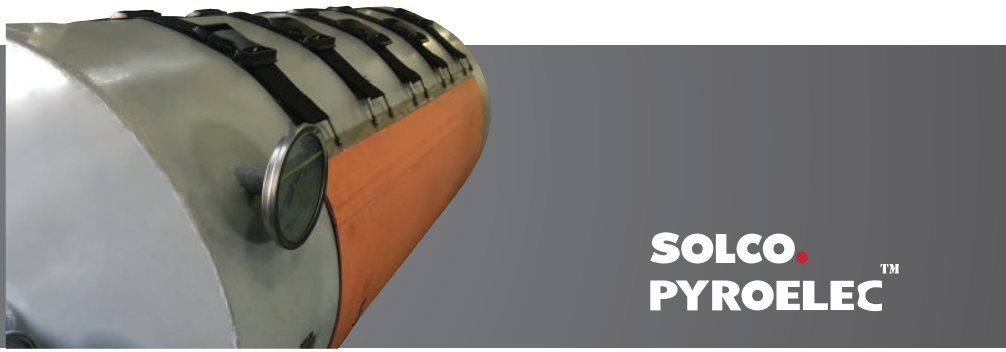


SOLCO.PYROELECTM

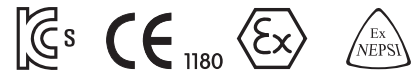
Heating Jacket



SOLCO.PYROELEC™
www.pyroelec.com



Certification



FBZH-SR

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

Use

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

- Gentle heat-up or temperature maintenance of gas cylinder
- Freeze protection or temperature maintenance of chemical tanks
- Hazardous and non-hazardous locations

Selection Code

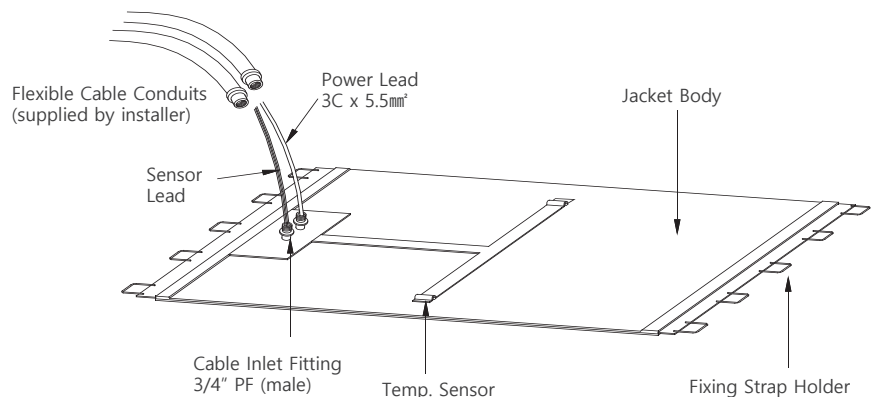
FBZH - **SR** **Y** **1** - **6000** - **F**
 (a) (b) (c) (d) (e) (f)

(a)	Model
(b)	Substrate Material SR : Silicone Rubber
(c)	Container Type Y : Y cylinder / T : Ton cylinder B47 : Gas Bottle 47L B54 : Gas Bottle 54L
(d)	Voltage 1 : 110V / 2 : 220V
(e)	Power Output 1000 : 1kw / 4000 : 4kw 6000 : 6kw / 8000 : 8kw
(f)	None : Wire type F : Etched foil type

Specification

- Max. maintain Temperature (Power-on) 40°C (104°F)
- Max. continuous Temperature (Power-off) 150°C (302°F)
- Rated voltage : 220 Vac, single phase, 50/60 Hz
- Power consumption : 4,000 ~ 8,000 watt
- Temperature classification (T-Rating) : T4 (135°C)
- Temperature Sensor : RTD(pt100) or K Type Thermocouple
- Min. Bending Radius : 310 mm
- Min. installation Radius : -20°C
- Approx. Dimension
 - for Y Cylinder : 880mm x 1,270mm
 - for Ton Cylinder : 1,400mm x 1,900mm
- Flexible conduit fitting : 3/4" PF (Male)

Product Drawing



Liquid Leak Detection



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.

