

EX CERTIFICATE – cCSAus

vibro-meter®

cCSAus 80084516

for

**TQ9xx proximity sensors and
IQS9xx signal conditioners**



Note: Although the Ex certificate may be included in more than one language, the liability of the notified body applies only on the text of the original copy of the certificate that it published.

Document reference cCSAus 80084516
Edition 2 – April 2025

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Master Contract: 175074
Date Issued: April 07, 2025

Certificate: 80084516
Project: 80235557

ab: Conditioner Type
00 = Analog output
10 = 4-20mA output
11 to 99 = Other
cd: Customized version (special target material or mounting)
00 to 99
e: Minor modification number (FFP = Form Fit Function)
0 to 9 = (Each modification increases the number by 1)

IQS 9** type designation above will be completed by digits for example related to the measuring range and sensitivity, the total system length or whether the type of mounting.

Entity Parameter Values (IQS900):

IQS900	
Connection	Intrinsic safety electrical parameters
Terminal Block "J1" - 2 wire transmission (I/P)	Ui/Vmax = 28V, Ii/Imax = 100mA, Pi = 700mW, Ci = 2.2nF, Li = 4.96uH
Terminal Block "J1" - 3 wire transmission (O/P)	Ui/Vmax = 28V, Ii/Imax = 100mA, Pi = 700mW, Ci = 4.4nF, Li = 9.92uH
For Gas application :	
Terminal Block "J2" - Raw O/P	Uo/Voc = 28V, Io/Isc = 4.57mA, Po = 32mW, Co/Ca = 82nF, Lo/La = 1.7H
Terminal Block "J2" - Test I/P	Uo/Voc = 28V, Io/Isc = 0.29mA, Po = 2.03 mW, Co/Ca = 82nF, Lo/La = 422 H
Connector "J0" - Sensor I/P	Uo/Voc = 28V, Io/Isc = 53.2mA, Po = 372.4mW, Co/Ca = 82.4nF, Lo/La = 12.5mH
For Dust application:	
Terminal Block "J2" and connector "J0"	Uo/Voc = 28V, Io/Isc = 100mA, Po = 700mW, Co/Ca = 644 nF, Lo/La = 14.2 mH

Entity Parameter Values (IQS910):

IQS910	
Connection	Intrinsic safety electrical parameters
Terminal Block "J1" - 4-20 mA 2 wire transmission	Ui/Vmax = 28V, Ii/Imax = 100mA, Pi = 700mW, Ci = 2.2nF, Li = 4.96uH
For Gas application:	
Terminal Block "J2" - Raw O/P	Uo/Voc = 28V, Io/Isc = 4.57mA, Po = 32mW, Co/Ca = 82nF, Lo/La = 1.7H
Terminal Block "J2" - Test I/P	Uo/Voc = 28V, Io/Isc = 0.29mA, Po = 2.03mW, Co/Ca = 82nF, Lo/La = 422H
Connector "J0" - Sensor I/P	Uo/Voc = 28V, Io/Isc = 53.2mA, Po = 372.4mW, Co/Ca = 82.4nF, Lo/La = 12.5mH

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Certificate of Compliance

Certificate: 80084516
Project: 80235557
Issued To: Meggitt SA
Rte de Moncor 4
Villars-sur-Glane, Fribourg, 1752
Switzerland
Attention: Alain Pauli
Master Contract: 175074
Date Issued: April 07, 2025

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only



Issued by:

Oong Lee

PRODUCTS

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations
CLASS 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations - Certified to US Standards

IS Class I, Division 1, Groups A, B, C, and D T6 or T5
Ex ia IIC T6 or T5 Ga
Class I, Zone 0, AEx ia IIC T6 or T5 Ga
Class II, Division 1, Groups E, F, and G T80°C...T115°C
Ex ia IIC T80°C...T115°C Da
Zone 20, AEx ia IIC T80°C...T115°C Da

The IQS 9** is a signal conditioner which is used in a proximity measurement system. The signal conditioner is composed of an aluminum enclosure, which houses an encapsulated printed circuit board, two terminal blocks "J1 and J2", one connector "J0" and with an optional clip for DIN rail. The signal conditioner can be power supplied with two configurations, either by 2 wire transmission (I/P) or 3 wire transmission (O/P).

Nomenclature for IQS 9**:

204-9ab-000-cde

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Class 1, Zone 2, AEx ec IIC T6...T5 Gc

The TQ 9** proximity sensor and the IQS 9** signal conditioner are part of a proximity measurement system. The system can also include an EA 9** extension cable which is not covered by this certificate. The proximity system allows a contactless measurement of the relative displacement of moving machine elements such as the shaft. The system output voltage or current is proportional to the distance between the sensor head and the metallic target.

