



Engineered to Uncompromising Standards . *Yours*

# Catalog

# About Us

Founded in 1959, CMR began repairing measuring instruments on ships and quickly focused on developing sensors and wiring systems for diesel engines capable of withstanding extreme conditions. With nearly 1,000 employees across 11 countries. Today, CMR develops, manufactures and implements control and supervision solutions for the energy, industrial and marine sectors. It does this by integrating its own smart sensors and automated systems.

## 1959

Founded in 1959 Marseille, France

## 4

4 major production sites worldwide



## 11

11 countries worldwide have offices and production sites

## 1000+

Nearly 1000 employees worldwide



# CMR Introduction

CMR develops a variety of solutions for its clients. These include customized service to product manufacture. Now CMR ensures that all of its services meet current regulations, as well as adhering to the principles of corporate social responsibility. They are also ISO 9001-certified and have been awarded other quality and classification society certifications.



## Our Clients



# CONTENTS

<b>About US</b> .....	<b>01</b>
<b>CMR Introduction</b> .....	<b>02</b>
<b>Wiring Systems</b> .....	<b>05</b>
Pipe Harness .....	06
Flexible Harness .....	07
High Horsepower Engine .....	08
Railway Industry .....	09
Machinery & Vehicle .....	10
Aircraft .....	11
Control Panel .....	12
<b>Electronics &amp; Sensors</b> .....	<b>13</b>
MBT2 .....	14
MBT19 .....	15
MBT1UG .....	16
MPT108 .....	17
MBT35 .....	18
MD1U .....	19
MD11 .....	20
MD2RU .....	21
MD43 .....	22
MC29.2 .....	23
MC31 .....	24
MT.S .....	25
EGT78 .....	26



EGT80 .....	27
EGT.5 .....	28
MD20 .....	29
MD20.2 .....	30
MP12 .....	31
MP12.6 .....	32
MP46.1 .....	33
MP39.9 .....	34
CTHP .....	35
TCM2.1 .....	36
TCM3.1 .....	37
TCM4.1 .....	38
TCM5.1 .....	39
CVB .....	40
MPC3000/3050 .....	41
MPC5100/5150 .....	43
Speed Sensor .....	45

**Power Solutions .....46**

Power Solutions .....	47
-----------------------	----

**Nuclear.....49**

Instrumentation & Control .....	50
sensors .....	51
Electrical cabinets & enclosures .....	51

# Wiring System



- » High-strength aluminum alloy conduit
- » High reliability waterproof sealing
- » Integrated wire harness management
- » Efficient installation design
- » Customized electrical interfaces
- » Harsh environmental reliability
- » Reverse polarity protection



## Configuration

Range Min	-50°C	Weight	3.2kg/m
Range Max	125°C	Length	Max 6m
Width	30mm*30mm, 33mm*22mm 50mm*40mm, 50mm*50mm 60mm*60mm, 60mm*80mm	IP	IP67



## Flexible Harness

- » Integrated protective structure
- » Industrial-grade rapid deployment
- » Cross-industry cost-effective solution
- » Multi-function signal management
- » Universal connectivity design
- » Multiple options for flexible wiring harness types



Heat technology shrinkable



Conduit wiring harness



Braided wiring harness



Flexible harness



**20+ Years experience within high horsepower engine markets**

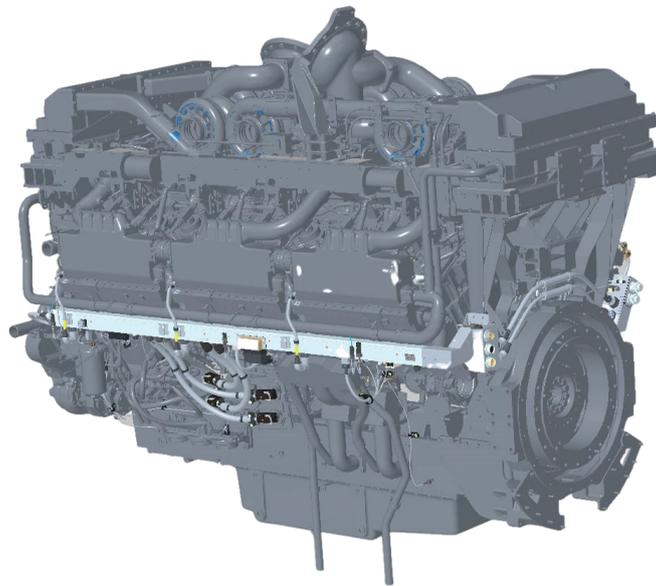
---

Specialist in designing and manufacturing wiring harnesses for harsh environments

## ENGINES

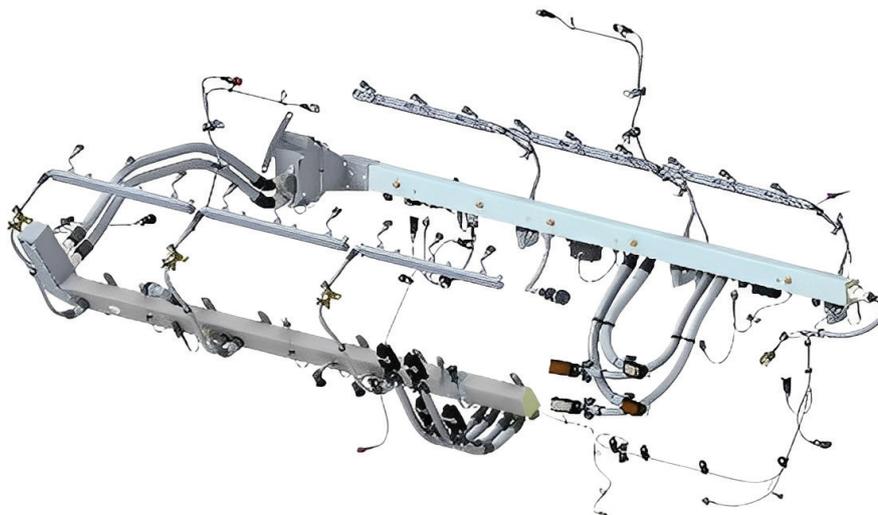
Field-proven solutions for sensing, wiring and monitoring.

Simplified designs to suit all applications of high horsepower engines.



## Global design and engineering services

CMR Wiring systems can offer co-design services to help drive tech-driven solutions using CREO and Zucken design tools, offer rapid prototyping and best cost manufacturing in either China, India, Tunisia or Mexico.



# Wiring System

## Turnkey solutions for the railway industry

A historic expertise of the group, CMR Rail designs, produces, and maintains the onboard electrical wiring in numerous trains, metros, and trams worldwide.

- » Wire wrapping technology
- » IPC A 620 wiring standards
- » IRIS certified from 2008



For over 25 years, CMR Rail has disseminated its expertise in assembly, wiring, and electrical integration to the major rail car builders (French, China, German, Canadian) and to the main rail operators.

Whether onboard or trackside, the electrical systems deliver satisfaction and results: electromechanical subsystems and harnesses.

CMR Rail ensures the quality of its products through full final quality



Our clients :



**CRRC**



**SIEMENS**



**ALSTOM**



 **Hitachi Rail STS**

## Machinery & vehicle harness

CMR vehicle harness core product portfolio

High-voltage harnesses for new energy vehicle (NEV) powertrain:

- » Brake air pump high-voltage harness assembly
- » Slow charge port high-voltage harness assembly
- » Fast charge port high-voltage harness assembly
- » PEU input high-voltage harness assembly
- » EAC power supply high-voltage harness assembly
- » Power battery output high-voltage harness assembly
- » Custom high-voltage solutions: engineered for specialized application requirements.



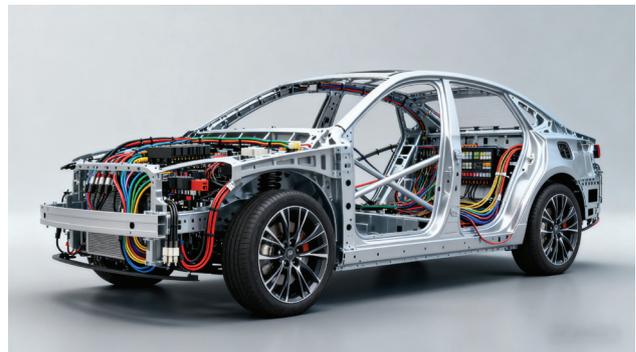
High-voltage harness :  
- Overall diagram of high-voltage harness

Smart harnesses:

- » Video harness assembly (for intelligent driving systems)
- » Sunroof harness assembly (with integrated control)



Fuel cell low-voltage harness:  
Compact structure, abrasion and vibration resistant



## CMR aviation wiring harness: engineered for aircraft

- » Customizable solutions: tailored to meet the specific needs of modern aircraft
- » Aviation-Grade compliance: adherence to MIL-STD-5088, DO-160, and other key standards
- » Assured performance & safety: built for ultimate reliability, longevity, and operational efficiency



## CMR aircraft wiring system product portfolio:

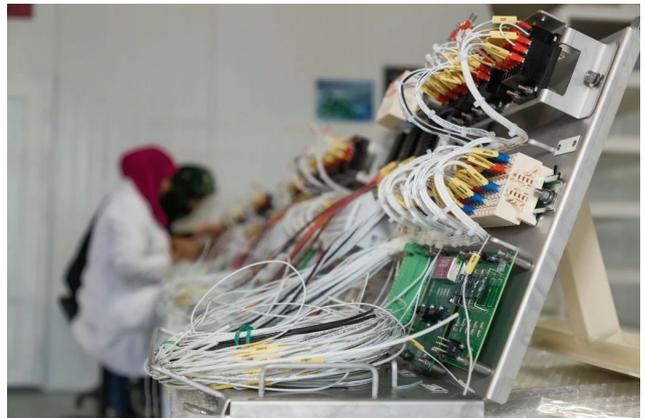
### Power & signal transmission

- » Power transmission harness
- » Communication signal harness



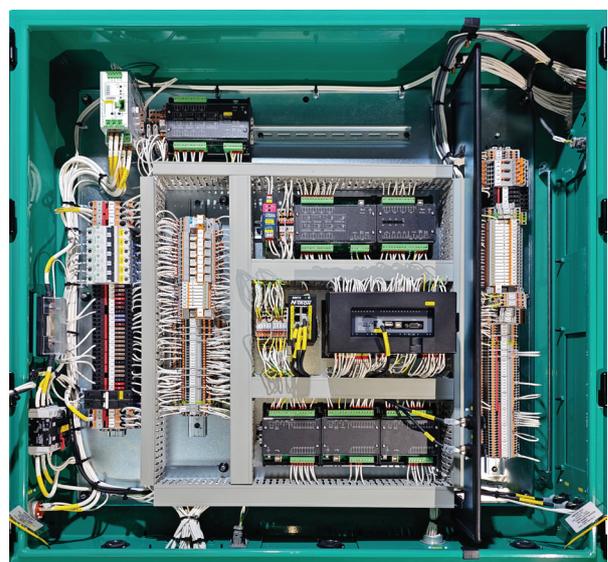
### Control & actuation systems

- » Engine control harness
- » Ignition control harness
- » ECU control harness

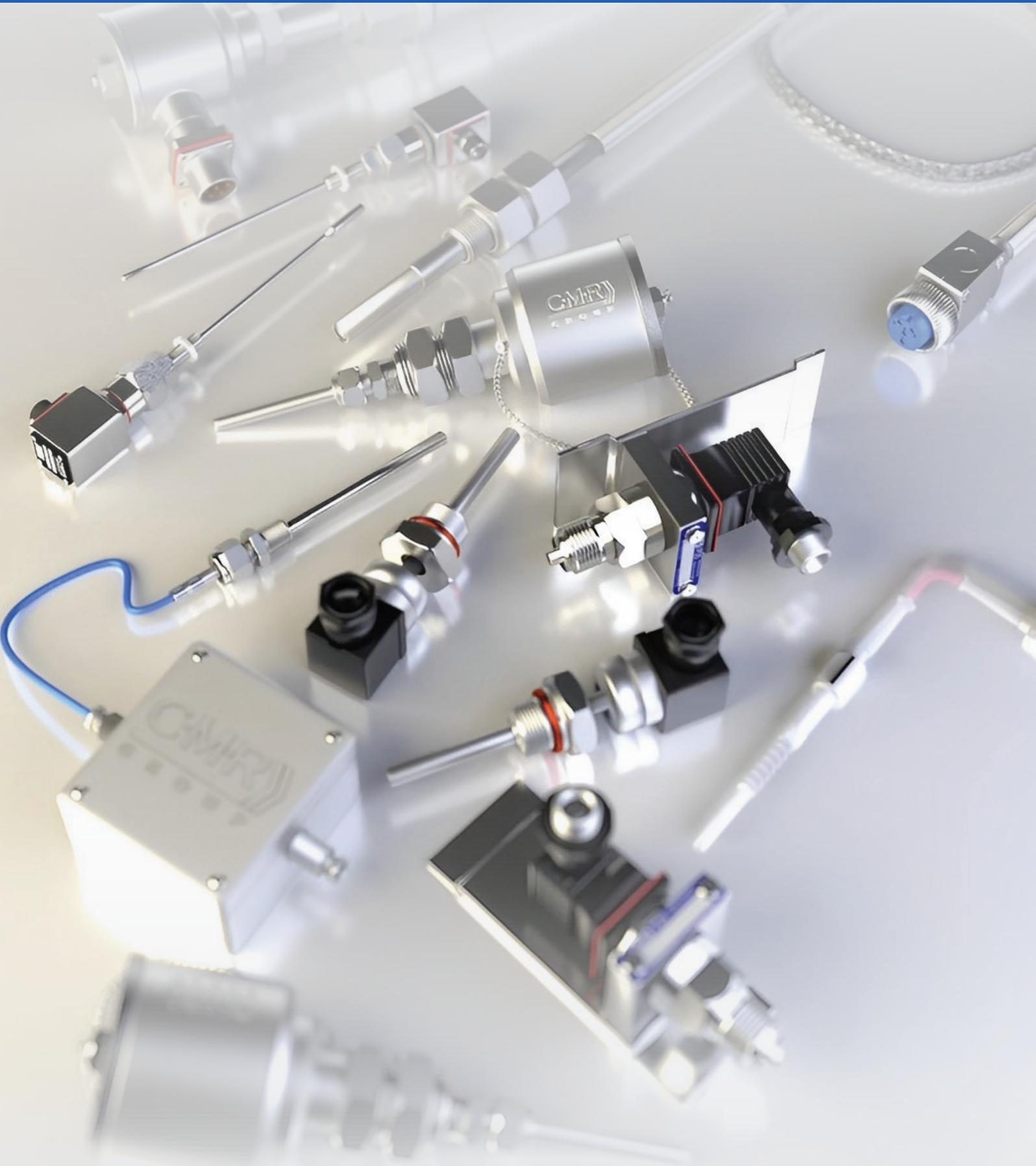


## Engineered for extreme operating conditions & safety-critical environments

- » High corrosion-resistant control panel for offshore platforms
- » Salt mist-resistant control panel for marine power systems
- » Protected control panel for emergency generators in nuclear power plants
- » Cryogenic sensor control boxes for LNG carriers
- » Heavy-duty control panel for mining machinery



