

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:

1.

Installations in Europe shall comply with the relevant requirements of EN60079-14 and applicable national standards.
2.

Installations for IECEx certifications shall be in accordance with IEC 60079-14 and the wiring practices for the country of installation.
3.

Associated apparatus must be approved by authority having jurisdiction and must be installed in accordance with manufacturers instructions.
4.

The FISCO Supply, FISCO Field Device(s) and FISCO Terminators shall be ATEX Certified for installatons in Europe.
5.

The FISCO Supply, FISCO Field Device(s) and FISCO Terminators shall be IECEx Certified for IECEx installations.
6.

FISCO Supply manufacturer's installation drawing shall be followed when installing this equipment.
7.

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  $P_t \leq P_{max}$

•

$C_a \geq C_i + C_{cable}$

•

$L_a \geq L_i + L_{cable}$
8.

The control room equipment connected to FISCO Supply must not generate more then 250 Vrms or Vdc, or marked Um on the associated apparatus.
9.

A dust tight seal must be used at the conduit entry when the Transmitter is used in a Class II & III location.
10.

Suitable seperation must be maintained between input wiring and Sensor wiring.
11.

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 Rc: 15Ω/km to 150 W/km  
Inductance per unit length Lc: 0.4mH/km to 1mH/km  
Capacitance per unit length Cc: 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 = 90Ω to 102W  
C = 0 to 2.2mF

THIRD ANGLE PROJECTION  
DO NOT SCALE THIS PRINT  
REMOVE ALL BURRS

NON-HAZARDOUS AREA

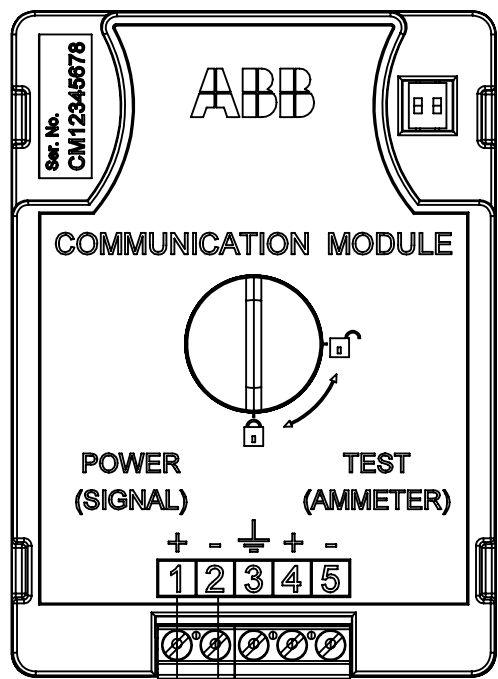


HAZARDOUS AREA

INTRINSICALLY SAFE

II 3 G Ex ic IIC T4 Gc

COMMUNICATION  
MODULE :-  
Profibus: FISCO  
Fieldbus: FISCO



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

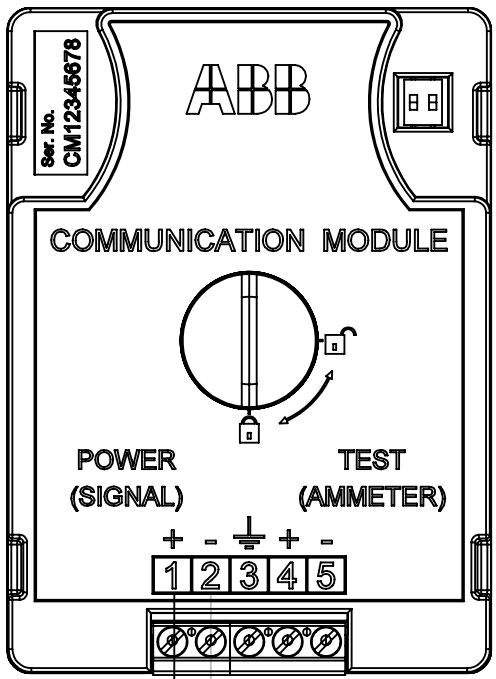
**Profibus FISCO Field Device**  
INPUT PARAMETERS:  
TERMINALS 1 & 2  
 $V_{max}(U_i) = 17.5V$   
 $I_{max}(I_i) = \text{See Table}$   
 $P_i = 2.52W$   
 $C_i = 1.1nF$   
 $L_i = 0$

