DRAWING No.

USED ON

THIRD ANGLE PROJECTION

DO NOT SCALE THIS PRINT
REMOVE ALL BURRS

NON-HAZARDOUS AREA

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 the U.S. should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code (ANSI/NFPA 70).
2. Associated apparatus must be approved by authority having juristiction and must be installed in accordance with manufacturers instructions.
3. The FISCO Supply, FISCO Field Device(s) and FISCO Terminators shall be FM Approved for installations in the U.S.
4. FISCO Supply manufacturer's installation drawing shall be followed when installing this equipment.
5. Associated apparatus parameters must meet the following requirements:
   - Voc/Uo ≤ Vmax;
   - Isc/Io ≤ Imax;
   - Po or Pt ≤ Pmax
   - Ca ≥ Ci + Ccable
   - La ≥ Li + Lcable
6. The control room equipment connected to FISCO Supply must not generate more then 250 Vrms or Vdc, or marked Um on the associated apparatus.
7. A dust tight seal must be used at the conduit entry when the Transmitter is used in a Class II & III location.
8. Suitable seperation must be maintained between input wiring and Sensor wiring.
9. 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 to150 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

HAZARDOUS AREA

INTRINSICALLY SAFE

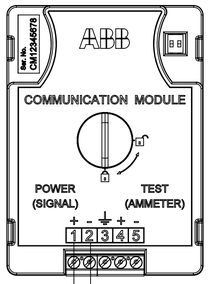
[X] CLASS I, DIV 1 GROUPS A, B, C, D; T4

[X] CLASS II, DIV 1 GROUPS E, F, G; T4

[Y] CLASS I, ZONE 2 AEx ic IIC T4 Gc

(See Input Parameters below)

COMMUNICATION MODULE :-
Profibus: FISCO
Fieldbus: FISCO



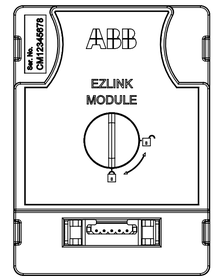
Fieldbus FISCO Field Device
INPUT PARAMETERS:
TERMINALS 1 & 2
Vmax (Ui) = 17.5V
Imax(Ii) = 380mA [X]
Imax(Ii) = See Table [Y]
Pi = 5.32W
Ci = 1.1nF
Li = 0

Profibus FISCO Field Device
INPUT PARAMETERS:
TERMINALS 1 & 2
Vmax (Ui) = 17.5V
Imax(Ii) = 360mA [X]
Imax(Ii) = See Table [Y]
Pi = 2.52W
Ci = 1.1nF
Li = 0

[Y]

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	

SENSOR MODULES



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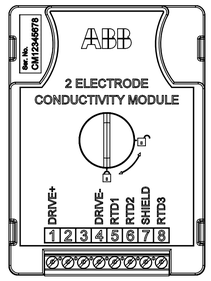
OUTPUT PARAMETERS - EZLINK
Voc (Uo) = 5.21V
Isc (Io) = 98.2mA
Po = 127.9mW
Ca (Co) = 60uF
La (Lo) = 43mH



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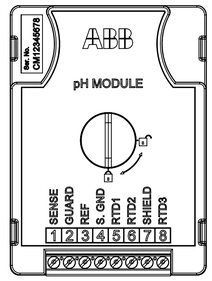
OUTPUT PARAMETERS - 2 ELECTRODE
Voc(Uo) = 11.8V
Isc(Io) = 11.8mA
Po = 36mW
Ca(Co) = 1.5uF
La = 1H



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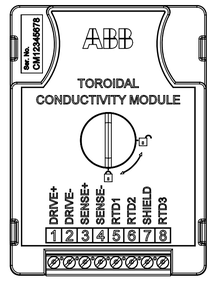
OUTPUT PARAMETERS - pH
Voc(Uo) = 11.8V
Isc(Io) = 11.8mA
Po = 36mW
Ca(Co) = 1.5uF
La = 1H



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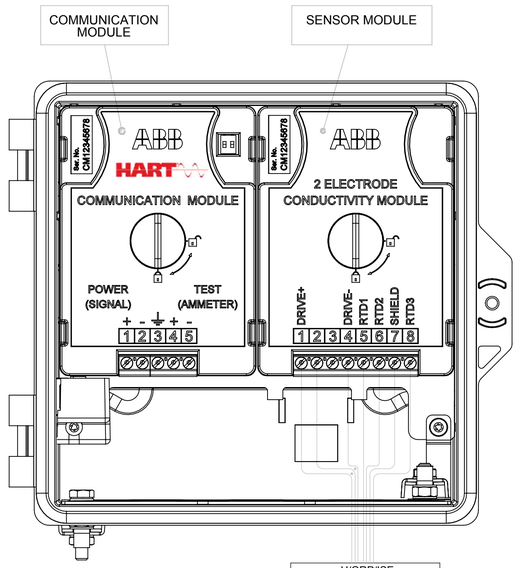
OUTPUT PARAMETERS - TOROIDAL
Voc(Uo) = 11.8V
Isc(Io) = 11.8mA
Po = 36mW
Ca(Co) = 1.5uF
La = 1H



pH/ORP/ISE
OR
Conductivity
OR
Digital/EZLink
SENSOR
(As Appropriate)