# Electronics & Sensors



## MBT2



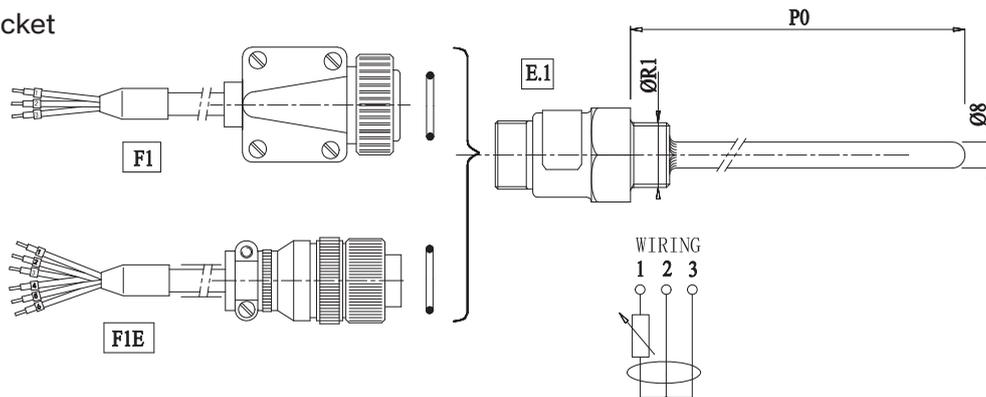
- » Optional accessories for easy plug-in connection by customers
- » Multi-pockets options, enhancing reliability and reducing maintenance costs

### Parameters

Element	PT100, PT1000	Accuracy	Class B/IEC60751
Media	Water, Oil, Coolant, etc.	Insulation	> 100MΩ/500Vdc
Range	-50°C -200°C	Pocket	Optional
Interface	1/4 NPT, M12×1.75, M14×1.5, etc.	Connector	Optional

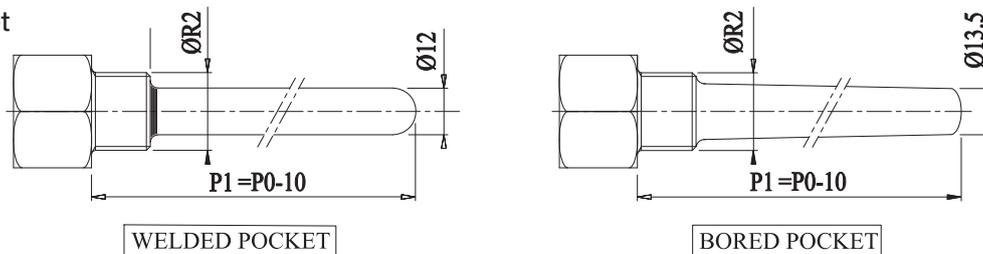
### Configuration

#### Without pocket



Description	Element	P0	ØR1	Connectors	Accessories	Cable	IP	CMR Code
MBT2 S 90 M18 E1	PT100	90	M18×1.5	3pin	NA	NA	IP65	CPN031954
MBT2 S 60 M18 E1	PT100	60	M18×1.5	3pin	NA	NA	IP65	CPN032705
MBT2 S 80 M18 F1	PT100	80	M18×1.5	3pin	✓	Ø5.5~Ø9	IP54	CPN026582
MBT2R S 150 1/2 E1	PT100	150	1/2BSPP	3pin	NA	NA	IP65	CPN023665

#### With pocket



Description	Element	P1	ØR2	Connectors	Accessories	Cable	IP	CMR Code
MBT2 DS S 110 M18 F1E	PT100	110	M18×1.5	3pin	✓	Ø7~Ø12	IP65	CPN023078

# Fluids Temperature Sensor

## MBT19

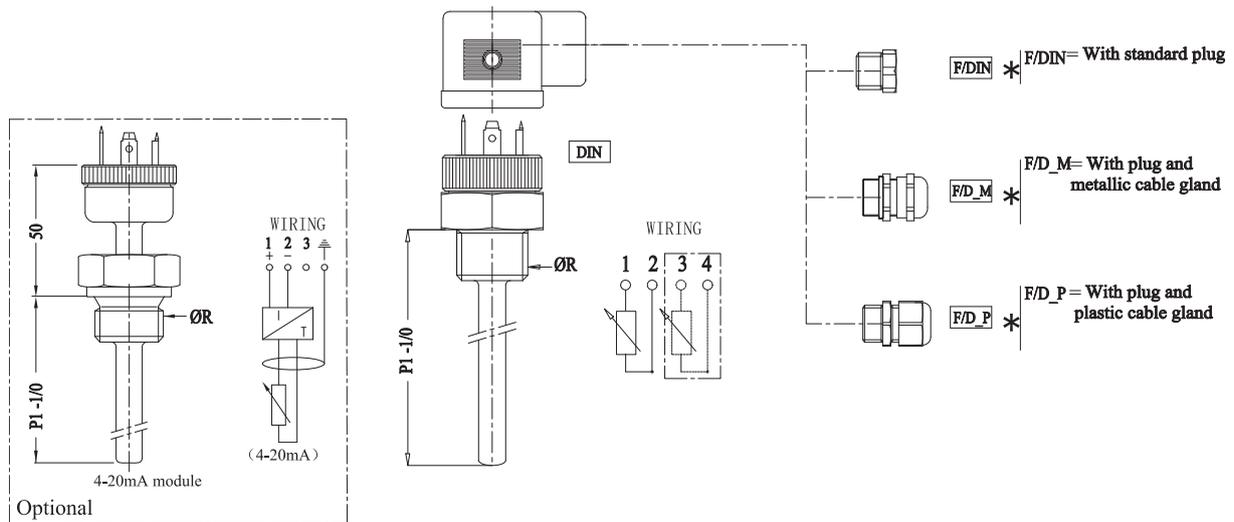


- » Certified by mutually recognized classification societies
- » Connectors comply with DIN 43650 standard for fast wiring

### Parameters

Element	PT100, PT1000	Accuracy	Class B/IEC60751
Media	Water, Oil, Coolant, etc.	Insulation	> 100MΩ/500Vdc
Range	-50°C -200°C	4-20mA Module	Optional
Interface	G1/2, G3/4, M16×1.5, etc.	Connector	Optional

### Configuration



Description	Element	P1	ØR	Connectors	IP	CMR Code
MBT19 DS S 100 M18×1.5 F/D_M	PT100	100	M18×1.5	4pin	IP65	CPN007444
MBT19 DS 2M 80 1/2 F/DIN	2xPT1000	80	1/2BSPP	4pin	IP65	CPN011230
MBT19 DS S 60 1/2 F/D_M	PT100	60	1/2BSPP	4pin	IP65	CPN002924
MBT19 DS S 100 M18 DIN	PT100	100	M18×1.5	4pin	IP65	CPN117800
MBT19.A DS M 110 M18 F/DIN	PT1000	110	M18×1.5	4pin	IP65	CPN046154

## MBT1UG

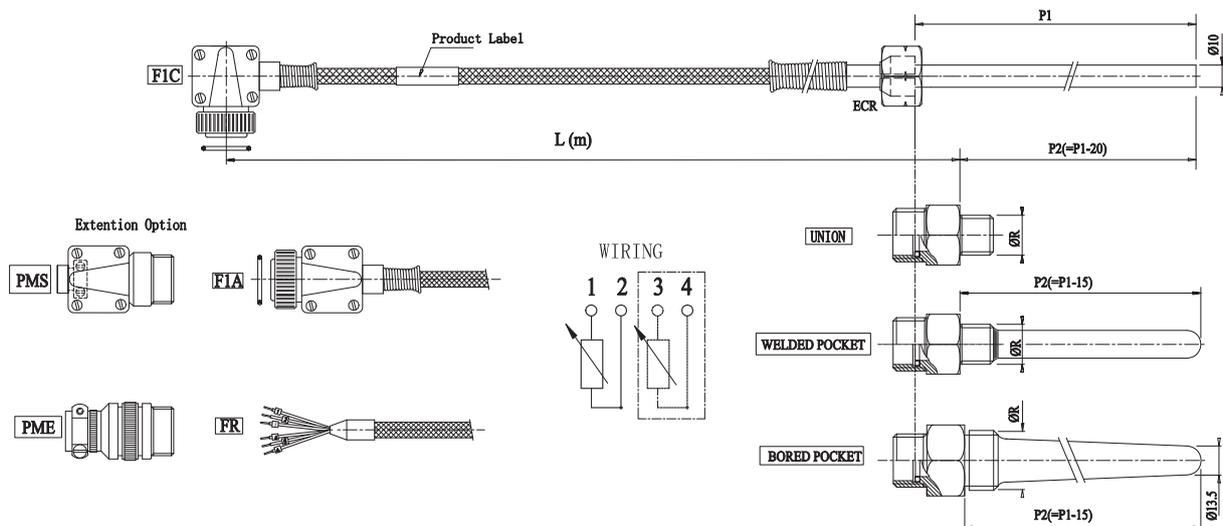
- » Build-in high-temperature-resistant cables
- » Optional protective pockets for maintenance
- » Compatible with CMR pipe/ flexible wiring harnesses and control modules



### Parameters

Element	PT100, PT1000	Accuracy	Class B/IEC60751
Media	Water, Oil, Coolant, etc.	Insulation	> 100MΩ/500Vdc
Range	-50°C -220°C	Pocket	Optional
Interface	1/4NPT, M12×1.75, M14×1.5, etc.	Connector	Optional

### Configuration



Description	Element	P2	ØR	Connectors	IP	CMR Code
MBT1UG DF 2M 150 3/4 15 FR	2×PT1000	150	3/4BSPP	FR	IP65	CPN103655
MBT1UG DF 2M 100 3/4 12 FR	2×PT1000	100	3/4BSPP	FR	IP65	CPN112472
MBT1UG DF 2M 100 3/4 16 FR	2×PT1000	100	3/4BSPP	FR	IP65	CPN112473
MBT1UG DF M 150 1/2 12 FR	PT1000	150	1/2BSPP	FR	IP54	CPN103661
MBT1UG DF M 100 3/4 11 FR	PT1000	100	3/4BSPP	FR	IP54	CPN103683
MBT1UG DF M 100 3/4 5 FR	PT1000	100	3/4BSPP	FR	IP54	CPN112641

# Fluids Temperature Sensor

## MPT108

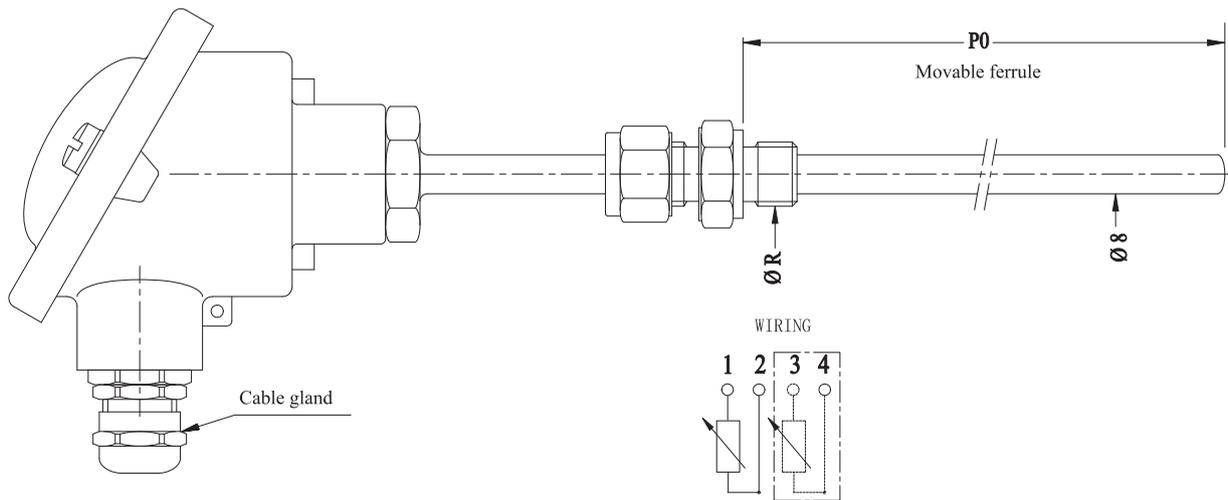


- » Ferrule supports customizable insertion depth
- » DIN.B-standard plug with high vibration/impact resistance
- » Easy for wiring and with high IP level

### Parameters

Element	PT100, PT1000	Accuracy	Class B/IEC60751
Media	Water, Oil, Coolant, etc.	Insulation	> 100MΩ/500Vdc
Range	-50°C -250°C	Pocket	Optional
Interface	G1/2, G3/4, M16×1.5, etc.	Connector	Optional

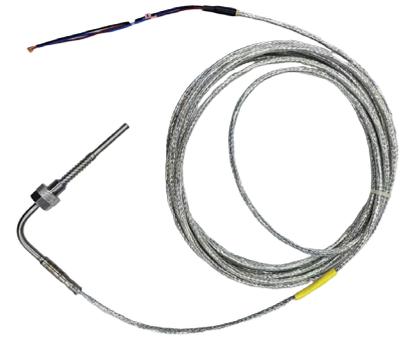
### Configuration



Description	Element	P0	$\varnothing R$	Plug	IP	CMR Code
MPT108 2M 100 1/2BSPP DIN.B	2×PT1000	100	1/2BSPP	DIN.B	IP65	CPN001120
MPT108 2M 100 1/2BSPP DIN.B	2×PT1000	100	1/2BSPP	DIN.B	IP65	CPN114638
MPT108 2M 100 1/2BSPP DIN.B	2×PT1000	100	1/2BSPP	DIN.B	IP65	CPN118076
MPT108 S 100 1/2BSPP DIN.B	PT100	100	1/2BSPP	DIN.B	IP65	CPN004413
MPT108 S3F 160 1/2BSPP DIN.B	PT100	160	1/2BSPP	DIN.B	IP65	CPN108395

