IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx KLCS 24.0003X**

Certificate history:

Status: **Current**

Issue No: 0

Date of Issue: 2025-05-06

Applicant: **Techno Instruments**
Plot No.1145/1, Opposite Maruti Ind.,
Uma Convertor Lane, Santaj Ranchhodpura Road,
Santaj, Tal. Kalol
Dist: Gandhinagar, Gujarat 382721
India

Equipment: **RTD / Thermocouple, SHLRT 9 and SWHRT 9 series**

Optional accessory:

Type of Protection: **Intrinsic safety "i"**

Marking: Ex ia IIC T6…T1* Ga (-40 °C < Ta < +60 °C)

(*) For relation between Temperature Class and Process Temperature please refer to Annex to IECEx KLCS 24.0003X

Approved for issue on behalf of the IECEx Certification Body: **Ravi Paranjpe**

Position: **Director (Operations)**

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

Karandikar Laboratories Certification Services
Gat No. 142, Boisar Chillar Rd.,
Opp. Union Park, At Betegaon,
Boisar (E), Tal- Palghar
Maharashtra 401501
India

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Certificate No.: **IECEx KLCS 24.0003X** Page 2 of 3

Date of issue: 2025-05-06 Issue No: 0

Manufacturer: **Techno Instruments**
Plot No.1145/1, Opposite Maruti Ind.,
Uma Convertor Lane, Santaj Ranchhodpura Road,
Santaj, Tal. Kalol
Dist: Gandhinagar, Gujarat 382721
India

Manufacturing locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2023 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:7.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

IN/KLCS/ExTR24.0003/00

Quality Assessment Report:

IN/KLCS/QAR25.0001/00

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The equipment covered by this certificate can either be an RTD or a Thermocouple based on the type of sensor provided. Where the equipment is a RTD or Thermocouple can be identified by the start of the model no (Refer model designation for more details). The RTD or Thermocouple Temperature Sensors are used to convert the temperature of a process medium into an electrical signal.

RTD is a Mineral Insulated Resistance Temperature Detector assembly which consists of a sensor element, mounting head (optional) and process connection (thermowell or compression nut). The sensor is a single or dual Pt100 or PT1000 resistance element (wire wound or thin film), mounted in a stem with a diameter of 3 mm, 3.2 mm, 4 mm, 4.5 mm, 4.8 mm, 6 mm, 8 mm, 9.5 mm and 10 mm and a length between 10 mm to 50000 mm depending on the application. The RTD can be used in a 2, 3 or 4 wire measurement system in a single or dual channel.

Thermocouple is a Mineral Insulated Thermocouples Assembly which consists of a sensor element, mounting head (optional) and process connection (thermowell or compression nut). The sensor is K, J, E, T, N, R, S or B type thermocouple element, mounted in a stem with a diameter of 0.5 mm, 1 mm, 1.5 mm, 2 mm, 3 mm, 4.5 mm, 4.8 mm, 6 mm, 8 mm, 9.5 mm and 10 mm and a length between 10 mm to 50000 mm depending on the application. The thermocouple can be used in a 2 wire measurement system in a single or dual channel.

Mounting heads meet the requirements of IP 66 / IP 68 (3 meter for 24 hr) and can be made of Aluminium Alloy (LM-6) or SS 316 or SS 304.

The SWHLRT9 series include both the sensor and the head and SHLRT9 series includes only the sensor without head.

When RTD/Thermocouple is provided with pre-certified mounting head or without a mounting head applicable specific conditions of use will apply.

