

- WARNING:** SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR HAZARDOUS LOCATIONS
- WARNING:** Resistance between Intrinsically Safe Ground and earth ground shall be less than 1.0 Ohm
- NOTES:**
- Installations in Europe shall comply with the relevant requirements of EN60079-14 and applicable national standards.
 - Installations for IECEx certifications shall be in accordance with IEC 60079-14 and the wiring practices for the country of installation.
 - Associated apparatus must be approved by authority having jurisdiction and must be installed in accordance with manufacturers instructions.
 - The FISCO Supply, FISCO Field Device(s) and FISCO Terminators shall be ATEX Certified for installations in Europe.
 - The FISCO Supply, FISCO Field Device(s) and FISCO Terminators shall be IECEx Certified for IECEx installations.
 - FISCO Supply manufacturer's installation drawing shall be followed when installing this equipment.
 - Associated apparatus parameters must meet the following requirements:
 - $V_{oc}/U_o \leq V_{max}$;
 - $I_{sc}/I_o \leq I_{max}$;
 - P_o or $P_t \leq P_{max}$
 - $C_a \geq C_i + C_{cable}$
 - $L_a \geq L_i + L_{cable}$
 - The control room equipment connected to FISCO Supply must not generate more than 250 Vrms or Vdc, or marked Um on the associated apparatus.
 - A dust tight seal must be used at the conduit entry when the Transmitter is used in a Class II & III location.
 - Suitable separation must be maintained between input wiring and Sensor wiring.
 - WARNING: DO NOT DISCONNECT EQUIPMENT WHILE LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS**

FISCO CONCEPT

The Fieldbus Intrinsically Safe Concept (FISCO) allows the interconnection one FISCO certified power supply, an unlimited number of FISCO certified intrinsically safe field apparatus, and two FISCO certified terminators, one of each end of the trunk cable. (Note: The FISCO Terminator at the supply end is usually incorporated in to the FISCO Power Supply.)

Each piece of apparatus will be marked with the word "FISCO" followed by the indication of its function, i.e. "Power Supply", "Field Device" or "Terminator".

Interconnection of the FISCO Field Device, FISCO terminators and FISCO Power Supply must be suitable for the same Division or type of protection and Gas Group(s). The FISCO power supply shall be located not more than 30m from one end of the trunk. Where the power supply is connected via a spur, then that spur is restricted to a length of 30 m.

The cable used to interconnect the devices needs to comply with the following parameters:

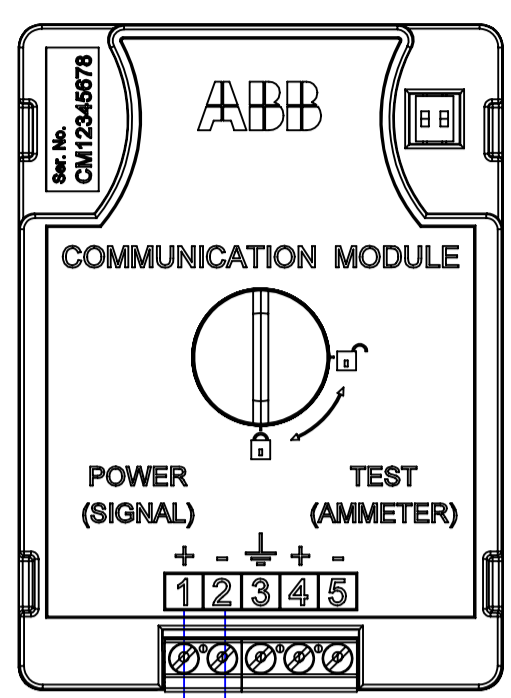
Loop resistance R_c : 15Ω/km to 150 W/km
 Inductance per unit length L_c : 0.4mH/km to 1mH/km
 Capacitance per unit length C_c : 45nF/km to 200nF/km
 Maximum Length of spur Cable: 60m for IIC and IIB (or Group ABC&D);
 Maximum length of each trunk cable, including the length of all spurs, 1 km in IIC and 5 km in IIB (Groups ABC&D) and IIIC (Group EFG).