## MBT35

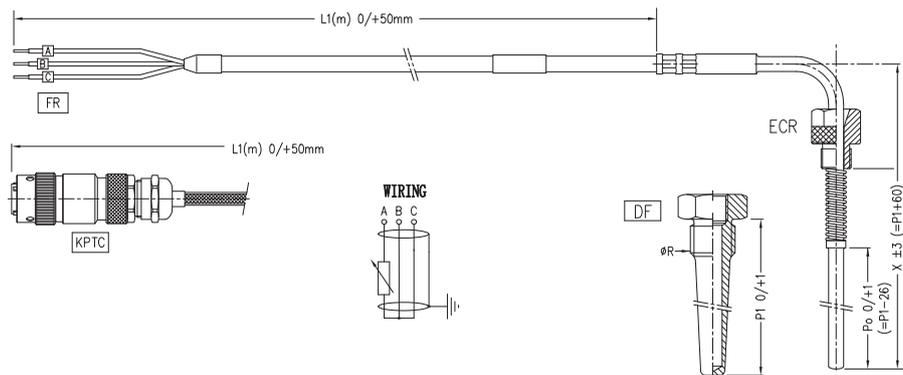
- » Certified by international classification societies
- » Optional protective pockets for easy maintenance
- » High vibration and impact resistance
- » Fast response time



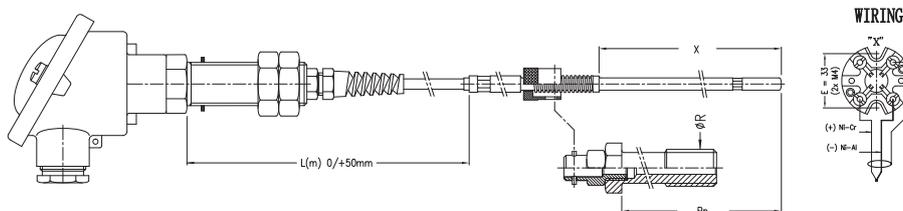
### Parameters

Element	PT100, PT1000	Accuracy	Class B/IEC60751
Media	Water, Oil, Coolant, etc.	Insulation	> 100MΩ/500Vdc
Range	-50°C -200°C	Pocket	Optional
Interface	M18×1.5, M18, 3/4BSPP, etc.	Connector	Optional

### Configuration



Description	Element	P1	ØR	Connectors	IP	CMR Code
MBT35 S 63 M12 12 FR	PT100	63	M18X1.5	FR	IP66	CPN001238
MBT35 S 74 ECR 9 FR	PT100	74	NA	FR	IP67	CPN003173
MBT35DF 2M 100 3/4BSPP 10 FR	2×PT1000	100	3/4BSPP	FR	IP67	CPN030506



Description	Element	Pp	ØR	Plug	IP	CMR Code
MBT35 K 280 M18 1/2 0.9 DIN.B	K 型热电偶	280	M18×1.5	DIN.B	IP65	CPN111879
MBT35 K 223.5 M18 1/2 0.9 DIN.B	K 型热电偶	223.5	M18×1.5	DIN.B	IP65	CPN111880

# Exhaust Temperature Sensor

## MD1U

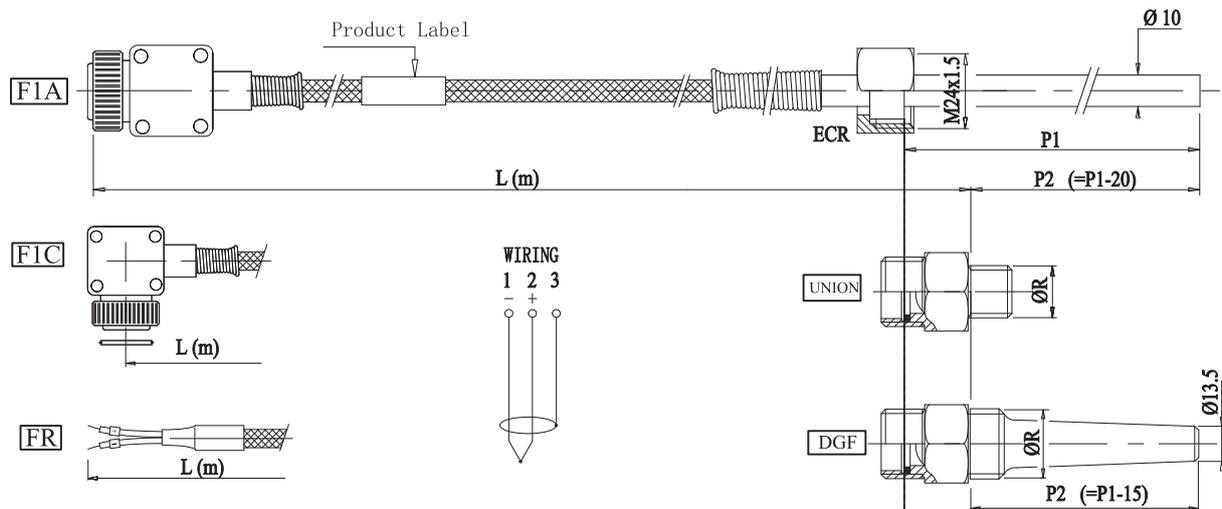
- » Certified by international classification societies
- » Adjustable mounting for different response time
- » Quick-connect to CMR pipe and other modules



### Parameters

Element	Thermocouple K	Accuracy	Class 2/IEC60584
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -800°C	Pocket	Optional
Interface	M18×1.5, M22×1.5, M27×1.5, 1/2BSPP, etc.	Connector	Optional

### Configuration



Description	Element	P2	ØR	Connectors	IP	CMR Code
MD1UDGF K 80 M18 0.8 F1C	Thermocouple K	80	M18×1.5	F1C	IP54	CPN014206
MD1UDGF K 80 M18 2 F1A	Thermocouple K	80	M18×1.5	F1A	IP54	CPN022302
MD1UDG K 100 M18 4.1 FR	Thermocouple K	100	M18×1.5	FR	IP54	CPN026873
MD1UDG K 100 PF1/2 2.3 DIB	Thermocouple K	100	1/2BSPP	DIB	IP65	CPN028252
MD1U K 50 G1/2 2 F+P7A	Thermocouple K	50	1/2BSPP	F7A	IP65	CPN109161

## MD11

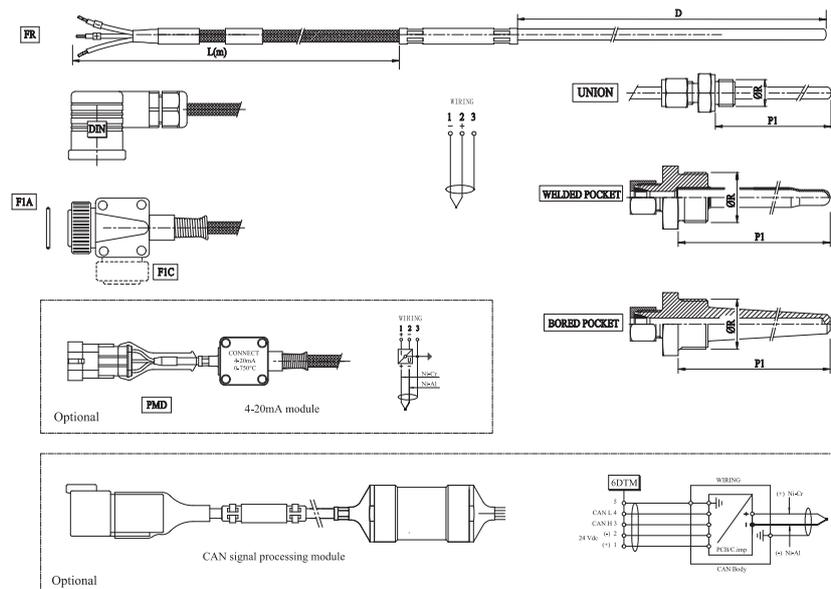


- » Certified by international classification societies
- » Adjustable probe angle for flexible installation
- » Wide measurement range up to 1000° C
- » Multiple signal options: 4-20mA, CAN, Thermocouple and so on

### Parameters

Element	Thermocouple K	Accuracy	Class 2/IEC60584
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -1000°C	4-20mA Module	Optional
Interface	M18×1.5, M22×1.5, M27×1.5, 1/2BSPP, etc.	CAN Module	Optional

### Configuration



Description	Element	P1	ØR	Connectors	IP	CMR Code
MD11 K 50 M14 90 0.3 2DTM	Thermocouple K	50	M14×1.5	2DTM	IP65	CPN115818
MD11 K 70 1/4BSPT 90 2.7 F1A	Thermocouple K	70	1/4BSPT	F1A	IP65	CPN013885
MD11mA DF K 150 M18 1.5 F1A	Thermocouple K	150	M18×1.5	F1A	IP65	CPN117801
MD11 K 70 1/4 90 4 FR	Thermocouple K	70	1/4BSPP	FR	IP54	CPN064986
MD11DF K 80 1/2 0.75 CAN 0.15 6DTM	Thermocouple K	80	1/2BSPP	6DTM	IP65	CPN115165

# Exhaust Gas Temperature Sensor

## MD2RU

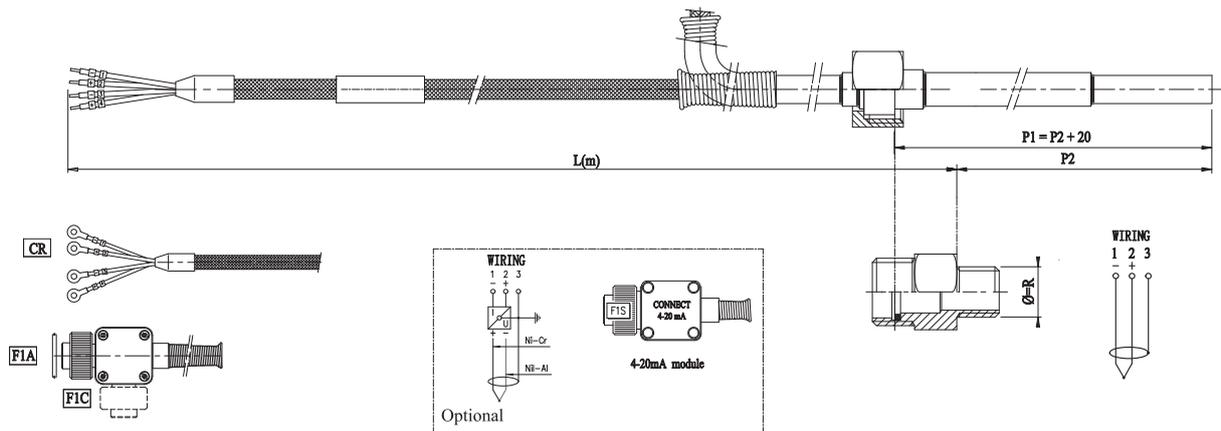
- » Multiple connectors optional
- » High-strength pocket for high-vibration applications
- » Adjustable probe angle for flexible installation



### Parameters

Element	Thermocouple K	Accuracy	Class 2/IEC60584
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -800°C	4-20mA Module	Optional
Interface	M18×1.5, M22×1.5, M27×1.5, 1/2BSPP, etc.	Connector	Optional

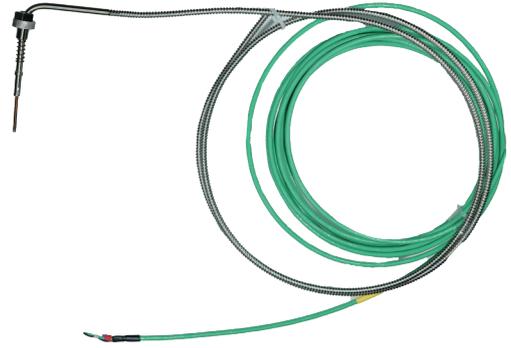
### Configuration



Description	Element	P2	ØR	Connectors	IP	CMR Code
MD2RU K 80 M18 3 F1A	Thermocouple K	80	M18×1.5	F1A	IP54	CPN035321
MD2RU K 80 M18 1 F1C	Thermocouple K	80	M18×1.5	F1C	IP54	CPN021045
MD2RU K 80 M18 10 FR	Thermocouple K	80	M18×1.5	FR	IP54	CPN003110
MD2RUMA K 140 3/4BSPP F1S	Thermocouple K	140	3/4BSPP	F1S	IP54	CPN020571
MD2RUMA K 80 M18×1.5 0.8 F1S	Thermocouple K	80	M18×1.5	F1S	IP54	CPN002262

## MD43

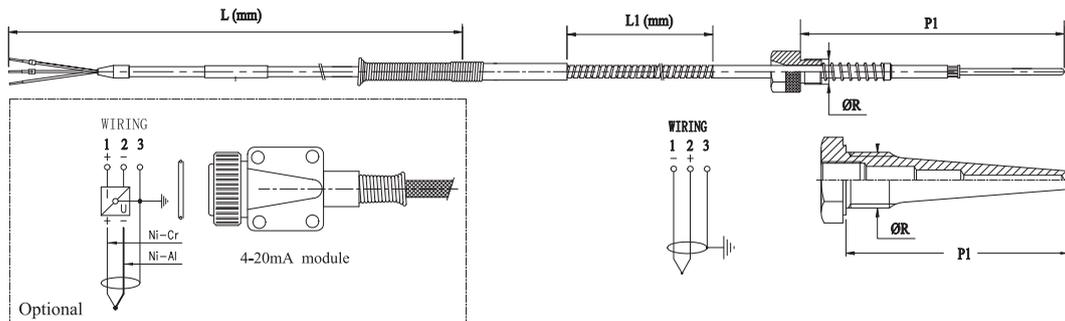
- » High temperature and vibration resistance
- » Fast response time
- » Certified by international classification societies
- » Suitable for various industrial applications



### Parameters

Element	Thermocouple K	Accuracy	Class 2/IEC60584
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -800°C	4-20mA Module	Optional
Interface	M14×1.5, M22×1.5, M27×1.5, 1/2BSPP 或指定	Connector	Optional

### Configuration



### Without Pocket

Description	Element	P1	ØR	Connectors	IP	CMR Code
MD43 K 180 M12 90C 1.95 - 7 FR	Thermocouple K	180	M12×1	FR	IP65	CPN020494
MD43 K 126 M12 1100/ 300 3F7AFB	Thermocouple K	126	M12×1	3F7AFB	IP65	CPN008398
MD43 K 156 1/4NPT 72 - 1700 F1A	Thermocouple K	156	1/4NPT	F1A	IP54	CPN056928
MD43 K 126 1/4NPT 72 - 1250 - F1Y	Thermocouple K	126	1/4NPT	F1Y	IP54	CPN013927

### With Pocket

Description	Element	P1	ØR	Connectors	IP	CMR Code
MD43DF K 55 M18 300 1000 3F7AFV	Thermocouple K	55	M18×1.5	3F7AFV	IP65	CPN083718

