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Revision Information
1. Introduction

This manual provides the basic guidelines for explosion protection type of ADMAG TI (Total Insight) Series AXG magnetic flowmeters. For the items which are not covered in this manual, read the applicable user’s manuals and general specifications as listed in IM 01E21A21-01Z1 (Read Me First). These documents can be downloaded from the website of YOKOGAWA. To ensure correct use of the product, read these manuals thoroughly and fully understand how to operate the product before maintaining it. For method of checking the model and specifications, read the applicable general specifications in IM 01E21A21-01Z1 (Read Me First).

Website address: http://www.yokogawa.com/fld/doc/
These manuals can be downloaded from the website of YOKOGAWA or purchased from the YOKOGAWA representatives.

NOTE

When describing the model name like “AXG###” in this manual, “###” means any of the following:
For AXG###:
  002, 005, 010, 015, 025, 032, 040, 050, 065, 080, 100, 125, 150, 200, 250, 300, 350, 400

Precautions Related to the Protection, Safety, and Alteration of the Product

The following safety symbol marks are used in this manual and product.

WARNING

A WARNING sign denotes a hazard. It calls attention to procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in injury or death of personnel.

CAUTION

A CAUTION sign denotes a hazard. It calls attention to procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or the entire product.

IMPORTANT

An IMPORTANT sign denotes that attention is required to avoid damage to the product or system failure.

NOTE

A NOTE sign denotes information necessary for essential understanding of operation and features.

The following symbols are used in the product and the manual to indicate the accompanying safety precautions:

- Protective grounding terminal
- Functional grounding terminal (This terminal should not be used as a protective grounding terminal.)
- Alternating current
- Direct current
- Caution

This symbol indicates that the operator must refer to an explanation in the user’s manual in order to avoid the risk of injury or death of personnel or damage to the product.

- For the protection and safe use of the product and the system in which this product is incorporated, be sure to follow the instructions and precautions on safety that is stated in user's manual as listed in IM 01E21A21-01Z1 (Read Me First) whenever you handle the product. Take special note that if you handle the product in a manner that violated these instructions, the protection functionality of the product may be damaged or impaired. In such cases, YOKOGAWA does not guarantee the quality, performance, function, and safety of product.
- Do not modify this product.
- The product should be disposed of in accordance with local and national legislation/ regulations.

IM 01E21A03-05EN
<1. Introduction>

**Regarding This User's Manual**
- This manual should be provided to the end user.
- The contents of this manual are subject to change without prior notice.
- All rights reserved. No part of this manual may be reproduced in any form without YOKOGAWA's written permission.
- YOKOGAWA makes no warranty of any kind with regard to this manual, including, but not limited to, implied warranty of merchantability and fitness for a particular purpose.
- If any question arises or errors are found, or if any information is missing from this manual, inform the nearest YOKOGAWA sales office.
- The specifications covered by this manual are limited to those for the standard type under the specified model number break-down and do not cover custom-made products.
- Note that changes in the specifications, construction, or component parts of the product may not immediately be reflected in this manual at the time of change, provided that postponement of revisions will not cause difficulty to the user from a functional or performance standpoint.
- This manual is intended for the following personnel:
  - Engineers responsible for installation and wiring of the instrument.
- To ensure correct use, read this manual and the applicable user's manuals as listed in IM 01E21A21-01Z1 (Read Me First) thoroughly before starting operation. Read the general specifications as listed in IM 01E21A21-01Z1 (Read Me First) for its specification.

**Trademark**
- All the brands or names of Yokogawa Electric's products used in this manual are either trademarks or registered trademarks of Yokogawa Electric Corporation.
- All other company and product names mentioned in this manual are trade names, trademarks or registered trademarks of their respective companies.
- In this manual, trademarks or registered trademarks are not marked with ™ or ®.