For Model designation and relation between Temperature class and Process Temperature refer ANNEX TO IECEx KLCS 24.0003X

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Intrinsically safe apparatus shall be used at atmospheric pressure between 0.6 bar and 1.1 bar.
2. Equipment to be powered through an appropriately certified barrier whose output signal meets the EPL requirements of the location of installation of the RTD/Thermocouple and has compatible output ratings.
3. If the mounting head of the RTD / Thermocouple is made of aluminium alloy LM-6 and if it is mounted in an area where the use of EPL Ga apparatus is required, the head must be installed such that even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.
4. For any pre-certified equipment used it is the user's responsibility to ensure that its entity parameters are compatible with that of the RTD/ Thermocouple and that the Specific Conditions of Use mentioned in their individual certificates are met.
5. The ambient temperature range of the RTD/Thermocouple is limited to -40 °C to +60 °C or the ambient temperature range stated in the respective approval certificate of the pre-certified Electronic Temperature Transmitter whichever is higher for lower ambient temperature and lower for maximum ambient temperature.
6. The maximum ambient temperature inside the terminal head must not be exceeded by ensuring adequate minimum standoff length is maintained.
7. For SHLRT 9 series the flying lead wires should be suitably placed in Ex certified enclosure with minimum IP 20 rating.

Annex:

ANNEX TO IECEx KLCS 24.0003X.pdf

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Temperature Class:

The temperature rise is determined for various value of Input power from the barrier. The temperature class offered depends upon process temperature and the input limiting power that can be applied through the barrier. The temperature class of T6 to T1 depends on the process temperature and the input power (Pi) in accordance with the following table:

TABLE A-1: TEMPERATURE TABLE FOR GROUP II

Insert Diameter	Temperature class	Maximum Allowed Process Temperature ºC					
		50 mW	100 mW	200 mW	300 mW	400 mW	480 mW
3 mm Duplex	T1	435	429	418	407	399	391
	T2	285	279	268	257	249	241
	T3	190	184	173	162	154	146
	T4	125	119	108	97	89	81
	T5	90	84	73	62	54	46
	T6	75	69	58	47	39	31
6 mm Duplex	T1	437	433	423	416	409	403
	T2	287	283	273	266	259	253
	T3	192	188	178	171	164	158
	T4	127	123	113	106	99	93
	T5	92	88	78	71	64	58
	T6	77	73	63	56	49	43
10 mm Duplex	T1	438	435	429	425	418	416
	T2	288	285	279	275	268	266
	T3	193	190	184	180	173	171
	T4	128	125	119	115	108	106
	T5	93	90	84	80	73	71
	T6	78	75	69	65	58	56

Model Designation:

SHLRT 9 -A-B-C-D-E-F-G-H-I-J-K-L-M-N-O-P-Q-R-S

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Description
Construction	Element type	No. of element	Leads	Accuracy	Stem	Sheath Length ' L1'	Sheath OD ' D1'	Sheath MOC	Instrument connection	Electrical Approval	Thread Size ' T'	Protection Class	Insulation	Ignition protection type	Instrument connection MOC	Length ' L2'	OD " D2"	Extension Cable Length' L3'	
XA																			MODEL-1
XB																			MODEL-2
XC																			MODEL-3
XD																			MODEL-4
XE																			MODEL-5
XF																			MODEL-6
XG																			MODEL-7
XH																			MODEL-8
XI																			MODEL-9
XJ																			MODEL-10
	RTD																		RESISTANCE TEMPERATURE DETECTOR
	TC																		THERMOCOUPLE
		S																	SIMPLEX
		D																	DUPLEX
			2W																2 WIRE
			3W																3 WIRE
			4W																4 WIRE
				1/3															1/3 DIN ACURRACY
				A															CLASS A
				B															CLASS B
				SPT															CLASS 1 (FOR T/C)
				ST															CLASS 2 (FOR T/C)
					MI														MINERAL INSULATED
					MI1														MINERAL INSULATED WITH PROTECTION TUBE
					EX														EPOXY FILLED (APPLICABLE FOR XB,XF & XJ)
						SIZE													10 mm to 50000 mm
							3												For RTD Sheath OD in mm
							3.2												
							4.0												
							4.5												
							4.8												
							6												
							8												
							9.5												
							10												