Features of LEAKBAN System

- Conforms with relevant EMI/EMC and Electrical Safety requirements
- Sensing cable can be connected up to 1km
- Fast response (default 8 seconds)
- Leak point positioning within $\pm 1\text{m} / 1,000\text{m}$
- Sensing wires sit in deep grooves making it fault-free
- Durable and flexible / Reusable
- Chemical and abrasion resistance
- Standard supply lengths: 3m, 7.5m, and 15m

Use

Power plant and sub-station : water and various chemical detection around power generation plants, data centres, central command units

Digital media centre : water detection including floor surfaces, subfloors and equipment locations

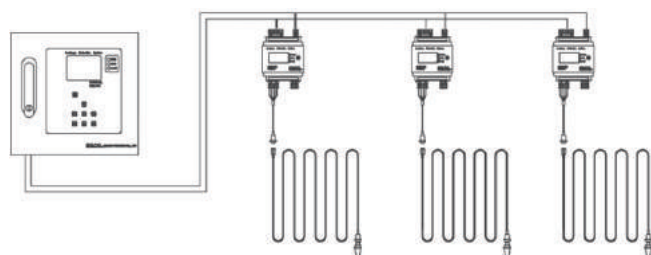
Semi-conductor, battery, display panel (LCD/LED) factory : water, acid and base leakage detection around pipes, storage tanks, and trenches such as sulphuric acid, sulphurous acid, nitric acid, PAC and sodium hydroxide etc.

Army bases : Oil and chemical leak detection including pipes and storage tanks

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

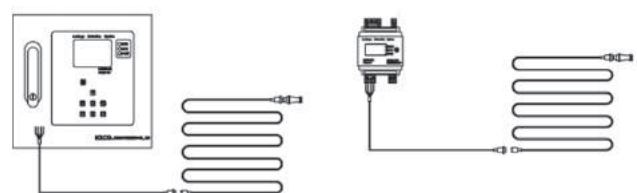
Network System

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.





SOLCO
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LBMM-100

Master module
monitoring and alarm

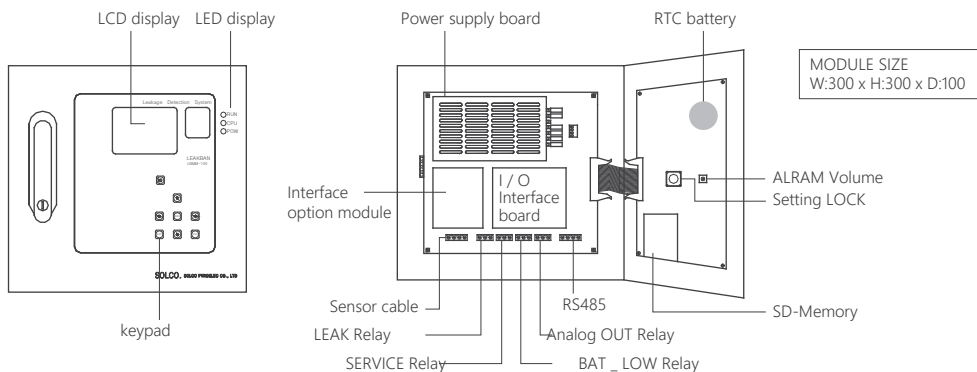
LBMM-100 is the main monitoring unit for the leak detection system and it works with sub-modules and sensing cables. When the LBMM is working in master mode, it is connected with the LBSM, the sub-module via RS485, for monitoring all the events and status of sub-modules on the provided LCD display. When 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)
RTC Battery / Memory	max 1.000M / 1M accuracy
Parameter Setting	-10 ~ 85°C / 30 ~ 80% RH
Communication Method Protocol	Replay – 3 Channels 250Vac - 10A , 30Vdc - 10A
Communication Distance / Number of Multi-Drop	Analog Output; 1 Channel (0 - 20mA) 1 Channel (0 - 10Vdc)
Data Transferring Speed	Built in / SD-CARD
Data bit / Stop bit / Parity bit	KEY & Modbus RTU
Housing	RS485 – 2wire
	Modbus-RTU
	1.2km / 32
	9600BPS
	8bit / 1bit / none (Fixed)
	Steel

Product Drawing





SOLCO
PYROELECTM

LBSM-200/300

Master module
monitoring and alarm

LBSM-200 and LBSM-300 are sub-modules for LeakBan leak detection system and they generally work with the LBMM, master-module unit and a leak sensing cable. When leak sensing cables detect any event, the LBSM sends pre-determined signals to the LBMM and at the same time they produce a visual and auditory alarm. Being determined as master module, the LBMM device should be linked with LBSM200 or LBSM300 via RS485 communication protocol for monitoring and alarming all the events and for showing the status of leak sensing cables on the LCD screen. All technical parameters and event-related data are automatically saved and stored in the provided external SD-card of the LBMM device and then can be read by PC or other electronic devices. LBSM can pinpoint the place where the leakage occurs with high accuracy. The housing of LBSM-200 and 300 is constructed with flame retardant PC and provides IP54 ingress protection. It can be mounted inside an enclosure by DIN rail or wall-mounted by the provided fixing screws. The LBSM-200 features a 1.4in LCD display and one LED light while LBSM-300 has no LCD display.