# Exhaust Gas Temperature Sensor

## MC29.2

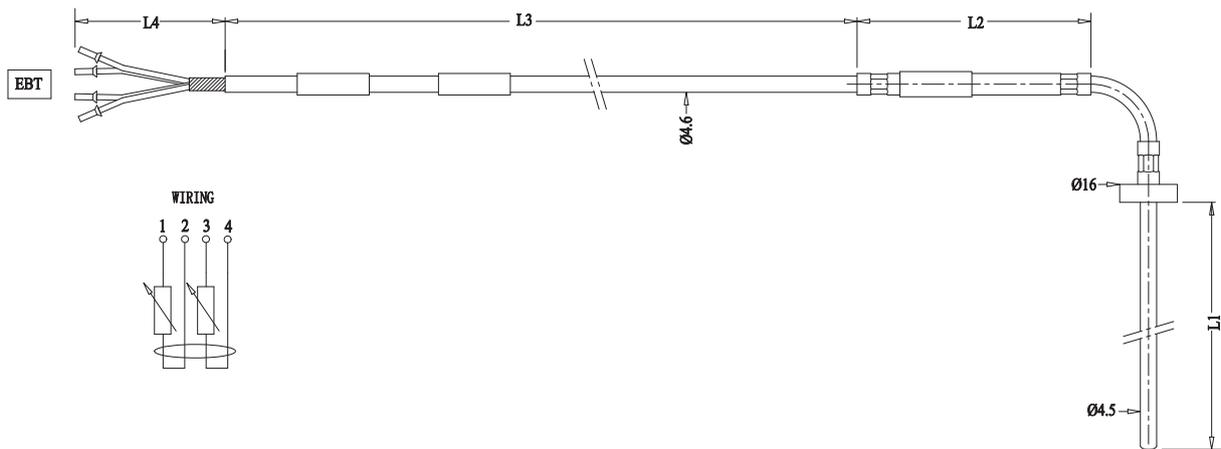
- » Dual output to support local and remote monitoring
- » Adjustable probe angle for flexible installation
- » High-accuracy platinum RTD with heat resistance and fast response



### Parameters

Element	Duplex PT1000	Accuracy	Class C/IEC60751
Media	Gas	Insulation	> 100MΩ/100Vdc
Range	-50°C -700°C	Pocket	Optional
Interface	Flange Mounting	Connector	Optional

### Configuration



Description	Element	L1	Interface	IP	CMR Code
MC29.2 2M 129 90 9 EBT(HI)	2×PT1000	129	Flange Mounting	IP65	CPN116101
MC29.2 2M 48 90 6.5 EBT(HI)	2×PT1000	48	Flange Mounting	IP65	CPN112943
MC29.2 2M 79 90 9 EBT(HI)	2×PT1000	79	Flange Mounting	IP65	CPN116046
MC29.2 2M 114 90 7.5 EBT(HI)	2×PT1000	114	Flange Mounting	IP54	CPN112940
MC29.2 2M 79 90 9 EBT(HI)	2×PT1000	79	Flange Mounting	IP65	CPN114621

## MC31

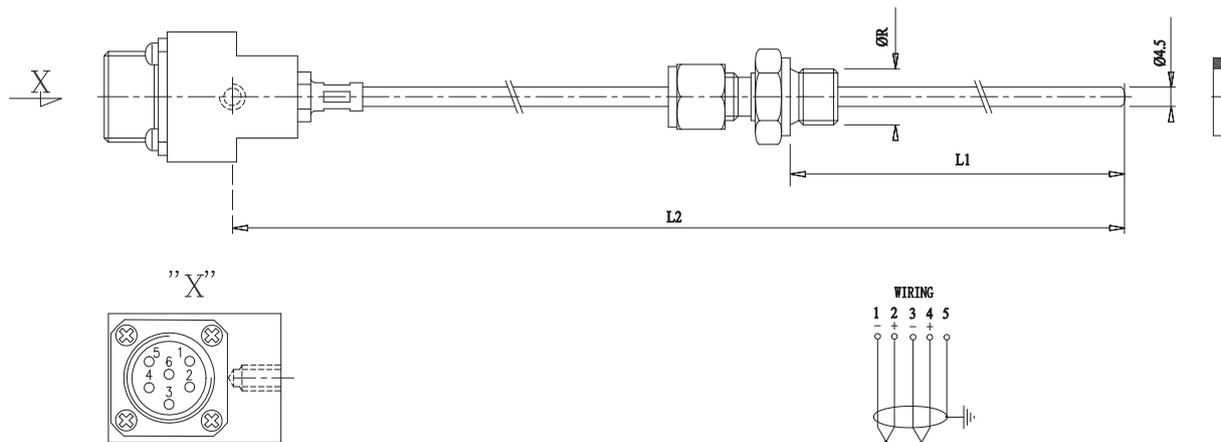
- » Dual output to support local and remote monitoring
- » Bend angle customizable (including straight/no-bend option)
- » Integrated mounting holes for easy installation



### Parameters

Element	Duplex Thermocouple K	Accuracy	Class 2/IEC60584
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -800°C	Pocket	Optional
Interface	1/4BSPP, etc.	Connector	Optional

### Configuration



Description	Element	L1	ØR	Connectors	IP	CMR Code
MC31A 2KI 82 1/4 E1	Duplex Thermocouple K	82	1/4BSPP	E1	IP54	CPN083829
MC31A 2KI 82 1/4 E1	Duplex Thermocouple K	82	1/4BSPP	E1	IP54	CPN084921
MC31A 2KI 82 1/4 E1	Duplex Thermocouple K	82	1/4BSPP	E1	IP54	CPN122116

# Exhaust Temperature Sensor

## MT.S

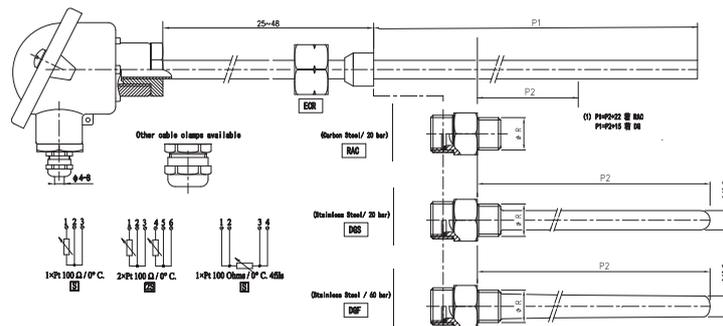


- » Plug complies with DIN.B with high IP level
- » Adjustable probe depth for broad applicability.
- » Multiple pocket options for easy installation and maintenance

### Parameters

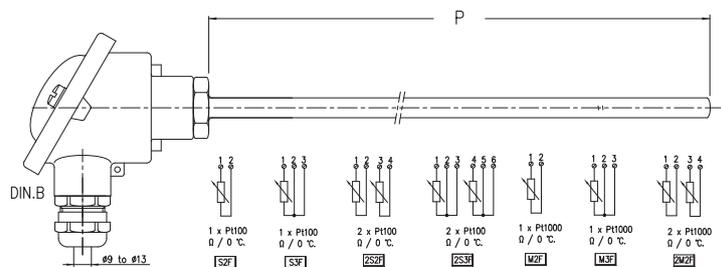
Element	PT100	Accuracy	Class B/IEC60751
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -250/600°C	Pocket	Optional
Interface	M14×1.5, M22×1.5, M27×1.5, 1/2BSPP, etc.	Connector	Optional

### Configuration



Description	Element	P2	Plug	IP	CMR Code
MT. S2B ECR 100 à 119	PT100	100-119	DIN.B	IP54	CPN013850
MT. S2B ECR 80 à 99	PT100	80-99	DIN.B	IP54	CPN003686
MT. S2B ECR 60 à 79	PT100	60-79	DIN.B	IP54	CPN009923
MT. S2H ECR 100 à 119	PT100	100-119	DIN.B	IP54	CPN006236

Notes: Pocket needs to be purchased separately.



Description	Element	P	Plug	IP	CMR Code
MT. S3F B 125 DIN.B	PT100	125	DIN.B	IP65	CPN116159

## EGT78

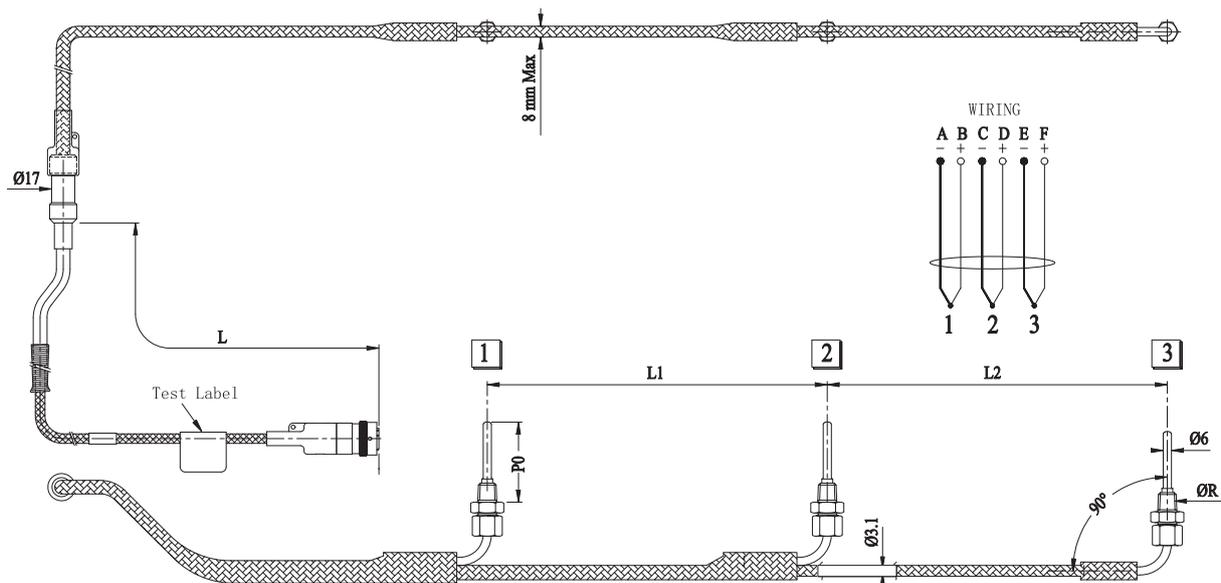
- » Multi-probe design with high integration to multi-point temperature measurement
- » Easy installation with compact size



### Parameters

Element	Thermocouple K	Accuracy	Class 2/IEC60584
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -800°C	Pocket	Optional
Interface	1/4NPT,etc.	Connector	Optional

### Configuration



Description	Element	P0	Number	ØR	Connectors	IP	CMR Code
EGT78R 3K 59 1/4N 610 AML06 STEP 6 KEVLA	Thermocouple K	59	3	1/4NPT	8pin	IP65	CPN000956
EGT78R 3K 59 1/4N 610 PT STEP 3c fix KEV	Thermocouple K	59	3	1/4NPT	6pin	IP65	CPN013500

# Exhaust Temperature Sensor

## EGT80

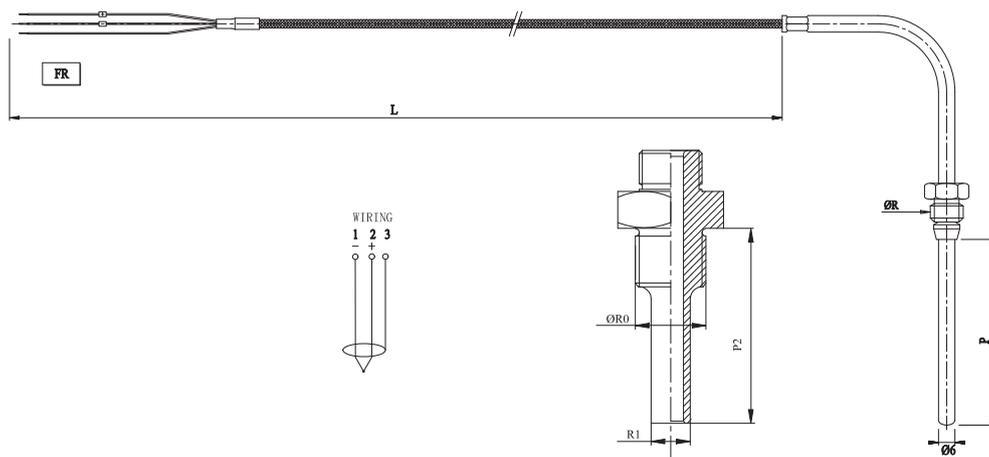
- » Multiple pocket options for enhanced reliability and longer period
- » Open-ended pocket design for fast response time



### Parameters

Element	Thermocouple K	Accuracy	Class 2/IEC60584
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -800°C	Pocket	Optional
Interface	1/4NPT, M12×1.5, M14×1.5, etc.	Connector	Optional

### Configuration



#### Without Pocket

Description	Element	P	ØR	Connectors	IP	CMR Code
EGT80 K 60 1/4NPTF 90 0.3 2DTM	Thermocouple K	60	1/4NPTF	2DTM	IP54	CPN083512
EGT80 K 50 M14 0.25 2DTM	Thermocouple K	50	M14×1.5	2DTM	IP54	CPN108454

#### With Pocket

Description	Element	P2	ØR0	Connectors	IP	CMR Code
EGT80G.L K 155 M16 90C 6.2 FR	Thermocouple K	155	M16×1.5	FR	IP54	CPN106152
EGT80G.L K 105 M14 90C 5.4 FR	Thermocouple K	105	M14×1.5	FR	IP54	CPN106153
EGT80G.L K 105 M14 90C/40 5.4 FR	Thermocouple K	105	M14×1.5	FR	IP54	CPN109554

## EGT.5

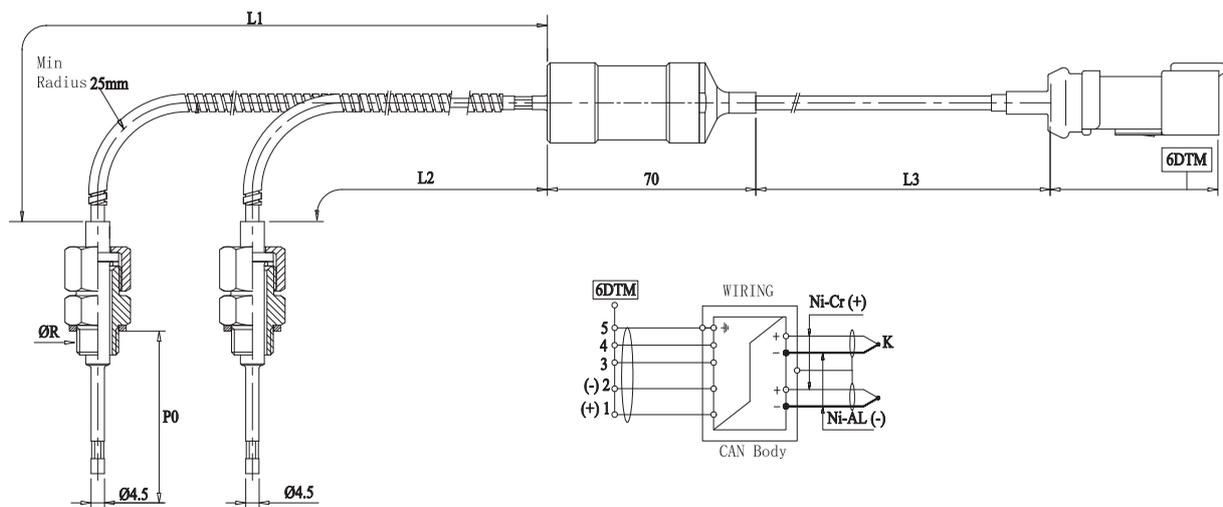
- » CAN output temperature sensor for harsh applications
- » Integrated error detection and handling ensures signal reliability and stability