AWT210 MODULE Ⓐ FOR CONNECTION TO:

1. ABB pH/ORP/ISE SENSOR TYPES
   2867; TB551; TBX551; TB556; TB557; TBX557; TB561;TBX561; TB564; TBX564; TBX567; AP10; AP20; AP30; 765; 766; 500 PRO.
2. OTHER SENSORS CAN BE USED BUT MUST COMPLY WITH ENTITY PARAMETERS.(CONNECTED PER MANUFACTURERS INSTRUCTIONS)
3. SIMPLE APPARATUS; PASSIVE DEVICE THAT DOES NOT CONTAIN ENERGY STORING COMPONENTS AND DOES NOT GENERATE MORE THAN1.5V, 100mA, OR 25mW
4. I.S.DEVICES MUST BE FM APPROVED WITH ENTITY PARAMETERS (CONNECTED PER MANUFACTURERS INSTRUCTIONS)

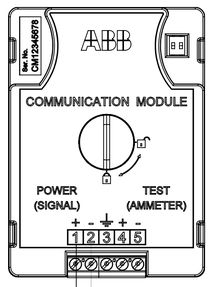
AWT210 MODULE Ⓑ FOR CONNECTION TO:

5. ABB CONDUCTIVITY SENSORS, TYPES;
   2085; AC2; TB254; TB26;TB264; TB27; TB404; TB451;TB456;TB457 TB461; TB464; TB465; TB468; TB47
6. OTHER SENSORS CAN BE USED BUT MUST COMPLY WITH ENTITY PARAMETERS.(CONNECTED PER MANUFACTURERS INSTRUCTIONS)

AWT210 MODULE Ⓒ FOR CONNECTION TO:

7. ABB DIGITAL/EZLINK SENSORS, TYPES;
   500 PRO-D.
8. OTHER SENSORS CAN BE USED BUT MUST COMPLY WITH ENTITY PARAMETERS.(CONNECTED PER MANUFACTURERS INSTRUCTIONS)

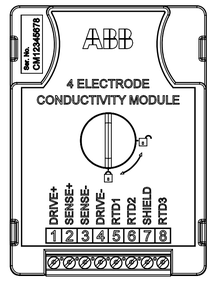
COMMUNICATIONS MODULES
HART
Fieldbus (Linear)
Profibus (Linear)



HART
INPUT PARAMETERS:
TERMINALS 1 & 2
Vmax (Ui) = 30V
Imax(Ii) = 100mA [X]
Imax(Ii) = 152mA [Y]
Pi = 0.8W
Ci = 0.56nF
Li = 3.3mH

Fieldbus
INPUT PARAMETERS:
TERMINALS 1 & 2
Vmax (Ui) = 24V
Imax(Ii) = 174mA [X]
Imax(Ii) = 250mA [Y]
Pi = 1.2W
Ci = 1.1nF
Li = 0mH

Profibus
INPUT PARAMETERS:
TERMINALS 1 & 2
Vmax (Ui) = 24V
Imax(Ii) = 174mA [X]
Imax(Ii) = 250mA [Y]
Pi = 1.2W
Ci = 1.1nF
Li = 0mH



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OUTPUT PARAMETERS - 4 ELECTRODE
Voc(Uo) = 11.8V
Isc(Io) = 11.8mA
Po = 36mW
Ca(Co) = 1.5uF
La = 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
FINISH
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SCALE
DIMS. IN mm
TOLERANCES
LINEAR DIMS
X = ± 0.5
X.X = ± 0.1
ANGULAR DIMS
±0.5°
UNLESS OTHERWISE STATED

	AMENDMENTS	MOD No	DRAWN	CH'KD	D & D	M.E.D.	DATE
H	Connection notes changed to include sensor types		CEH				21/01/19
G	Output parameters added for each sensor module		CEH				12/11/18
F	SENSOR MODULE OPTIONS ADDED		CEH				30-05-18
L	EZLink Module Option Added (Parameters updated & module/sensor connectivity identified)	CR2003015	SME				200421
K	FF & PA Module options added with FISCO parameters		CEH				26/03/19
J	500 PRO & 500 PRO HT added		CEH				08/02/19

TITLE: AWT210 cFMus INTRINSIC SAFETY CONTROL DRAWING (USA)

DRAWING No. AWT200030

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