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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Description
Construction	Element type	No. of element	Leads	Accuracy	Stem	Sheath Length ' L1'	Sheath OD ' D1'	Sheath MOC	Instrument connection	Electrical Approval	Thread Size ' T'	Protection Class	Insulation	Ignition protection type	Instrument connection MOC	Length ' L2'	OD " D2"	Extension Cable Length' L3'	
							0.5												For TC Sheath OD in mm
							1												
							1.5												
							2												
							3												
							4.5												
							4.8												
							6												
							8												
							9.5												
							10												
								16											SS316
								16L											SS316l
								10											SS310
								21											SS321
								17											SS317
								17L											SS317l
								800											Incolloy 80
								ALTD											Alloy TD (Nicrobell)
								321H											SS321H
								16T1											SS316l
								04L											SS304L
								347											SS347
								HR160											HR160
								446											SS446
								600											Inconel 600
								601											Inconel 601
								625											Inconel 625
									ADJ1										Adjustable Fitting (Spring Loaded)
									ADJ2										Adjustable Fitting (Ferrule Loaded)
									NUN										Nipple-Union-Nipple
									NPP										Nipple
									NUN2										Nipple-Union-Nipple with fitting
									NA										Without Instrument Connection
									ADP										Fix fitting/Adaptor
									BN										Bayonut Adaptor
										ICX									IECEx
											18N								1/8"NPT(M)
											14N								1/4"NPT(M)
											12N								1/2"NPT(M)
											34N								3/4"NPT(M)
											38N								3/8"NPT(M)
											1N								1"NPT(M)
											M8								M8X1
											M10								M10X1
											M18								M18X1.5
											M22								M22X1.5
											M12								M12X1.5
											M14								M14X1.5
											M20								M20X1.5
												2C							Ex ia IIC T6...T1 (-40°C to +60°C)
													TTS						Teflon/Teflon/SS Over Braided
													TT						Teflon/Teflon
													TTST						Teflon/Teflon/Shielded/Teflon
													TS						Teflon/Silicon
													TSS						Teflon/Silicon SS Braided
													FFS						FG/FG/SS
														N2					Ex i
															SS04				SS304
															SS16				SS316
															CDC				CD Plated CS
																SIZE			30 mm to 80 mm
																	SIZE		6 mm to 15 mm
																		SIZE	100 mm to 50000 mm
																		NA	Not Applicable

SWHRT9 -A-B-C-D-E-F-G-H-I-J-K-L-M-N-O-P-Q-R-S-T-U-V-W

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	Description
Construction	Element type	No. of element	Leads	Accuracy	Stem	Sheath Length ' L1'	Sheath OD ' D1'	Sheath MOC	Instrument connection	Extension Length " L2"	Instrument connection MOC	Mounting Accessories	Mounting Accessories	Ignition protection type	Electrical Approval	Cable entry (Enclosure)	Assembly used with	Thread Size ' T1/T2'	Cable Entry	Transmitter	Protection Class	Head MOC	
XA																							MODEL-1
XB																							MODEL-2
XC																							MODEL-3
XD																							MODEL-4
XE																							MODEL-5
XF																							MODEL-6
XG																							MODEL-7
XH																							MODEL-8
	RTD																						RESISTANCE TEMPERATURE DETECTOR
	TC																						THERMOCOUPLE