The TQ 9** sensor has an integral coaxial cable, terminated with a self-locking miniature coaxial connector. Its active part comprises of a coil of wire that is molded inside the sensor head made of a thermoplastic material. The sensor body is made of stainless steel.

The IQS 9** signal conditioner contains a high-frequency modulator/demodulator that supplies the driving signal to the coil of the sensor. This generates an electromagnetic field in the sensor head, which then induces eddy currents into the metallic target. When the target moves, the eddy currents change, which causes a change in the electrical characteristics of the TQ 9** that the signal conditioner converts into a signal that is proportional to the distance to the target. The electronics of the conditioner is mounted in a metallic housing and it is totally embedded into a silicone casting compound.

The signal conditioner has a coaxial connector for the connection to the proximity sensor. The output of the IQS 9** conditioner can be configured as a current (2-wire transmission mode) or a voltage signal (3-wire transmission mode). For test purposes, the IQS 9** includes a "raw" voltage output signal and a test input signal that allow the measurement chain/system operation to be tested in situ.

Nomenclature for TQ 9 Proximity Sensor:**

111-9ab-000-cde

a: Housing Type (straight, reverse, right-angle 90° or customized)
0 to 9

b: Dimension of the measurement element (Sensor tip)
1 = Diameter 5mm nominal
2 = Diameter 8mm nominal
3 = Diameter 18mm nominal
4 to 9 = Other dimensions

cd: Cable, cable protection and protection sheath types (according to customers applications)
00 to 99

e: Minor modification number (FFF = Form Fit Function)
0 to 9 = (Each modification increases the number by 1)

TQ 9** type designation above will be completed by digits for example related to the thread type of sensor body, the body length, the integral cable length or whether the total system length.

Nomenclature for IQS 9 Signal Conditioner:**

204-9ab-000-cde

ab = Conditioner type
00 = Analog output
10 = 4-20mA output

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For Dust application:

Terminal Block "J2" and connector "J0"	Uo/Voc = 28V, Io/Isc = 100mA, Po = 700mW, Co/Ca = 644 nF, Lo/La = 14.2 mH
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Thermal Ratings:

Gas: T6 for Tamb: -40°C to +70°C; T5 for Tamb: -40°C to +85°C
Dust: T80°C for Tamb: -40°C to +50°C; T95°C for Tamb: -40°C to +65°C; T115°C for Tamb: -40°C to +85°C

Notes:

- The above model is fixed connection, Pollution Degree 2, Installation/Overvoltage Category 1.
- Mode of operation: Continuous.
- Environmental Conditions: Extended, -40°C to +85°C; RH% of 0-95% (non-condensing), altitude up to 4000m, Indoor use.

Conditions of Acceptability:

- The signal conditioner must only be connected to galvanically isolated associated intrinsically safe apparatus or simple apparatus. This combination must be compatible with the intrinsic safety rules according to requirements of CSA/UL 60079-25 standards.
- Temperature code of the signal conditioner depending on the ambient operating temperature range:
Gas - T6 for Tamb: -40°C to +70°C; T5 for Tamb: -40°C to +85°C.
Dust - T80°C for Tamb: -40°C to +50°C; T95°C for Tamb: -40°C to +65°C; T115°C for Tamb: -40°C to +85°C.
- The enclosure of the signal conditioner is made of aluminum. It must be mounted in such a manner as to eliminate the risk of sparks caused by impact or friction.
- The signal conditioner must be installed per Wiring Diagram PZ 9196.
- The final installation of the signal conditioner shall meet the requirements of CEC Part I (for Canada) and NEC (for USA) for wiring method in Class I/II, Division 1 and Class I, Zone 0 or Zone 20 and is subject to acceptance of local authority having jurisdiction.
- End-use shall ensure the signal conditioner is properly connected to Earth upon installation.

CLASS C2258 02 - PROCESS CONTROL EQUIPMENT – For Hazardous Locations
CLASS C2258 82 - PROCESS CONTROL EQUIPMENT – For Hazardous Locations - Certified to US Standards

TQ 9** Proximity Sensor:
Class 1, Division 2, Groups A, B, C, and D T6...T3
Ex ec IIC T6...T3 Gc
Class 1, Zone 2, AEx ec IIC T6...T3 Gc

IQS 9** Signal Conditioner:
Class 1, Division 2, Groups A, B, C, and D T6...T5
Ex ec IIC T6...T5 Gc

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11 to 99 = Other
cd: Customized version (special target material or mounting)
00 to 99
e: Minor modification number (FFF = Form Fit Function)
0 to 9 = (Each modification increases the number by 1)

IQS 9** type designation above will be completed by digits for example related to the measuring range and sensitivity, the total system length or whether the type of mounting.