### Parameters

Element	Thermocouple K	Accuracy	Class 2/IEC60584
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -800°C	Pocket	Optional
Interface	M14×1.5, M16×1.5, etc.	Connector	Optional

### Configuration



Description	Element	P0	ØR	Connectors	IP	CMR Code
EGT.5 2K M16/M14 1.05 J1939 0.5 6DTM	Thermocouple K	50	M14×1.5	6DTM	IP54	CPN002332
EGT.5 2K M16/M14 1.30 J1939 0.03 6DTM	Thermocouple K	50	M14×1.5	6DTM	IP54	CPN109737

# Turbocharger Temperature Sensor

## MD20

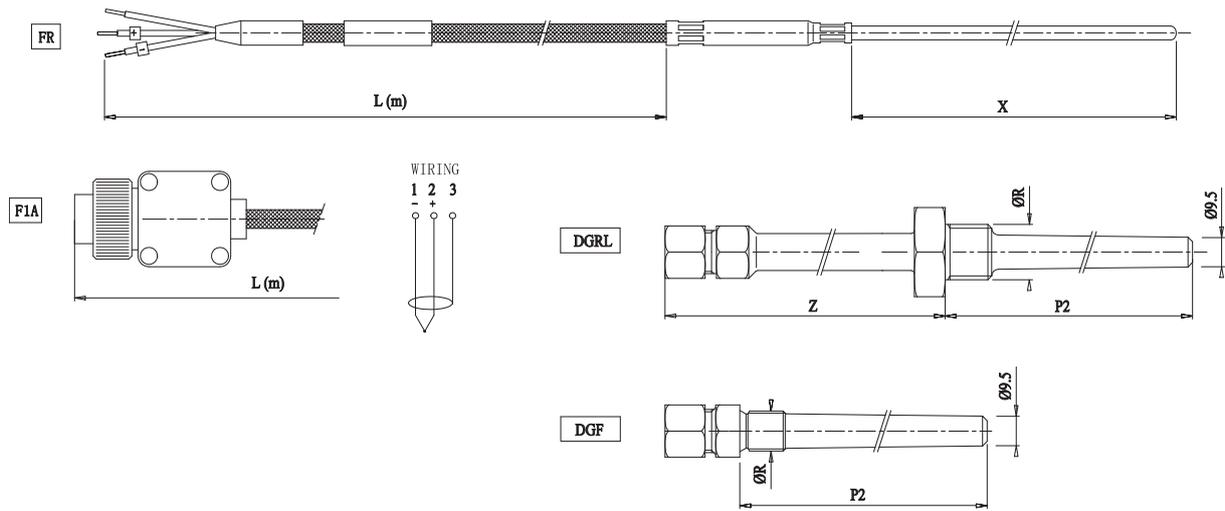
- » Certified by mutually recognized classification societies
- » Extended pocket design, easy for disassembly installation and routine maintenance



### Parameters

Element	Thermocouple K	Accuracy	Class 2/IEC60584
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -800°C	Pocket	Optional
Interface	M18×1.5, M22×1.5, M27×1.5, 1/2BSPP, etc.	Connector	Optional

### Configuration



Description	Element	P2	ØR	Connectors	IP	CMR Code
MD20 2K 135 1/4 0.75EBT	Thermocouple K	135	1/4BSPP	EBT	IP65	CPN112429
MD20 2K 92 1/4 1.66 FR	Thermocouple K	92	1/4BSPP	FR	IP54	CPN005782

## MD20.2

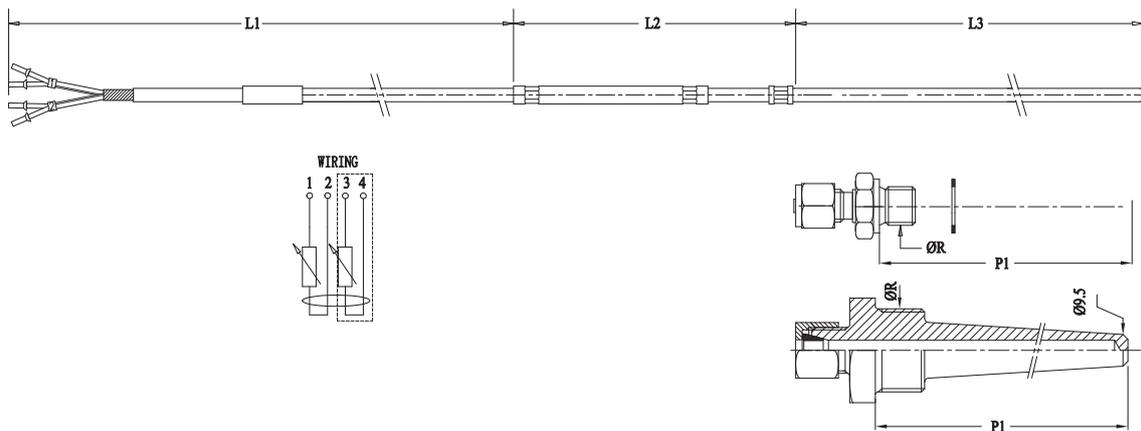
- » High temperature and vibration resistance
- » Dual output to support local and remote monitoring
- » High-accuracy platinum RTD with fast response time



### Parameters

Element	PT100, PT1000	Accuracy	Class C/IEC60751
Media	Gas	Insulation	> 100MΩ/500Vdc
Range	-50°C -700°C	Pocket	Optional
Interface	M18×1.5, M22×1.5, M27×1.5, 1/2BSPP, etc.	Connector	Optional

### Configuration



#### Without Pocket

Description	Element	P1	ØR	Connectors	IP	CMR Code
MD20.2 2M 82 1/4 90° 2350 EBT	2×PT1000	82	1/4BSPP	EBT	IP65	CPN114662
MD20.2 2M 100 1/4 D 425/850 EBT	2×PT1000	100	1/4BSPP	EBT	IP65	CPN023466
MD20.2 2M 90 1/4 D 115/2050 EBT	2×PT1000	90	1/4BSPP	EBT	IP65	CPN028050

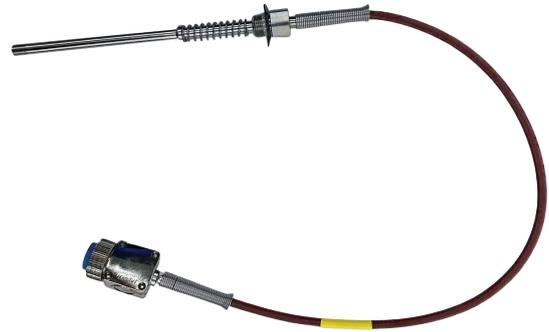
#### With Pocket

Description	Element	P1	ØR	Connectors	IP	CMR Code
MD20.2 S 100 G3/4 90 10 FR	PT100	100	3/4BSPP	FR	IP65	CPN122743

# Bearing Temperature Sensor

## MP12

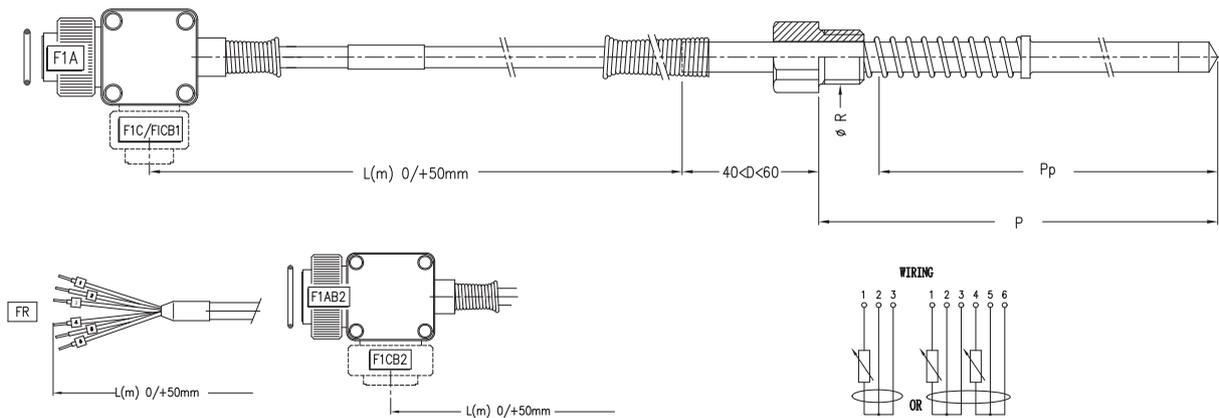
- » Certified by mutually recognized classification societies
- » Spring-loaded probe ,ensures tight contact surface for fast response time



### Parameters

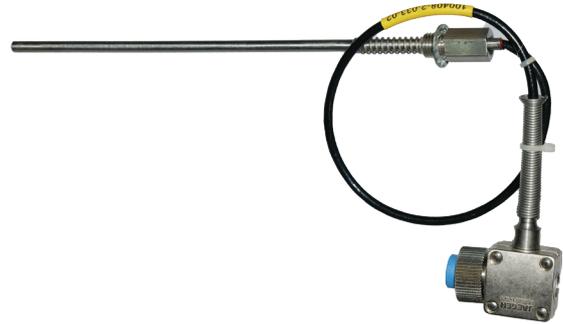
Element	PT100	Accuracy	Class B/IEC60751
Media	Bearing bush	Insulation	> 100MΩ/500Vdc
Range	-50°C -150°C	Pocket	NA
Interface	M18×1.5,etc.	Connector	Optional

### Configuration



Description	Element	P	ØR	Connectors	IP	CMR Code
MP12 S 208 M18 0.6 F1AB2	PT100	208	M18×1.5	F1AB2	IP65	CPN027302
MP12 S 274 M18 2.5 FR	PT100	274	M18×1.5	FR	IP65	CPN021481
MP12 S 274 M18 9 FR	PT100	274	M18×1.5	FR	IP65	CPN010004
MP12 S 274 M18 3/4 4.2 F1A	PT100	274	M18×1.5	F1A	IP65	CPN014005
MP12 S 215 M18 2.5 F1AB1	PT100	215	M18×1.5	F1AB1	IP54	CPN008773

## MP12.6

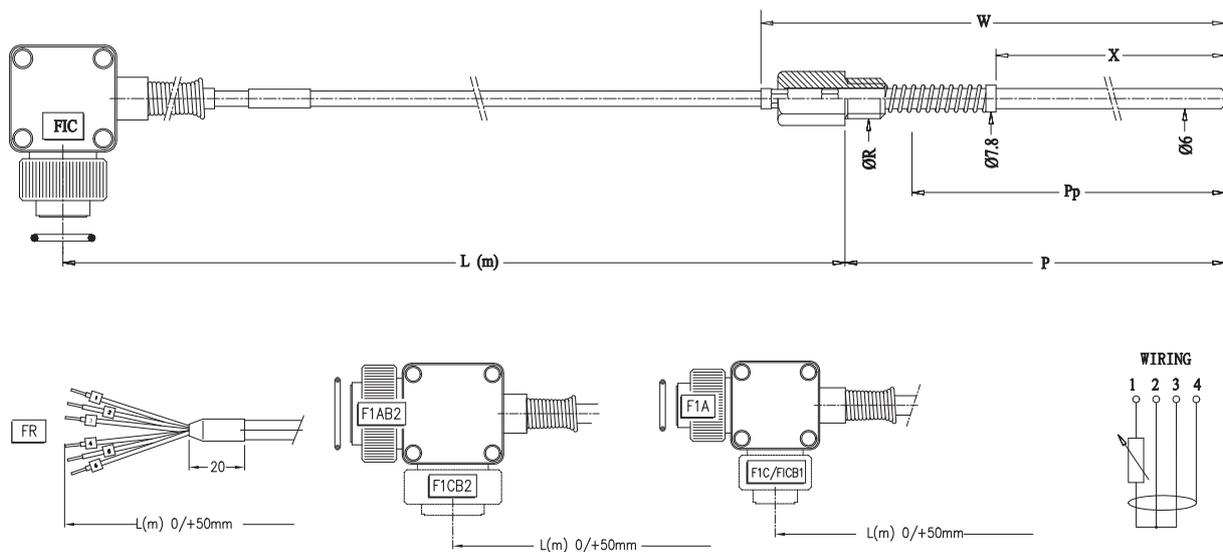


- » Spring-loaded probe, maintains tight surface contact for fast response
- » Easy installation, with high resistance to vibration and impact

### Parameters

Element	PT100, PT1000	Accuracy	Class B/IEC60751
Media	Bearing bush	Insulation	> 100MΩ/500Vdc
Range	-50°C -150°C	Pocket	Optional
Interface	M16×1,M12×1,G1/4,etc.	Connector	Optional

### Configuration



Description	Element	P	ØR	Connectors	IP	CMR Code
MP12.6 M 224 M10 2 EBT(3W)	PT1000	224	M10×1	EBT	IP65	CPN106070
MP12.6 M 152 1/4 M12 6.2 FR	PT1000	152	1/4BSPP	FR	IP65	CPN110859
MP12.6 S 168 M12 0.45 F1C	PT100	168	M12×1.5	F1C	IP65	CPN006203
MP12.6 M 101 M10 2 EBT(3W)	PT1000	101	M10×1	EBT	IP65	CPN107774
MP12.6 M 199 M10 2 BET(3W)	PT1000	199	M10×1	EBT	IP65	CPN114087

# Bearing Temperature Sensor

## MP46.1

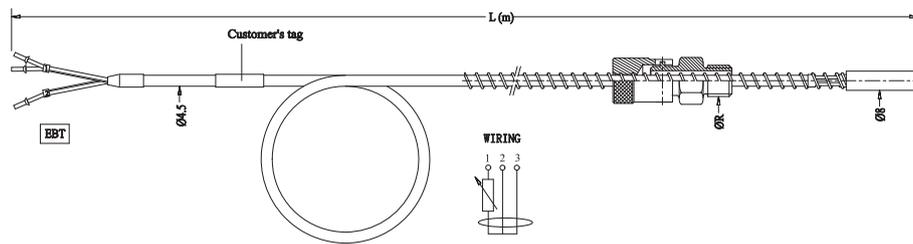
- » Easy sensor installation with fast response time.
- » Adjustable mounting height accommodates various insertion depths for broad applicability.