Assessment of maximum output current for use with 'ic' FISCO rectangular supplies	
Uo (V)	Permissible current, for IIC (mA)
14	274
15	199
16	154
17	121
17.5	112

Note: The maximum output power Po from 'ic' FISCO power supplies is not restricted

COMMUNICATIONS MODULES

HART  
Fieldbus (Linear)  
Profibus (Linear)



**HART**  
INPUT PARAMETERS:  
TERMINALS 1 & 2  
 $V_{max}(U_i) = 30V$   
 $I_{max}(I_i) = 152mA$   
 $P_i = 0.8W$   
 $C_i = 0.56nF$   
 $L_i = 3.3mH$

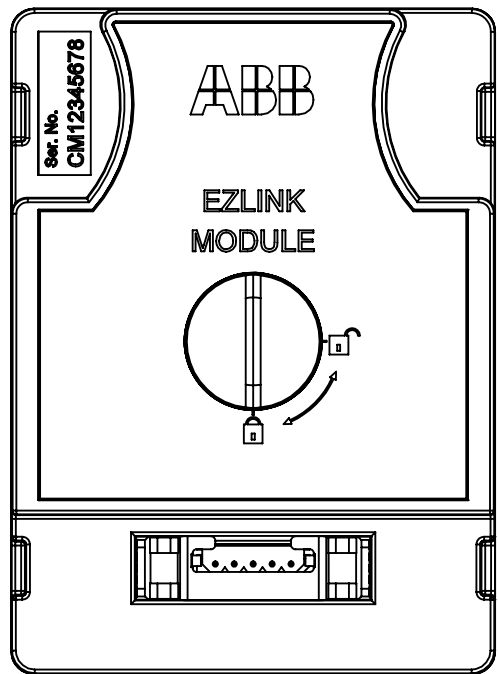
**Fieldbus**  
INPUT PARAMETERS:  
TERMINALS 1 & 2  
 $V_{max}(U_i) = 24V$   
 $I_{max}(I_i) = 250mA$   
 $P_i = 1.2W$   
 $C_i = 1.1nF$   
 $L_i = 0mH$

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

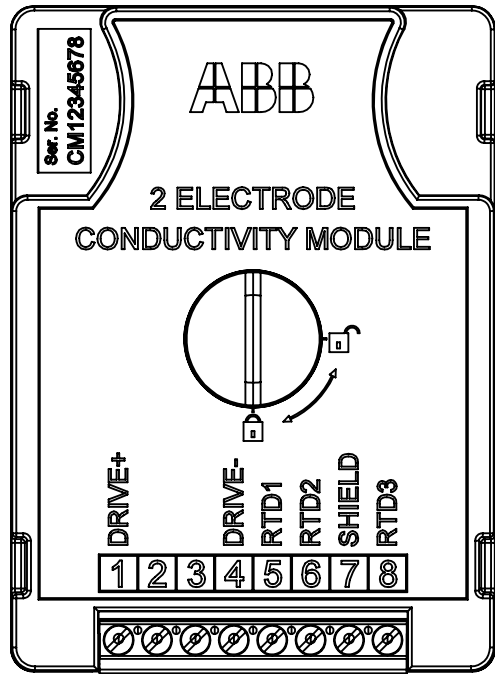
" 2 WIRE HOOKUP"