Terminators
 At each end of the trunk cable a line terminator with the following parameters is suitable:
 $R = 90\Omega$ to 102W
 $C = 0$ to 2.2mF

NON-HAZARDOUS AREA

THIRD ANGLE PROJECTION
 DO NOT SCALE THIS PRINT
 REMOVE ALL BURRS

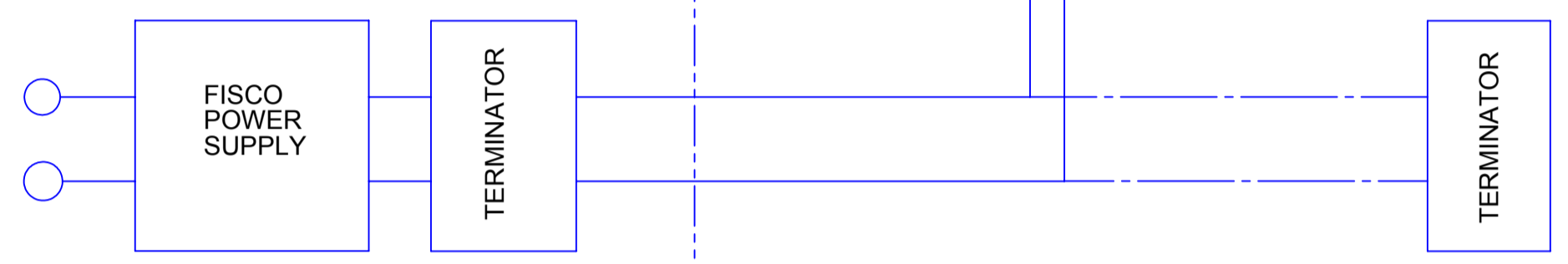
COMMUNICATION MODULE
 Profibus: FISCO
 Fieldbus: FISCO



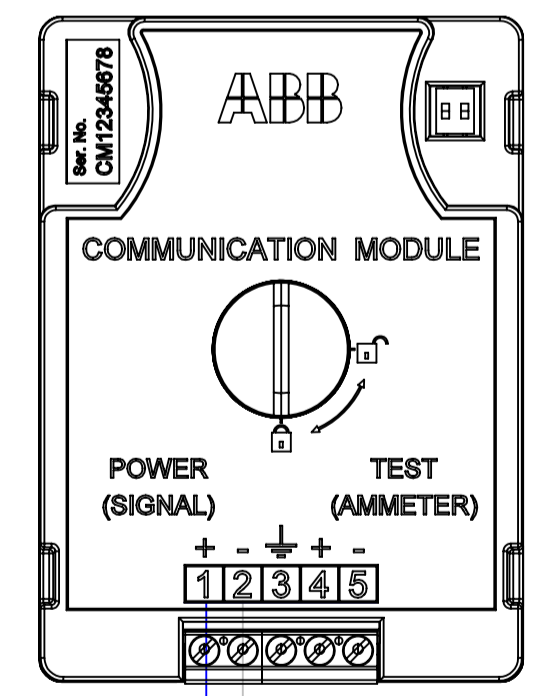
Fieldbus FISCO Field Device
 INPUT PARAMETERS:
 TERMINALS 1 & 2
 $V_{max}(U_i) = 17.5V$
 $I_{max}(I_i) = 380mA$
 $P_i = 5.32W$
 $C_i = 1.1nF$
 $L_i = 0$

Profibus FISCO Field Device
 INPUT PARAMETERS:
 TERMINALS 1 & 2
 $V_{max}(U_i) = 17.5V$
 $I_{max}(I_i) = 360mA$
 $P_i = 2.52W$
 $C_i = 1.1nF$
 $L_i = 0$