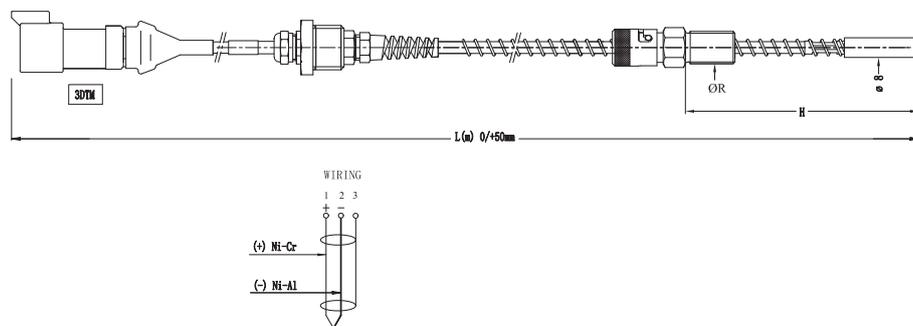
### Parameters

Element	PT100, PT1000 Thermocouple K	Accuracy	Class B/IEC60751 Class 2/IEC60584
Media	Bearing bush	Insulation	> 100MΩ/500Vdc
Range	-50°C -200°C	Pocket	NA
Interface	G1/4, etc.	Connector	Optional

### Configuration



Description	Element	ØR	Connectors	IP	CMR Code
MP46.1 S3F 1/4 0,4 10 EBT	PT100	1/4BSPP	EBT	IP65	CPN032634
MP46.1 S3F 1/4 0.4 10 EBT	PT100	1/4BSPP	EBT	IP65	CPN084331



Description	Element	ØR	Connectors	IP	CMR Code
MP46.1 K 1/4 0.2 1 3DMT	Thermocouple K	1/4BSPP	3DMT	IP54	CPN121061
MP46.1 46/350 K 1/4 7 FR	Thermocouple K	1/4BSPP	FR	IP65	CPN019842

## MP39.9

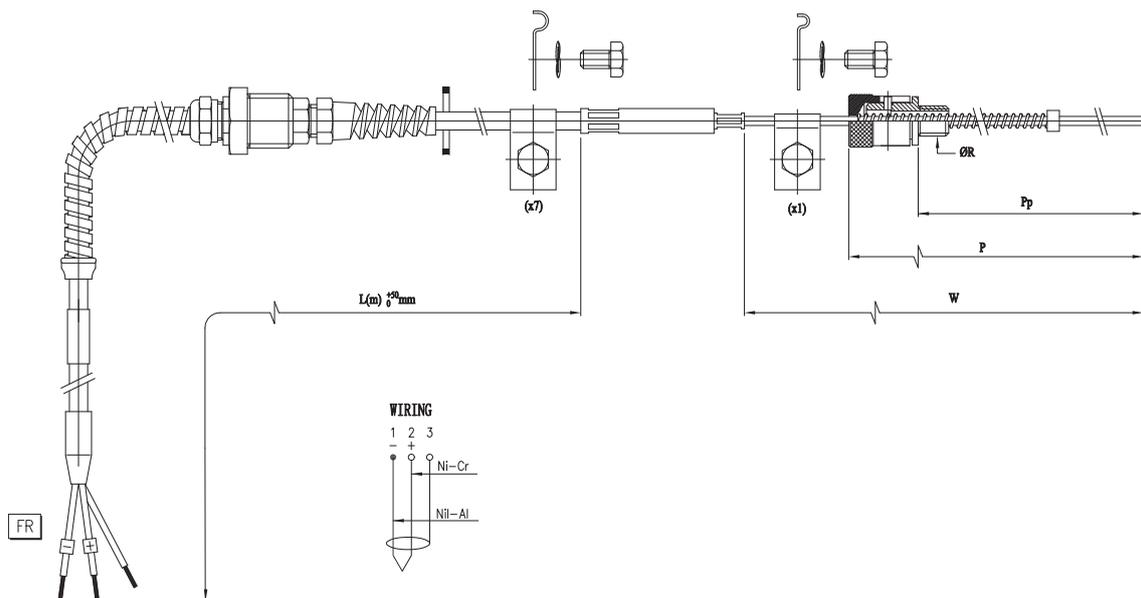
- » Certified by mutually recognized classification societies
- » Integrated fixing clamp and cylinder packing parts with high sealing performance
- » Easy installation, and exceptional resistance to vibration and impact



### Parameters

Element	Thermocouple K	Accuracy	Class 2/IEC60584
Media	Bearing bush	Insulation	> 100MΩ/500Vdc
Range	-50°C -250°C	Pocket	NA
Interface	G1/2,G3/4,M16×1.5,etc.	Connector	Optional

### Configuration

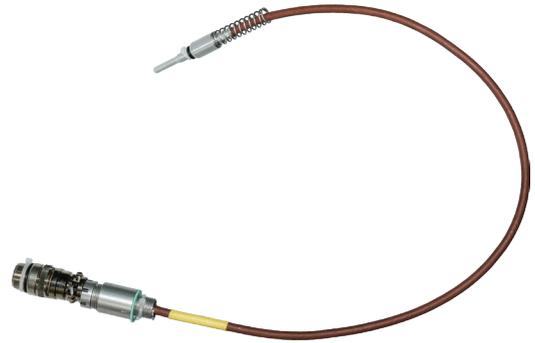


Description	Element	Pp	ØR	Connectors	IP	CMR Code
MP39.9 K 115 M10 1,5 3F7AFB	Thermocouple K	115	M10×1	3F7AFB	IP65	CPN105072
MP39.9 K 149 M10 M18 6.2 FR	Thermocouple K	149	M10×1	FR	IP65	CPN004353
MP39.9 K 47 M10 M16 1 FR	Thermocouple K	47	M10×1	FR	IP65	CPN118680
MP39.9 K 156 M10 7 FR	Thermocouple K	156	M10×1	FR	IP65	CPN007835

# Bearing Lubricating Oil Temperature Sensor

## CTHP

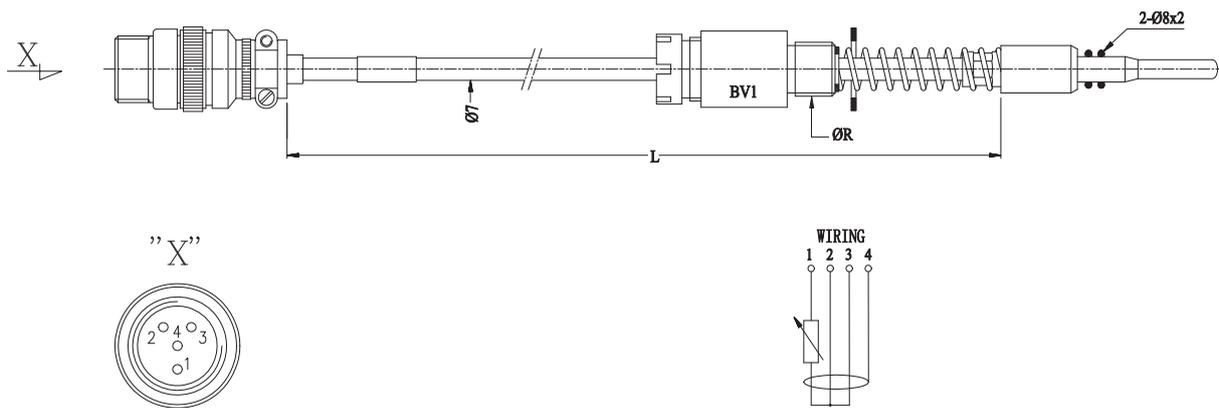
- » Spring-adjustable mounting for fast response
- » High resistance to vibration and impact



### Parameters

Element	PT100、PT1000	Accuracy	Class B/IEC60751
Media	Bearing bush	Insulation	> 100MΩ/500Vdc
Range	-50°C -150°C	Pocket	NA
Interface	M17×1.5,etc.	Connector	Optional

### Configuration



Description	Element	ØR	Connectors	IP	CMR Code
CTHP S BV1 0.7 P1E	PT100	M17×1.5	P1E	IP65	CPN014409
CTHP S M17/PG9 0.7 P+F1E	PT100	M17×1.5	P1E	IP65	CPN010170
CTHP M BV1 0.7 P1E	PT1000	M17×1.5	P1E	IP65	CPN108569
CTHP S M17/PG9 0.7 P1E	PT100	M17×1.5	P1E	IP65	CPN108566
CTHP S M17/PG9 25 FR	PT100	M17×1.5	FR	IP65	CPN122768

## TCM2.1

- » Certified by international classification societies
- » Resists extreme corrosion and ultra-low temperatures
- » Designed for LNG leak detection in secondary containment and double-hull spaces



### Parameters

Element	PT100	Accuracy	Class A/IEC60751
Media	LNG or Other Cryogenic Gases	Insulation	> 100MΩ/500Vdc
Range	-200°C -200°C	Pocket	NA
Interface	G1/2,G3/4,M16×1.5,etc.	Connector	Optional

### Configuration

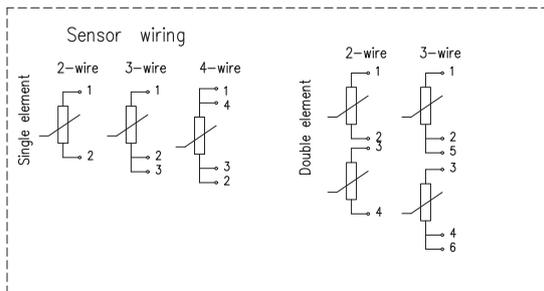
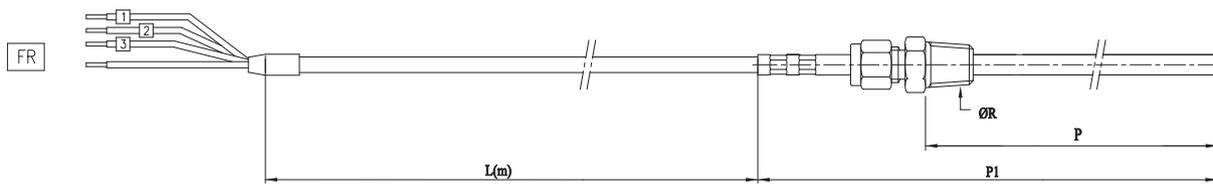


Table 1:

Letter	Type	Element type	Temperature range
S	Single element	PT100 0hm/0°C	-196°C~200°C
SS	Double element	PT100 0hm/0°C	-196°C~200°C
M	Single element	PT1000 0hm/0°C	-196°C~200°C
MM	Double element	PT1000 0hm/0°C	-196°C~200°C

Table 2:

Letter	Type
2F	2-wire
Blank	3-wire
4F	4-wire

Description	Element	P	ØR	IP	CMR Code
TCM2.1 SS 140 1/4NPT 65 FR	2×PT100	140	1/4NPT	IP65	CPN109497
TCM2.1 SS 140 1/4NPT 100 FR	2×PT100	140	1/4NPT	IP65	CPN109503
TCM2.1 SS 140 1/4NPT 30 FR	2×PT100	140	1/4NPT	IP65	CPN109448
TCM2.1 S 205 G1/4 5 FR	PT100	205	G1/4	IP65	CPN110736
TCM2.1 S 50 1/4N 7 FR	PT100	50	1/4NPT	IP65	CPN115605
TCM2.1 S 145 3 FR	PT100	145	NA	IP65	CPN112246

# Ultra-Low Temperature Sensor

## TCM3.1



- » Certified by mutually recognized classification societies.
- » Monitoring leaks in gas transmission pipelines.
- » Patch-type mounting for easy installation and broad applicability.

### Parameters

Element	PT100	Accuracy	Class A/IEC60751
Media	LNG or Other Cryogenic Gases	Insulation	> 100MΩ/500Vdc
Range	-200°C -200°C	Pocket	NA
Interface	Patch Mounting	Connector	Optional

### Configuration

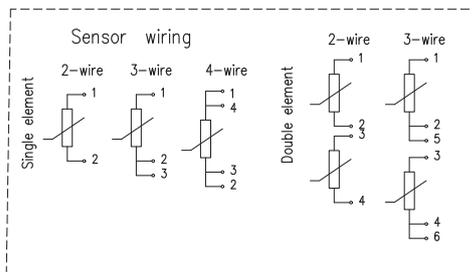
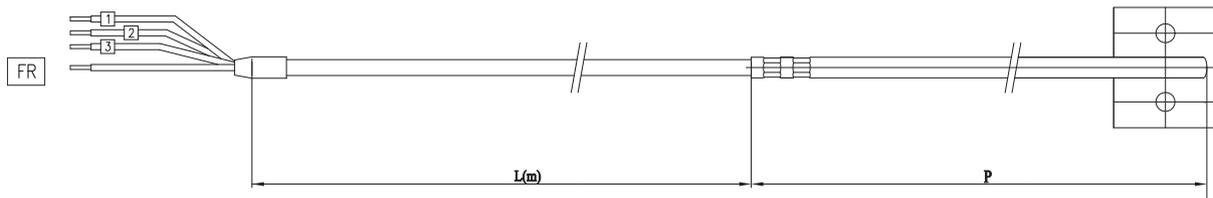


Table 1:

Letter	Type	Element type	Temperature range
S	Single element	PT100 0hm/0°C	-196°C~200°C
SS	Double element	PT100 0hm/0°C	-196°C~200°C
M	Single element	PT1000 0hm/0°C	-196°C~200°C
MM	Double element	PT1000 0hm/0°C	-196°C~200°C

Table 2:

Letter	Type
2F	2-wire
Blank	3-wire
4F	4-wire

Description	Element	P	Interface	IP	CMR Code
TCM3.1 SS 145 60 FR	2×PT100	145	Patch Mounting	IP56	CPN124438
TCM3.1 SS 145 31 FR	2×PT100	145	Patch Mounting	IP56	CPN124443
TCM3.1 SS 145 50 FR	2×PT100	145	Patch Mounting	IP56	CPN124444
TCM3.1 SS 145 39 FR	2×PT100	145	Patch Mounting	IP56	CPN124447
TCM3.1 S 145 3 FR	PT100	145	Patch Mounting	IP56	CPN124440

## TCM4.1

- » Certified by internationally recognized classification societies
- » Probe and junction box withstand highly corrosive and ultra-low temperature environments
- » Integrated junction box with mounting holes for easy installation and maintenance



### Parameters

Element	PT100	Accuracy	Class A/IEC60751
Media	LNG or Other Cryogenic Gases	Insulation	> 100MΩ/500Vdc
Range	-200°C -200°C	Pocket	Optional
Interface	G1/2,G3/4,M16×1.5,etc.	Connector	Optional