ASSOCIATED  
APPARATUS

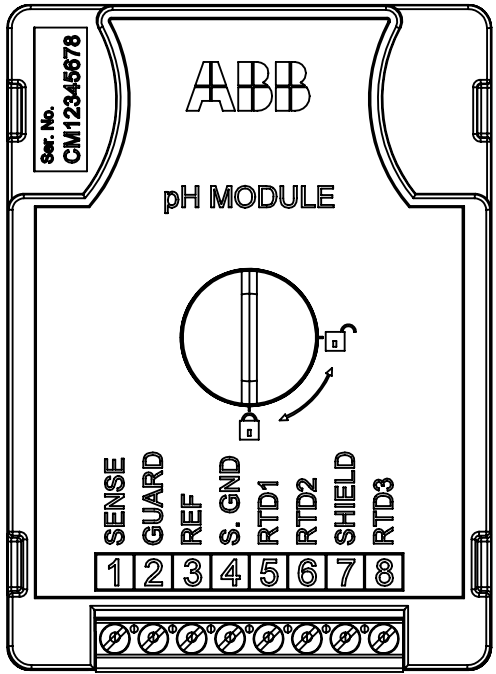
< 250 V



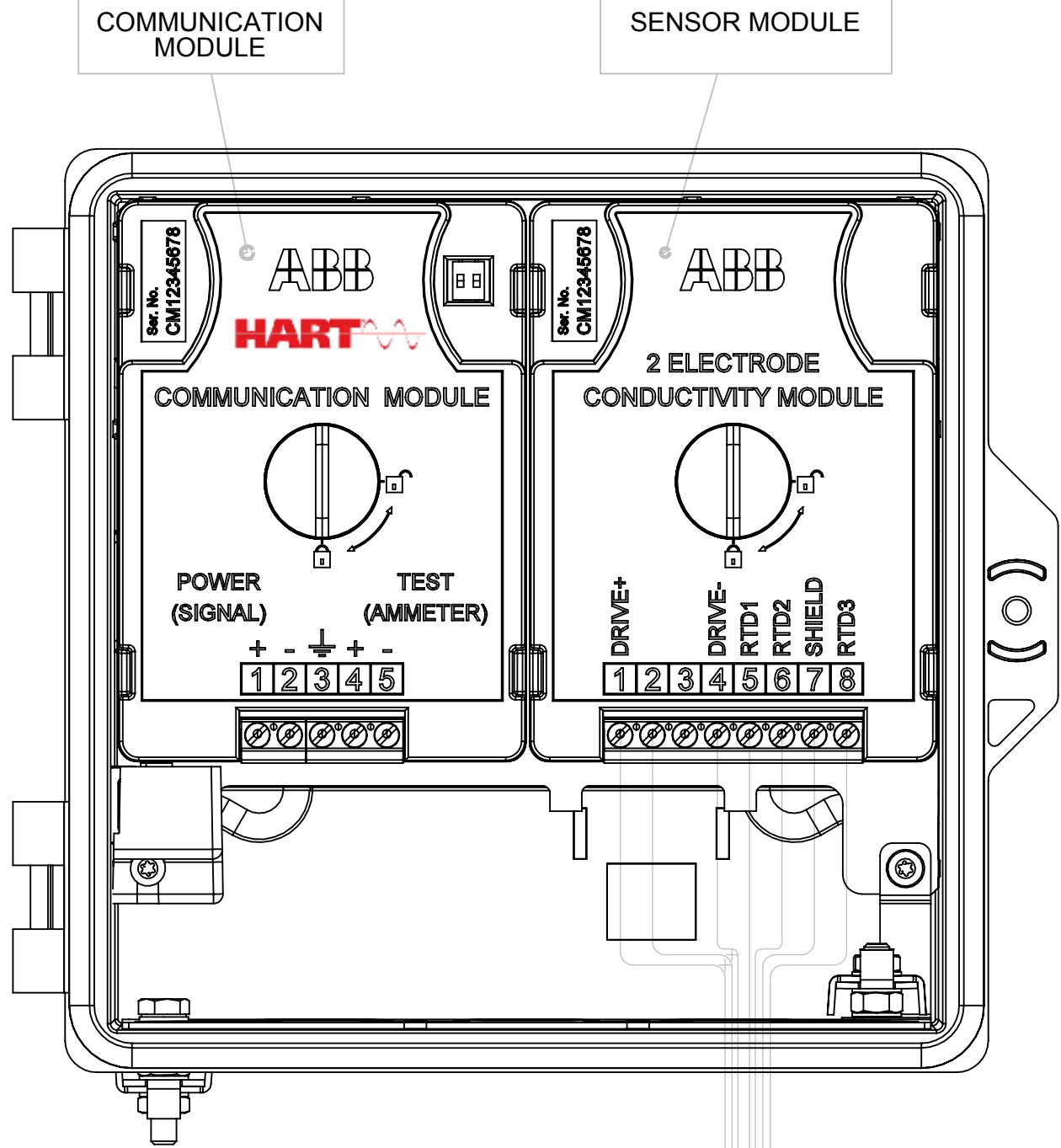
OUTPUT PARAMETERS - EZLINK  
 $V_{oc}(U_o) = 5.21V$   
 $I_{sc}(I_o) = 98.2mA$   
 $P_o = 127.9mW$   
 $C_a(C_o) = 60uF$   
 $L_a(L_o) = 43mH$