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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
Construction	Element type	No. of element	Leads	Accuracy	Stem	Sheath Length ' L1'	Sheath OD ' D1'	Sheath MOC	Instrument connection	Extension Length " L2"	Instrument connection MOC	Mounting Accessories	Mounting Accessories	Ignition protection type	Electrical Approval	Cable entry (Enclosure)	Assembly used with	Thread Size ' T1/T2'	Cable Entry	Transmitter	Protection Class	Head MOC	Description
		S																					SIMPLEX
		D																					DUPLEX
			2W																				2 WIRE
			3W																				3 WIRE
			4W																				4 WIRE
				1/3																			1/3 DIN ACURRACY
				A																			CLASS A
				B																			CLASS B
				SPT																			CLASS 1 (FOR T/C)
				ST																			CLASS 2 (FOR T/C)
					MI																		MINERAL INSULATED
					MI1																		MINERAL INSULATED WITH PROTECTION TUBE
						SIZE																	50 mm to 50000 mm
							3																For RTD Sheath OD in mm
							3.2																
							4.0																
							4.5																
							4.8																
							6																
							8																
							9.5																
							10																
							0.5																For TC Sheath OD in mm
							1																
							1.5																
							2																
							3																
							4.5																
							4.8																
							6																
							8																
							9.5																
							10																
								16															SS316
								16L															SS316l
								10															SS310
								21															SS321
								17															SS317
								17L															SS317l
								800															Incolloy 80
								ALTD															Alloy TD (Nicrobell)
								321H															SS321H
								16T1															SS316l
								04L															SS304L
								347															SS347
								HR160															HR160
								446															SS446
								600															Inconel 600
								601															Inconel 601
								625															Inconel 625
									ADJ1														Adjustable Fitting (Spring Loaded)
									ADJ2														Adjustable Fitting (Ferrule Loaded)
									NUN														Nipple-Union-Nipple
									NPP														Nipple
									NUN2														Nipple-Union-Nipple with fitting
									NA														Without Instrument Connection
									ADP														Fix fitting/Adaptor
									2IN														2" PIPE MOUNTING CLAMP
									3IN														3" PIPE MOUNTING CLAMP
									4IN														4" PIPE MOUNTING CLAMP
										SIZE													100 mm to 50000 mm
										NA													Not Applicable
											SS04												SS304
											SS16												SS316
											CDC												CD Plated CS
												3CP											Circular 3 pin connector (Male & Female)
												5CP											Circular 5 pin connector (Male & Female)
												6CP											Circular 6 pin connector (Male & Female)
												10CP											Circular 10 pin connector (Male & Female)
												NA											Not Applicable
													MC										2" Mounting Clamp
													LC										L clamp for mounting
													NA										Not required
														N2									Ex ia
															ICX								IECEx
																CC							Closing cap for transport
																WA							Open entries
																BP							Blind plug

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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
Construction	Element type	No. of element	Leads	Accuracy	Stem	Sheath Length ' L1'	Sheath OD ' D1'	Sheath MOC	Instrument connection	Extension Length " L2"	Instrument connection MOC	Mounting Accessories	Mounting Accessories	Ignition protection type	Electrical Approval	Cable entry (Enclosure)	Assembly used with	Thread Size ' T1/T2'	Cable Entry	Transmitter	Protection Class	Head MOC	Description
																DCN							Ex i Cable gland, Nickle plated brass
																DCS							Ex i Cable gland, Stainless steel
																	TT						Threaded Thermowell
																	FT						Flanged Thermowell
																	WT						Weld in Thermowell
																	VT						Vanstone Thermowell
																	FT						Fabricated Thermowell
																		18N					1/8"NPT(M)
																		14N					1/4"NPT(M)
																		12N					1/2"NPT(M)
																		34N					3/4"NPT(M)
																		38N					3/8"NPT(M)
																		1N					1"NPT(M)
																		M8					M8X1
																		M10					M10X1
																		M18					M18X1.5
																		M22					M22X1.5
																		M12					M12X1.5
																		M14					M14X1.5
																		M20					M20X1.5
																			12N				1/2"NPT(M)
																			34N				3/4"NPT(M)
																			M20				M20X1.5
																			M22				M22X1.5
																				NA			Without Transmitter (with terminal block)
																				NA1			With 6" leads without ceramic disc
																					2C		Ex ia IIC T6…T1 (-40°C to +60°C)
																						DCA	Die Cast Aluminium
																						04	SS304
																						16	SS316

END OF DOCUMENT