### Configuration

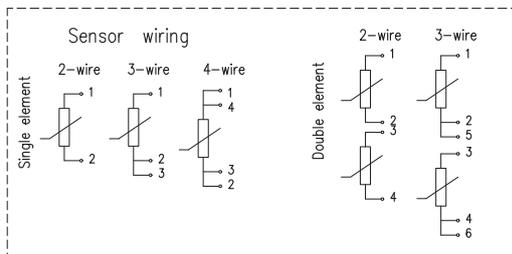
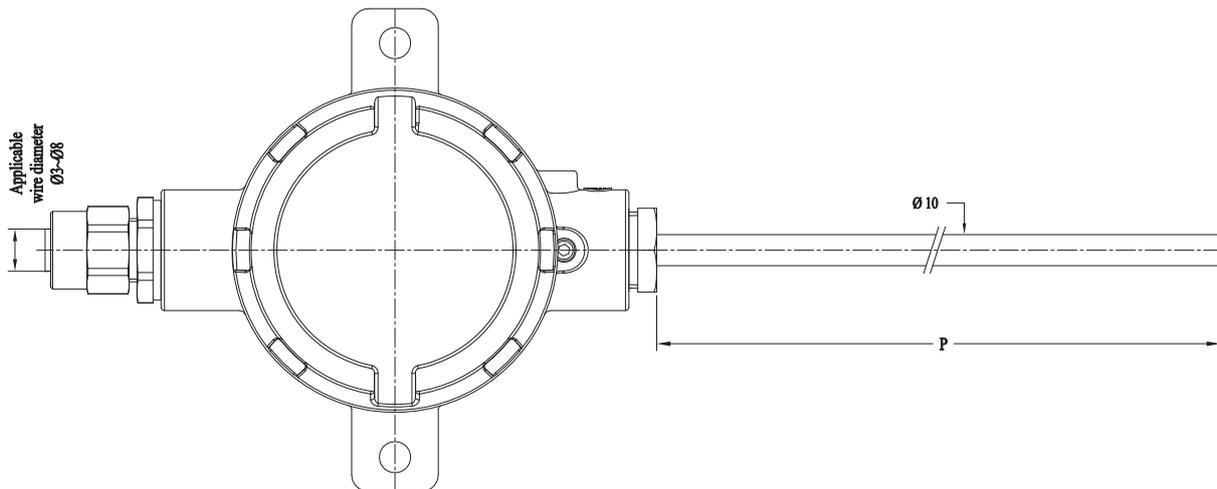


Table 1:

Letter	Type	Element type	Temperature range
S	Single element	PT100 0hm/0°C	-196°C~200°C
SS	Double element	PT100 0hm/0°C	-196°C~200°C
M	Single element	PT1000 0hm/0°C	-196°C~200°C
MM	Double element	PT1000 0hm/0°C	-196°C~200°C

Table 2:

Letter	Type
2F	2-wire
Blank	3-wire
4F	4-wire

Description	Element	P	ØR	Connectors	IP	CMR Code
TCM4.1 S 500	PT100	500	NA	NA	IP66	CPN124231

# Ultra-Low Temperature Sensor

## TCM5.1

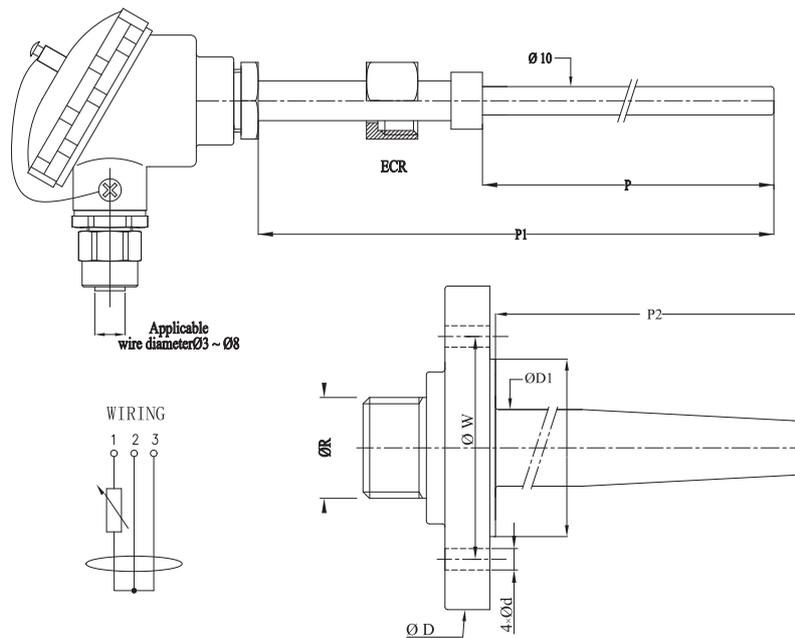
- » Certified by mutually recognized classification societies.
- » Ultra-low temperature detection sensor with multiple pockets
- » 316L stainless steel probe and junction box with excellent waterproofing, dust and corrosion resistance.



### Parameters

Element	PT100	Accuracy	Class A/IEC60751
Media	LNG or Other Cryogenic Gases	Insulation	> 100MΩ/500Vdc
Range	-200°C -200°C	Pocket	Optional
Interface	Flange Mounting	Connector	Optional

### Configuration



Description	Element	P2	Interface	Plug	IP	CMR Code
TCM5.1 S 198 ECR	PT100	198	Flange Mounting	DIN.B	IP56	CPN125396
TCM5.1 S 248 ECR	PT100	248	Flange Mounting	DIN.B	IP56	CPN125397
TCM5.1 S 208 ECR	PT100	208	Flange Mounting	DIN.B	IP56	CPN125803

## CVB

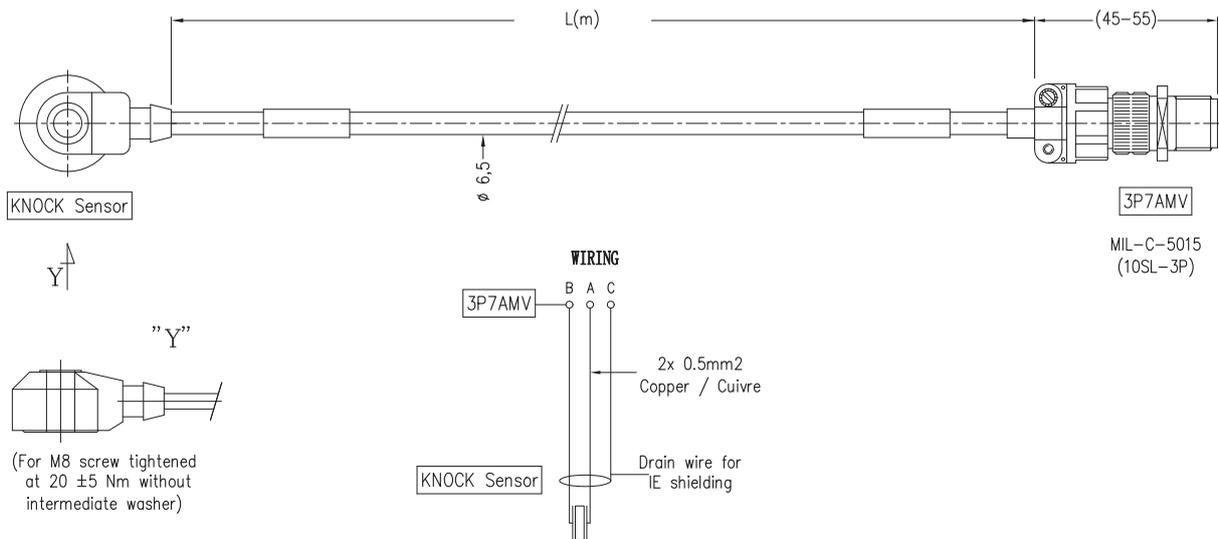
- » High sensitivity, fast response, and excellent stability
- » Suitable for operation under extreme conditions
- » Customizable wiring harness configurations to meet specific client needs for high-end knock sensor customization



### Parameters

Storage Temperature	-30° C-60° C	Max Sensitivity Variation	-0.17
Operating Temperature	-40° C-150° C	Impedance	> 1 Mohm
Application	3-25kHz	Dependence of Sensitivity	0.04 mV/g/°C
Vibration Range	≤ 800m/s <sup>2</sup>	Main Resonance Frequency	> 30 kHz
Capacity Field	1150±200pF	IP	IP65

### Configuration



Description	Mounting Nut	Connectors	IP	CMR Code
CVB M8 RAL/PO 2 3PMD+CL3P CU FMD FR 13	M8	FR	IP65	CPN125992
CVB M8 0.58 F1A	M8	F1A	IP65	CPN010375
CVB M8 0,6 3P7AMV	M8	3P7AMV	IP65	CPN032049
CVB M8 RAL/PO 9 FR	M8	FR	IP65	CPN101904

## High-Temperature Pressure Transmitter

# MPC3000/3050

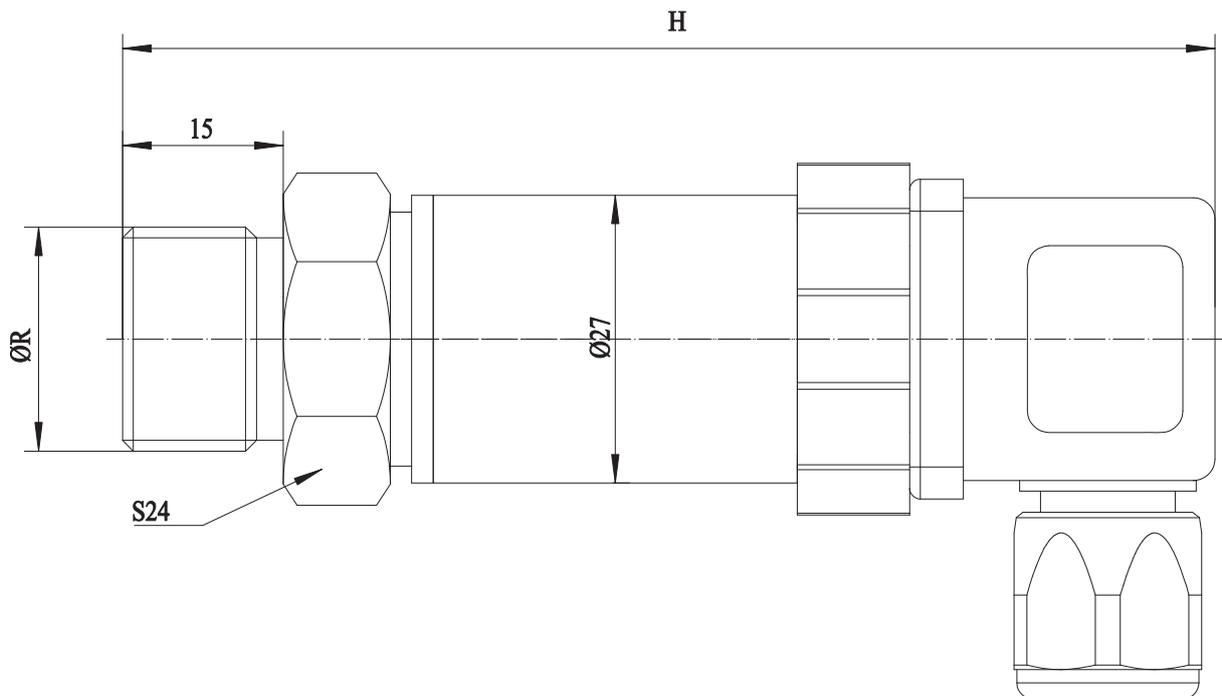
- » Reliable performance in harsh industrial applications
- » Programmable output signals and pressure modes (absolute/gauge)
- » High vibration resistance and robust durability
- » Measurement range: 0-1 Bar to 0-600 Bar



### Parameters

Material	Stainless Steel	Accuracy	1%
Operating Temperature	-40° C-120° C	Insulation	> 100MΩ/100Vdc
Operating Range	0Bar-1Bar.....0Bar-600Bar	Min Compensation	0° C
Interface	G1/4,G1/2Flange, etc.	Max Compensation	100° C

### Configuration

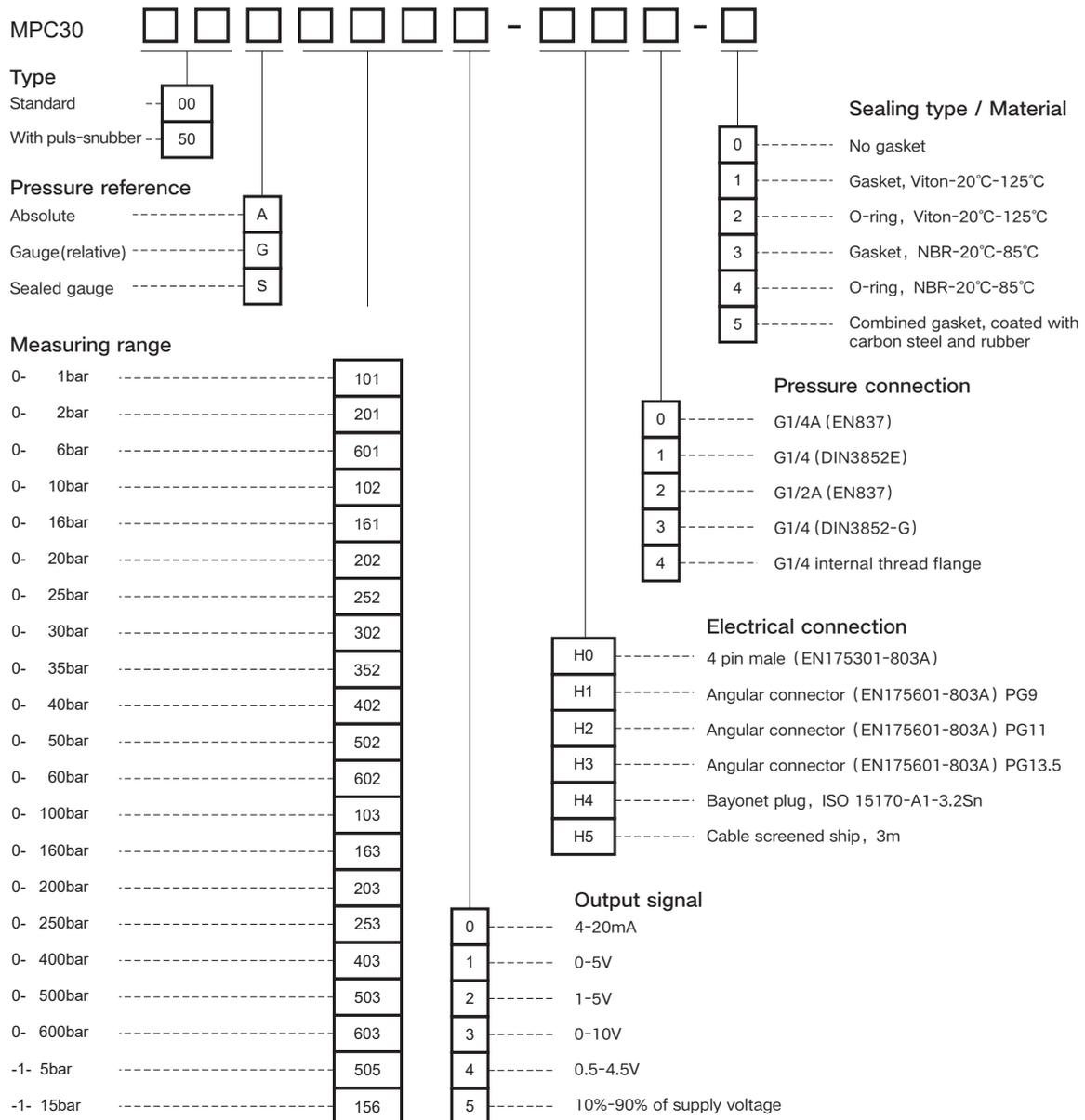


## MPC3000/3050

- » Reliable performance in harsh industrial applications
- » Programmable output signals and pressure modes (absolute/gauge)
- » High vibration resistance and robust durability
- » Measurement range: 0-1 Bar to 0-600 Bar