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



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

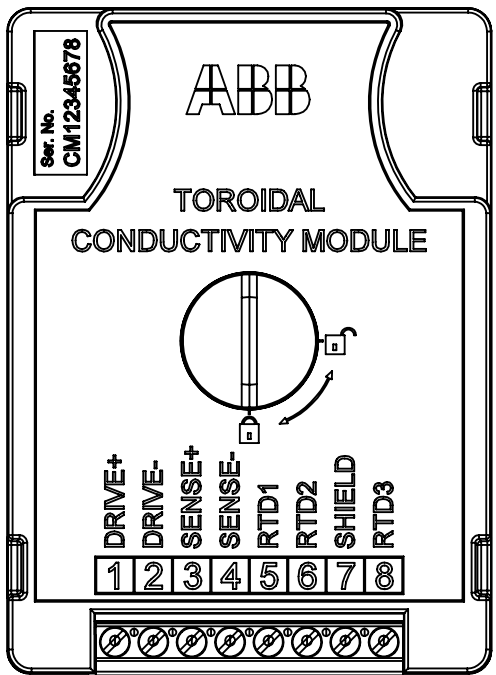


AWT210 FOR CONNECTION TO:

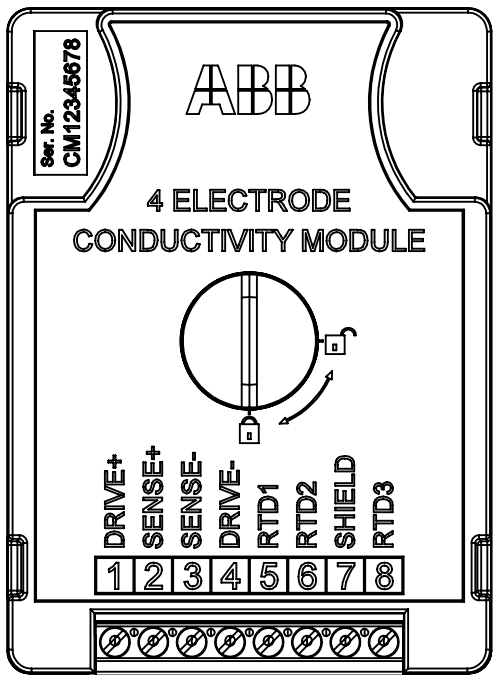
1.

OTHER 'Ex ic' ATEX or IECEx CERTIFIED SENSORS SUITABLE FOR THE HAZARDOUS LOCATION WITH INPUT PARAMETERS  $U_i \geq U_o$ ;  $I_i \geq I_o$ ;  $P_i \geq P_o$ ;  $C_o \geq C_i + C_{cable}$ ;  $L_o \geq L_i + L_{cable}$
2.

SIMPLE APPARATUS; PASSIVE DEVICE THAT DOES NOT CONTAIN ENERGY STORING COMPONENTS AND DOES NOT GENERATE MORE THAN 1.5V, 100mA, OR 25mW



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



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

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											
FINISH			DIMS. IN											
CONFIDENTIAL			TOLERANCES											
The contents of this document must not be copied or communicated to a third party without the written consent of the company.			LINEAR DIMS											
			$X = \pm 0.5$											
			$X.X = \pm 0.1$											
			ANGULAR DIMS											
			$\pm 0.5^\circ$											
			UNLESS OTHERWISE STATED											

A		Original Issue		CR2003015		SME		010721											
		AMENDMENTS		MOD No		DRAWN		CH'KD		D & D		M.E.D.		DATE		AMENDMENTS		MOD No	
		TITLE		AWT210 ATEX/IECEx INTRINSIC SAFETY		CONTROL DRAWING		DRAWING No.		AWT200035									