HAZARDOUS AREA
INTRINSICALLY SAFE
 II 1 G Ex ia IIC T4 Ga



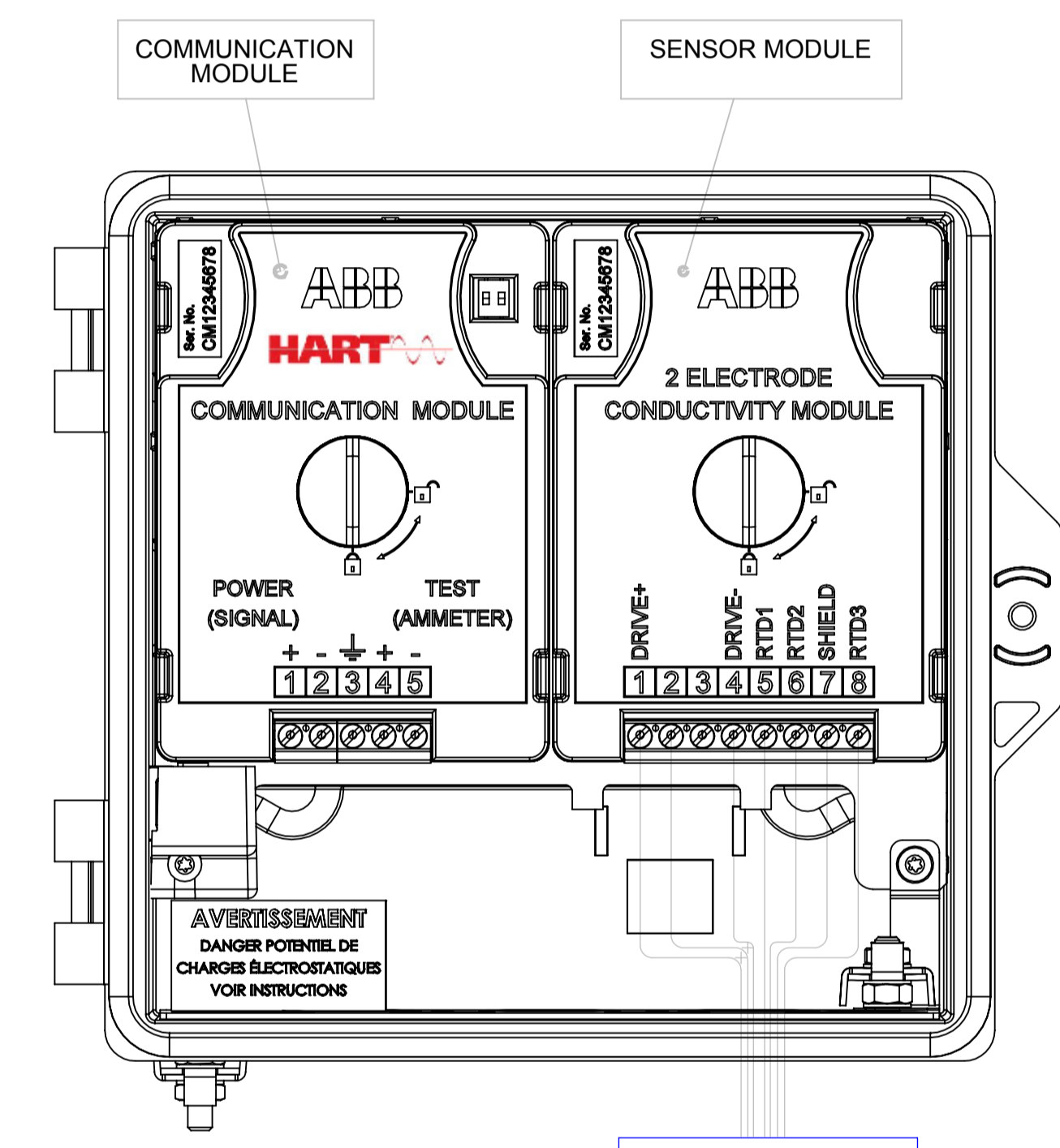
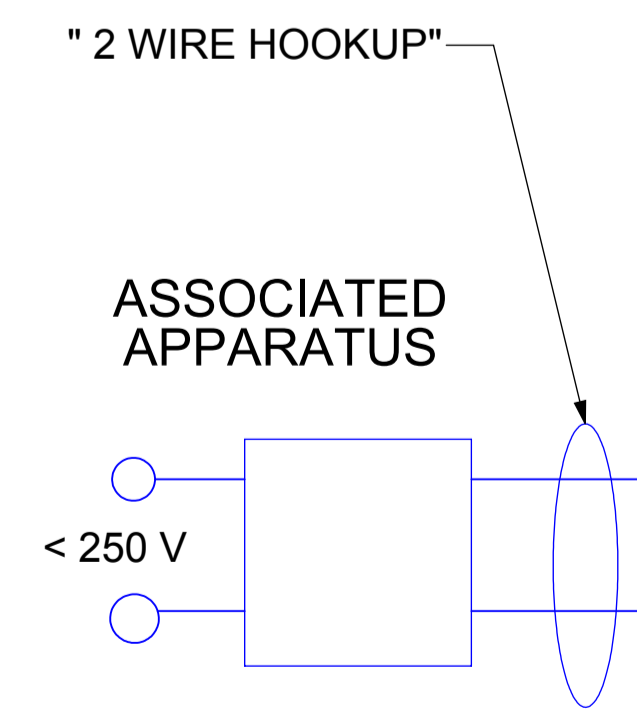
COMMUNICATIONS MODULES
 HART
 Fieldbus (Linear)
 Profibus (Linear)