### Configuration and selection guide



## High-Temperature Pressure Transmitter

# MPC5100/5150

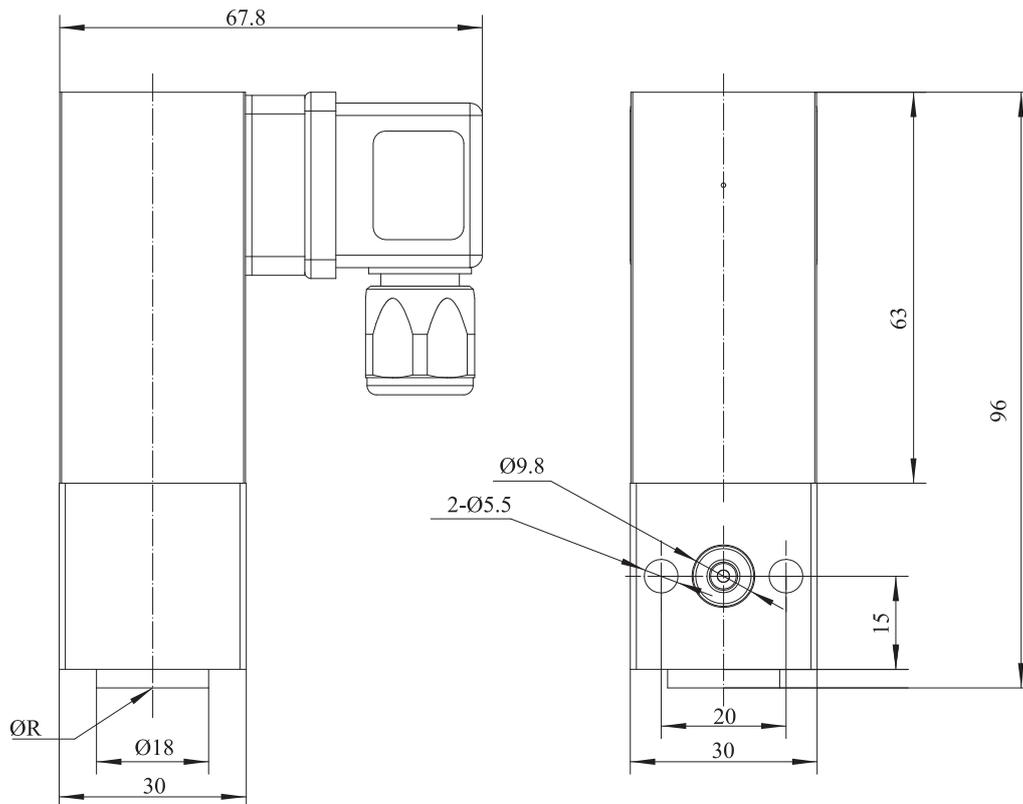
- » For industrial and marine applications
- » Pulse buffer withstands cavitation, water hammer, and pressure peaks
- » Reliable operation in harsh conditions
- » Multiple pressure/electrical connection options
- » High vibration resistance and durability



### Parameters

Material	Stainless Steel	Accuracy	0.50%
Operating Temperature	-40° C-85° C	Insulation	> 100MΩ/100Vdc
Operating Range	0Bar-1Bar.....0Bar-400Bar	Min Compensation	0° C
Interface	G1/4, Flange, etc.	Max Compensation	80° C

### Configuration

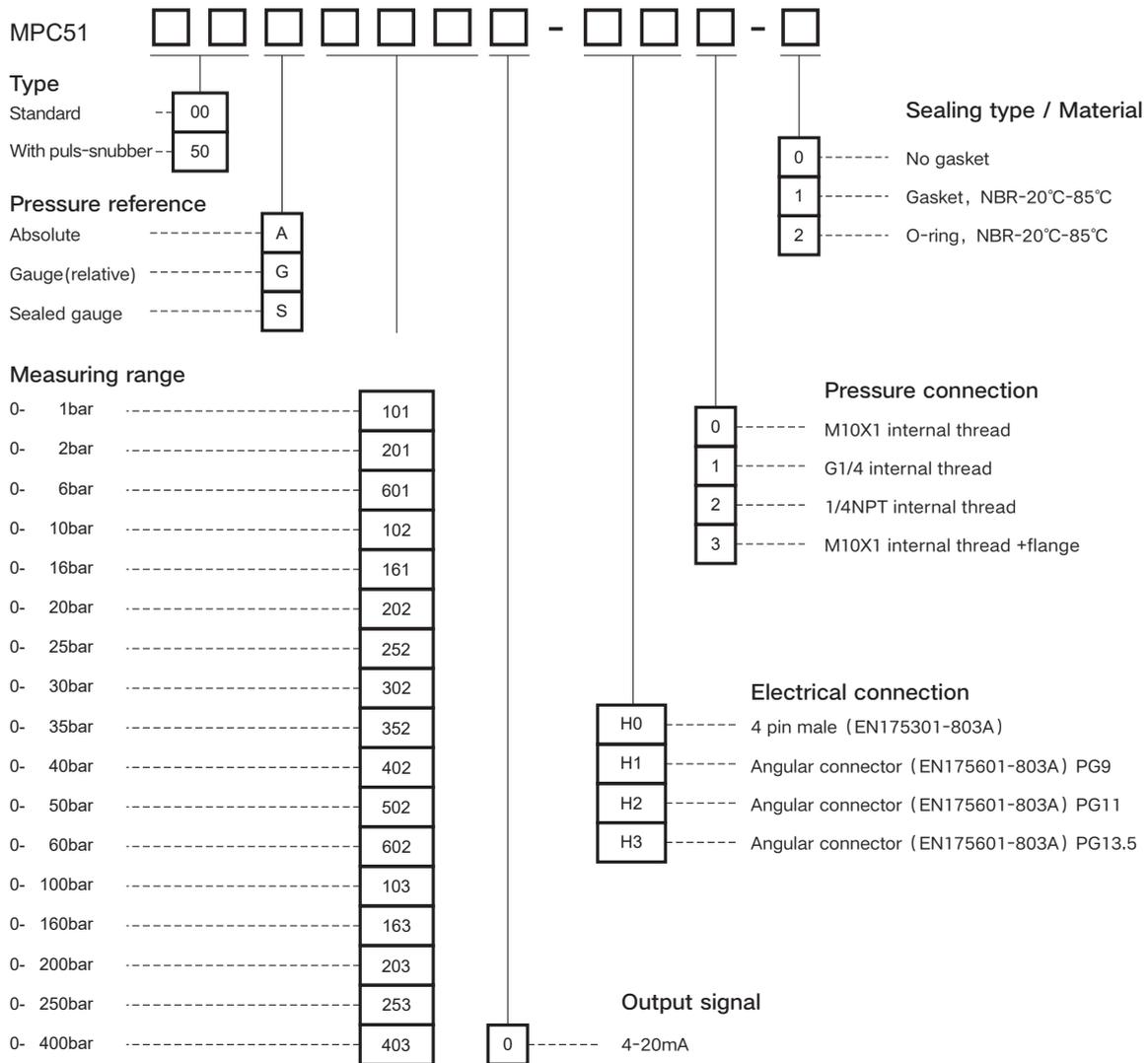


# MPC5100/5150



- » For industrial and marine applications
- » Pulse buffer withstands cavitation, water hammer, and pressure peaks
- » Reliable operation in harsh conditions
- » Multiple pressure/electrical connection options
- » High vibration resistance and durability

## Configuration and selection guide



# Speed Sensor

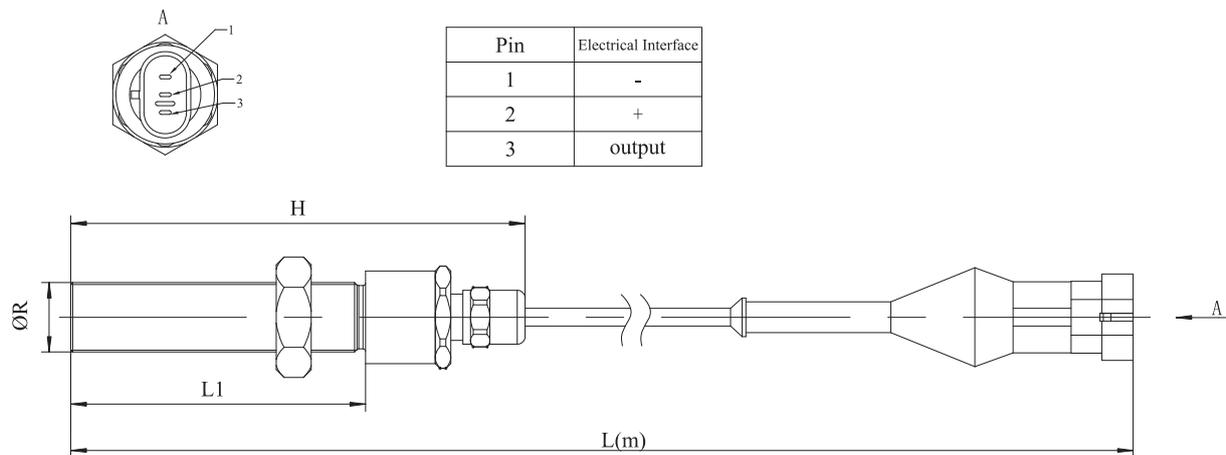
- » Direct connection to control instruments/smart devices
- » Wide frequency response, high stability and sensitivity
- » Reliable operation in vibrating conditions
- » Non-contact speed measurement for gears, wheels, motors, brakes



## Parameters

Output	High/Low Level (Square Wave)	Pocket Material	Stainless Steel / Copper Housing
Frequency Range	0~15kHz	Insulation	> 1MΩ/100Vdc
Min Operating Temperature	-40°C	Interface	M18×1 (Customizable)
Max Operating Temperature	125°C	Electrical Interface	AMP 282105-1 (Customizable)
Operating Voltage	18~33Vdc	Measuring Gap	0.5~2mm

## Configuration



Description	L1	ØR	Connectors	IP	CMR Code
Speed Sensor, CAT P/N 191-8304 CHG06 INCLUDES SENSOR & BRA	76	M18×1	3pin	IP65	CPN081708

# Power Solutions



QUAI

## Power Solutions

 **We focus on our clients' strengths to help them with tech-driven solutions**

Power Solutions is at the heart of electrical integration. Our expertise in propulsion systems, energy production management, and energy storage makes CMR Group a key player in the energy sector and a partner for shipyards.



CMR Group engineer, manufacture, and deliver tailored products and integrated systems dedicated to the Marine and Energy sectors: from complex field sensors & connectivity to advanced electrical, monitoring and automation solution for vessels management. We support and advise our customers with adequate services to ensure cost-efficient, low carbon and continuous operation.



CMR develops turnkey solutions to address the most complex challenges faced by their clients

---

## Electrical package

- » Turnkey scope of supply from design, engineering to installation

---

## Energy management

- » Distribution networks
- » Production and storage systems
- » Propulsion systems

---

## Integrated automation

- » Supervision
- » Vessel management systems

## Our Markets



Mrine



Yachting



Navy



Mining



Energy



Hydro

# Nuclear





## Instrumentation & Control

- » Designed in France in compliance with nuclear requirements
- » K3 and K3ad qualified according to RCC-E
- » Engineering and qualification capabilities
- » 40 years of partnership with key nuclear players



ITER - France



UTO - France



HPC - UK

### Monitoring systems for emergency diesel generators

- » Data acquisition (S129NG & PLC solution)
- » Event recording
- » Secure database
- » Alarm management
- » Safety functions
- » Easy integration with other systems



# Nuclear Expertise

## Our sensors

### Our sensors



Measurement of fluid temperature under pressure



Bearing temperature measurement for all types of rotating machines



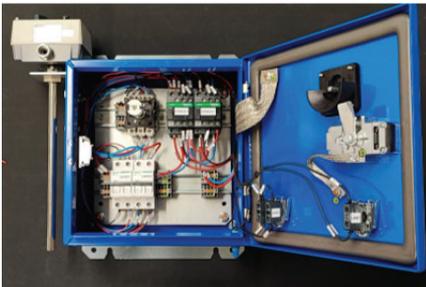
Measurement of ambient temperature



Surface temperature measurement

## Electrical cabinets & enclosures

- » 3D integration
- » Material recommendations
- » Internal or via partner laboratories
- » Calculation note: mechanical & thermal
- » Vibration tests, Shock tests, Seismic tests
- » Fire resistance tests K3/K3ad according to RCCE



### Our certifications





## AVANT PROJET

---

Consulting  
Research  
Suggestions and Diagnosis



## ACHIEVE

---

Technical support and project monitoring  
Design, manufacture, and installation  
Training



## PROMOTION

---

Professional after-sales service  
Maintenance contract  
Prediction and web Services

- » Exceeding your expectations
- » Delivering you the benefits of continuous improvement & open communication
- » Serving you with a 'Can Do!' process-led approach
- » Caring for all people, treating everyone with dignity and respect
- » Solving your challenges through a global response

**Engineered to Uncompromising Standards . *Yours***





MORE THAN 60 YEARS OF  
EXPERIENCE



10 BRANCHES AROUND  
THE WORLD



A KEY PLAYER IN THE  
ENERGY TRANSITION



WE TAKE ACTION TO  
REDUCE YOUR CARBON IMPACT