Electrical Ratings:

IQS 9** Signal Conditioner, 2-wire transmission mode (output current signal): Vmax = 30Vdc, Imax = 22mA, Pmax = 0.7W
IQS 9** Signal Conditioner, 3-wire transmission mode (output voltage signal): Vmax = 30Vdc, Imax = 9.5mA, Pmax = 0.3W

Thermal Ratings:

TQ 9** Proximity Sensor: T6 for Tamb: -40°C to +75°C; T5 for Tamb: -40°C to +90°C; T4 for Tamb: -40°C to +125°C; T3 for Tamb: -40°C to +180°C
IQS 9** Signal Conditioner: T6 for Tamb: -40°C to +70°C; T5 for Tamb: -40°C to +85°C

Notes:

- The above model is fixed connection, Pollution Degree 2, Installation/Overvoltage Category I.
- Mode of operation: Continuous.
- Environmental Conditions: Extended, Indoor use, -40°C to +85°C, altitude up to 4000m, RH% of 0-95% (non-condensing).

Conditions of Acceptability:

- To be supplied by a Class 2 or limited-energy source on the signal side according to CSA 61010-1-12/UL 61010-1 3rd Edition.
- Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the IQS9** signal conditioner.
- The equipment shall be used in an area of not more than pollution degree 2 as defined in IEC 60664-1.
- For Zone 2 application, this device (IQS 9**) shall be installed within a fixed end-use enclosure that provides a degree of protection not less than IP54 according to CSA/UL 60079-0 and CSA/UL 60079-7. The suitability of the enclosure is subject to acceptance by the local authorities having jurisdiction at the time of installation.
- For Division 2 application, this device (IQS 9**) shall be installed within a fixed end-use enclosure that provides a degree of protection Type 4. The suitability of the enclosure is subject to acceptance by the local authorities having jurisdiction at the time of installation.
- The signal conditioner and the proximity sensor must be installed per Wiring Diagram PZ 9189.
- The final enclosure must bear the following warning marking both in French and English: "Do not connect or disconnect when an explosive atmosphere is present".

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8. The sensor head shall be protected against any risk of mechanical danger.

9. The TQ 9** sensor cable shall be installed within metallic conduit per requirements of CEC Part I and NEC. 10. When extension cable EA 9** is used as part of the system, it shall be installed within metallic conduit as defined in the CEC Part I and NEC. The interconnection between the EA 9** and TQ 9** must be installed within an enclosure or junction box with IP54 rating for Zone 2, and with an enclosure or junction box with Type 4 rating for Class I, Division 2 hazardous location.

11. The final installation of the device shall meet the requirements of CEC Part I (for Canada) and NEC (for USA) for wiring method in Division 2 and Zone 2 and is subject to acceptance of local authority having jurisdiction.

12. End-user shall ensure proper earthing of the device upon installation.

APPLICABLE REQUIREMENTS

CAN/CSA C22.2 No. 61010-1-12, UPD1: 2015, UPD2: 2016, AMD1: 2018 CSA C22.2 No. 213-17 CAN/CSA-C22.2 No. 60079-0:19 CAN/CSA-C22.2 No. 60079-7:16 CAN/CSA-C22.2 No. 60079-11:14 (R2018) UL 61010-1, 3rd edition (2012), AMD1: 2018 ANSI/UL 121201-2017 Ninth Edition ANSI/UL 913 Eighth Edition (R2019) ANSI/UL 60079-0:19 ANSI/UL 60079-7:17 ANSI/UL 60079-11:2018	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations Explosive Atmospheres - Part 0: Equipment - General requirements Explosive Atmospheres - Part 7: Equipment protection by increased safety "e" Explosive Atmospheres - Part 11: Equipment protection by intrinsic safety "i" Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirement Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations Intrinsically Safe and Associated Apparatus For Use In Class I, II, and III, Division 1, Hazardous (Classified) Locations Explosive Atmospheres - Part 0: Equipment - General requirements Explosive Atmospheres - Part 7: Equipment protection by increased safety "e" Explosive Atmospheres - Part 11: Equipment protection by intrinsic safety "i"
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