Product Specification

Conform with EMI/EMC requirements

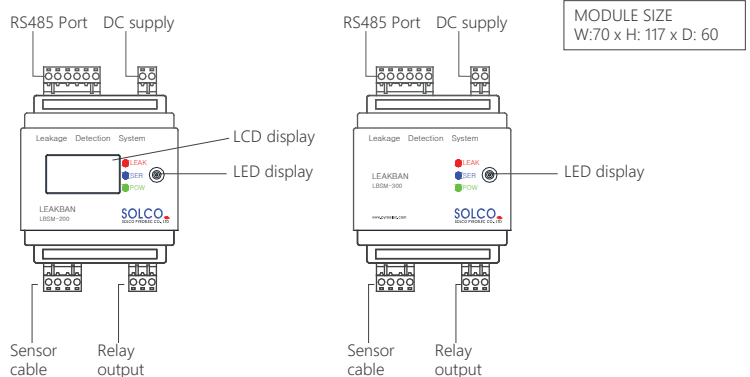
Power Supply	10~30Vdc / 1.5W
Functions	Leak detection and positioning / Contamination check of sensing cable / Continuity check of sensing cable
Display/Alarm	LCD & LED / ALARM (LBSM-200) LED / ALARM (LBSM-300)
Event Relay	1 Channel A,C Point of Contact - (24Vdc-1A, 250Vac-0.5A)
Sensing Time	Max. 8 seconds (default)
Sensing Length	Max. 500m / 1m accuracy
Operating Temp. / Humidity	-10 ~ 85°C / 30 ~ 80% RH
Mounting Method	DIN rail or panel hole attachment

Product Drawing



LBSM-200

LBSM-300



[LBSM-200]

[LBSM-300]



SOLCO
PYROELEC™

Certification



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 wires 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.

Use

LBSC-1000 sensing cable is designed for various applications :

- data centre sub-floor
- telecommunication centre
- HVAC equipment
- insulated pipelines
- electrical vaults
- storage areas
- roof or bathroom

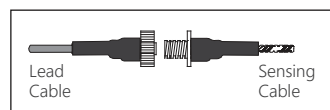
Technical Information

Cable diameter	approx. 6 mm
Continuity wire	AWG 20 x 2
Sensing wire	AWG 30 x 2
	alloy with conductive coating
Spacer	XLEVA, orange color
Maximum continuous operating temperature	80°C
Humidity	up to 80% RH
Flame retardant	VW-1
Min. bending radius	35mm
Min. installation Temperature	-40°C
Pre-terminated standard length	3.5m, 7m or 15m
CPC connector polyester/glass-filled nylon	Max. Ø25mm

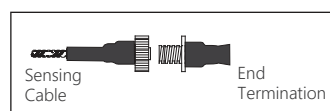
Characteristics

- Conforms with EMI/EMC and Electrical Safety requirements
- Sensing cable can be extended up to 1km
- Fast response (default 8 seconds)
- Leak Point Accuracy ($\pm 1m / 1,000m$)
- Resistance to abrasion, chemicals
- Standard supply 3.5m, 7m, 15m
- Operating temp. -40°C ~ 80°C

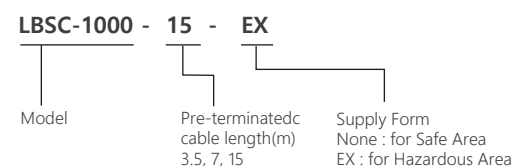
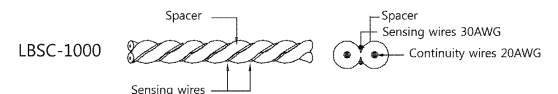
Termination

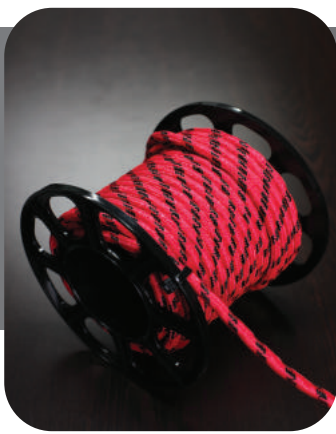


Cable Connection



End Termination





SOLCO PYROELEC™

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.

Use

LBSC-3000 sensing cable is designed for various applications :

- 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.