HART
 INPUT PARAMETERS:
 TERMINALS 1 & 2
 $V_{max}(U_i) = 30V$
 $I_{max}(I_i) = 100mA$
 $P_i = 0.8W$
 $C_i = 0.56nF$
 $L_i = 3.3mH$

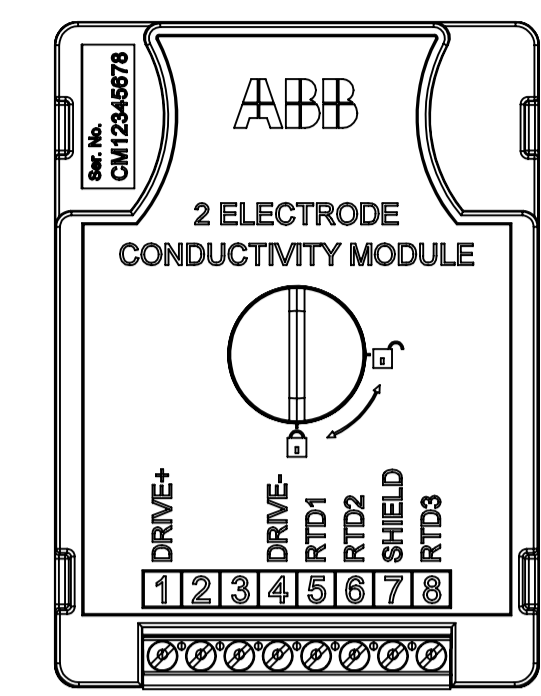
Fieldbus
 INPUT PARAMETERS:
 TERMINALS 1 & 2
 $V_{max}(U_i) = 24V$
 $I_{max}(I_i) = 250mA$
 $P_i = 1.2W$
 $C_i = 1.1nF$
 $L_i = 0mH$

Profibus
 INPUT PARAMETERS:
 TERMINALS 1 & 2
 $V_{max}(U_i) = 24V$
 $I_{max}(I_i) = 250mA$
 $P_i = 1.2W$
 $C_i = 1.1nF$
 $L_i = 0mH$

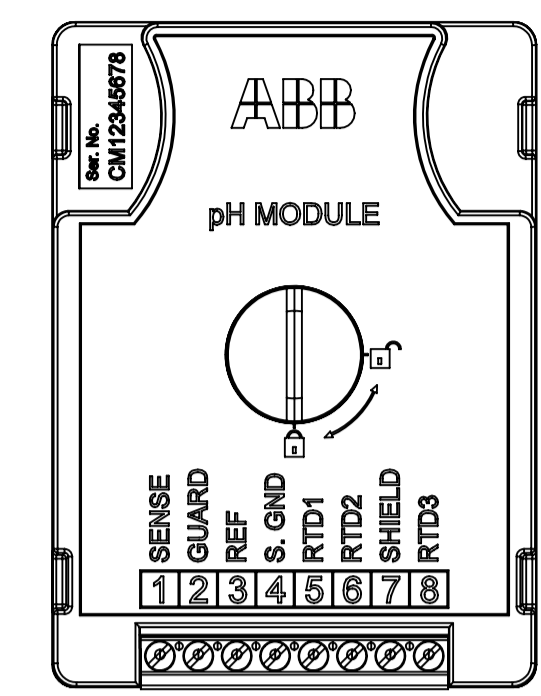


- AWT210 FOR CONNECTION TO:
- OTHER ATEX or IECEx CERTIFIED SENSORS SUITABLE FOR THE HAZARDOUS LOCATION WITH INPUT PARAMETERS $U_i \geq U_o$; $I_i \geq I_o$; $P_i \geq P_o$; $C_o \geq C_i + C_{cable}$; $L_o \geq L_i + L_{cable}$
 - SIMPLE APPARATUS; PASSIVE DEVICE THAT DOES NOT CONTAIN ENERGY STORING COMPONENTS AND DOES NOT GENERATE MORE THAN 1.5V, 100mA, OR 25mW