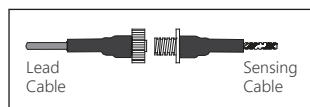
Product Specification

Cable diameter	approx. 7 mm
Continuity wire	AWG 20 x 2
Sensing wire	AWG 30 x 2
	alloy with conductive coating
Spacer	chemical resistant XLEVA, red color
Maximum continuous operating temperature	80°C
Humidity	up to 80% RH
Flame retardant	VW-1
Min. bending radius	40mm
Min. installation Temperature	-40°C
Pre-terminated standard length	3.5m, 7m or 15m

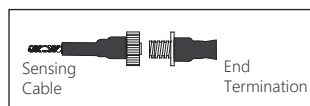
Characteristics

- Conforms with EMI/EMC and Electrical Safety requirements
- Sensing cables can be extended up to 1km
- Fast response less than 15 minutes depending on the acid type
- Leak positioning accuracy ($\pm 1m / 1,000m$)
- Resistance to abrasion, chemicals
- Standard supply 3.5m, 7m, 15m
- Operating temp. -40°C ~ 80°C

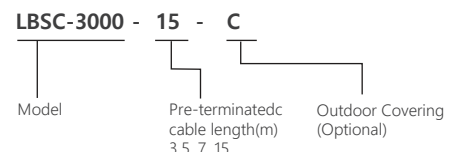
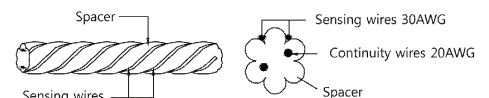
Termination



Cable Connection



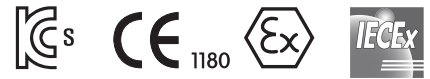
End Termination





SOLCO
PYROELEC™

Certification



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.

Use

LBSC-7000 sensing cable is designed for various applications :

- 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.

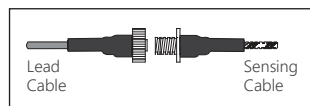
Product Specification

Cable diameter	approx. 7 mm
Continuity wire	AWG 20 x 2
Sensing wire	AWG 30 x 2
	alloy with conductive coating
Spacer	chemical resistant XLEVA, grey color
Maximum continuous operating temperature	80°C
Humidity	up to 80% RH
Flame retardant	VW-1
Min. bending radius	40mm
Min. installation Temperature	-40°C
Pre-terminated standard length	3.5m, 7m or 15m
CPC connector polyester/glass-filled nylon	Max. Ø25mm

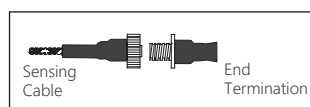
Characteristics

- Conforms with EMI/EMC and Electrical Safety requirements
- Sensing cables can be extended up to 1km
- Fast response 8 seconds max. depending on liquid type
- Leak positioning accuracy ($\pm 1m / 1,000m$)
- Resistance to abrasion, chemicals
- Standard supply 3.5m, 7m, 15m
- Operating temp. -40°C ~ 80°C

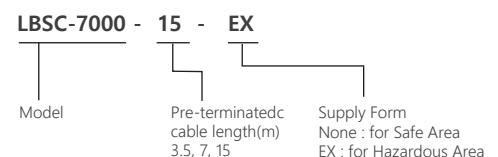
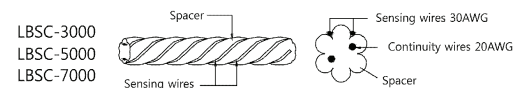
Termination



Cable Connection



End Termination



Components for Ex Certified LDS



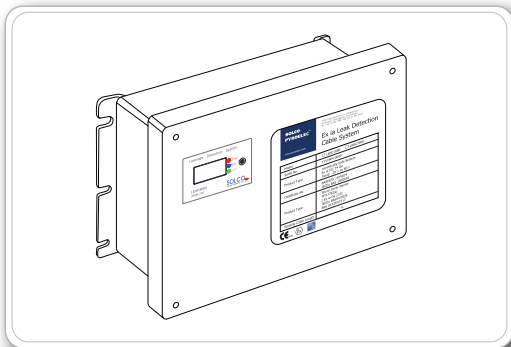
Water sensing cable

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

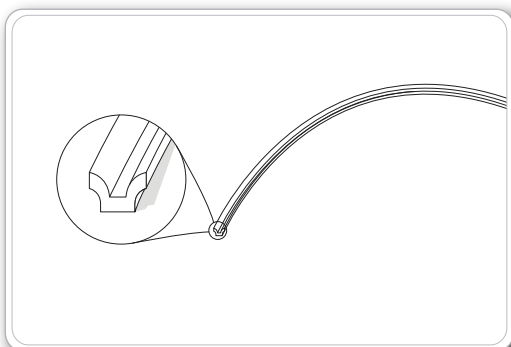
Model	: LBSC-7000 Ex
Protection Type	: Ex i IIC T4 Ga
Ambient Temp	: $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$
Cable diameter	: approx. 6 mm
Continuity wire	: AWG 20 x 2
Sensing wire	: AWG 30 x 2
Spacer	: XLEVA
Outer governing	: Flame retardant nylon fibre
Color	: Black with Blue Stripe



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

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