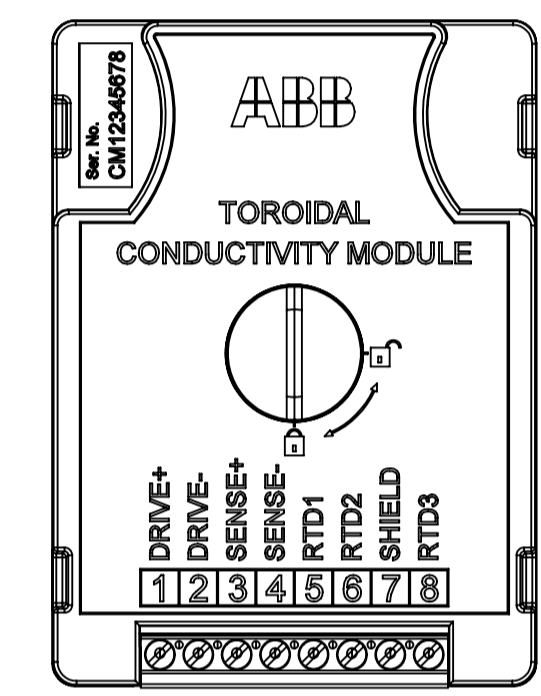
SENSOR MODULES



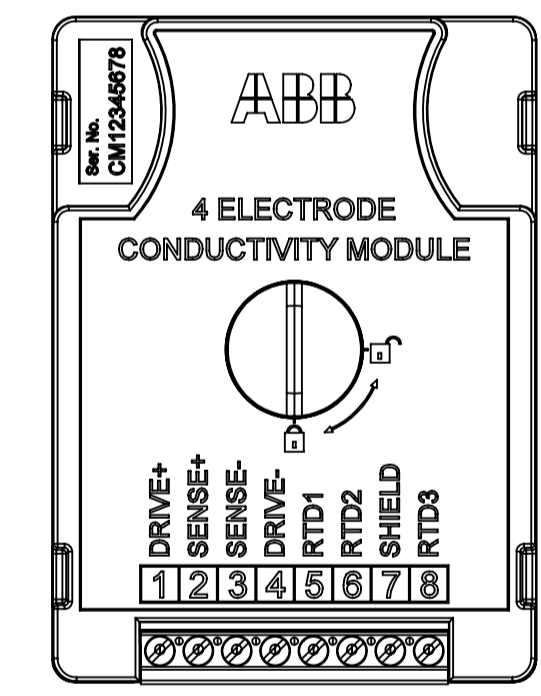
OUTPUT PARAMETERS - 2 ELECTRODE
 $V_{oc}(U_o) = 11.8V$
 $I_{sc}(I_o) = 11.8mA$
 $P_o = 36mW$
 $C_a(C_o) = 1.5\mu F$
 $L_a = 1H$



OUTPUT PARAMETERS - pH
 $V_{oc}(U_o) = 11.8V$
 $I_{sc}(I_o) = 11.8mA$
 $P_o = 36mW$
 $C_a(C_o) = 1.5\mu F$
 $L_a = 1H$



OUTPUT PARAMETERS - TOROIDAL
 $V_{oc}(U_o) = 11.8V$
 $I_{sc}(I_o) = 11.8mA$
 $P_o = 36mW$
 $C_a(C_o) = 1.5\mu F$
 $L_a = 1H$



OUTPUT PARAMETERS - 4 ELECTRODE
 $V_{oc}(U_o) = 11.8V$
 $I_{sc}(I_o) = 11.8mA$
 $P_o = 36mW$
 $C_a(C_o) = 1.5\mu F$
 $L_a = 1H$

CERTIFIED PRODUCT
 NO MODIFICATION IS PERMITTED WITHOUT REFERENCE TO THE APPROVAL AUTHORITY

THIS DRAWING WAS CREATED ON A COMPUTER AIDED DESIGN (CAD) SYSTEM TO ENSURE THE INTEGRITY OF THE DATA BASE ALL CHANGES/REVISIONS MUST BE MADE ON THE CAD SYSTEM.

MATERIAL		SCALE		J		CEH		08/02/19		F		SENSOR MODULE OPTIONS ADDED		CEH		30-05-18	
FINISH		DIMS. IN mm		H		CEH		21/01/19		L		Notes corrected		CEH		13-06-19	
CONFIDENTIAL		TOLERANCES		G		CEH		12/11/18		K		FF & PA Module options added with FISCO parameters		CEH		11/06/19	
The contents of this document must not be copied or communicated to a third party without the written consent of the company.		LINEAR DIMS $X = \pm 0.5$ $X.X = \pm 0.1$		AMENDMENTS		MOD No		DRAWN		CHYKD		D & D		M.E.D.		DATE	
ABB Ltd 2018		ANGULAR DIMS $\pm 0.5^\circ$ UNLESS OTHERWISE STATED		TITLE		AWT210 ATEX/IECEx INTRINSIC SAFETY CONTROL DRAWING		DRAWING No.		AWT200034							