**For Safe Use of Product**
For the protection and safe use of the product and the system in which this product is incorporated, be sure to follow the instructions and precautions on safety that is stated in user's manual as listed in IM 01E21A21-01Z1 (Read Me First) whenever you handle the product. Take special note that if you handle the product in a manner that violated these instructions, the protection functionality of the product may be damaged or impaired. In such cases, YOKOGAWA shall not be liable for any indirect or consequential loss incurred by either using or not being able to use the product.
2. Explosion Protection Type

**WARNING**
AXG### magnetic flowmeter (Integral Flowmeter or Remote Sensor), and AXG4A Remote Transmitter are products which have been certified as explosion protection type products. Strict limitations are applied to the structures, installation locations, external wiring work, maintenance and repairs, etc. of these products. Sufficient care must be taken, as any violation of the limitations may cause dangerous situations. Be sure to read this manual before handling the explosion protection type products.

**WARNING**
The terminal box cover and display cover are locked by special screw. In the case of opening the cover, use the hexagonal wrench (nominal size 3). The covers of explosion protection type products are locked. Use this hexagonal wrench to open and close the cover. Before opening the cover, be sure to check that the power of flowmeter has been turned off. Once the cover is closed, be sure to re-lock the product. Be sure to lock the cover with the special screw using the hexagonal wrench after tightening the cover.

2.1 Technical Data

**Applicable Standard:**
CAN/CSA-C22.2 No. 0, CAN/CSA-C22.2 No. 0.4, C22.2 No. 0.5, C22.2 No. 25, C22.2 No. 30, C22.2 No. 94.2, CAN/CSA-C22.2 No. 61010-1, CAN/CSA-C22.2 No. 61010-2-030, C22.2 No. 60079-0, CAN/CSA-C22.2 No. 60079-7, CAN/CSA-C22.2 No. 60079-11, CAN/CSA-C22.2 No. 60079-18, ANSI/ISA-12.27.01

**Certificate:**
FM 17CA0076X

**Integral Flowmeter Explosionproof**
(Explosion Protection Code: CF2)
- Type of Protection:
  - CL I/II/III GP BCDEFG
  - IS CL I GP ABCD
  - T6...T3
- Enclosure: Type 4X
- Ambient Temperature:
  - See Table 2.1 and Table 2.2.
- Process Temperature:
  - See Table 2.1 and Table 2.2.
- Power Supply:
  - 100 to 240 Va.c. (50/60 Hz) / 100 to 120 Vd.c. 24 Va.c. (50/60 Hz) / 24 Vd.c.
  - Um: 250 V
- Current I/O: 4 to 20 mA, 32 Vd.c. max.
- Digital I/O: 30 Vd.c. max., 200 mA max.
- Fieldbus I/O: 32 Vd.c. max., 15 mA max.
- Maximum Working Pressure:
  - Read “Fluid Temperature and Pressure”
- Process Sealing: Dual seal
<2. Explosion Protection Type>

**Explosionproof with Output IS Circuit**
(Explosion Protection Code: CJ2 and CT2)

- Type of Protection:
  - CL I/II/III GP BCDEFG
  - IS CL I GP ABCD
  - AIS CL I/II/III GP ABCDEFG
  - T6...T3
- Enclosure: Type 4X
- Ambient Temperature:
  - See Table 2.1 and Table 2.2.
- Process Temperature:
  - See Table 2.1 and Table 2.2.
- Power Supply:
  - 100 to 240 Va.c. (50/60 Hz) / 100 to 120 Vd.c.
  - 24 Va.c. (50/60 Hz) / 24 Vd.c.
- Um: 250 V
- Control Drawing: DIE016-A93
- Maximum Working Pressure:
  - Read “Fluid Temperature and Pressure”
- Process Sealing: Dual seal

**Remote Sensor**

**Explosionproof**
(Explosion Protection Code: CF2)

- Type of Protection:
  - CL I/II/III GP BCDEFG
  - IS CL I GP ABCD
  - T6...T3
- Enclosure: Type 4X
- Ambient Temperature:
  - See Table 2.1 and Table 2.2.
- Process Temperature:
  - See Table 2.1 and Table 2.2.
- Um: 250 V
- Control Drawing: DIE016-A93

**Explosionproof with Output IS Circuit**
(Explosion Protection Code: CJ2 and CT2)

- Type of Protection:
  - CL I/II/III GP ABCDEFG
  - AIS CL I/II/III GP ABCDEFG
- Power Supply:
  - 100 to 240 Va.c. (50/60 Hz) / 100 to 120 Vd.c.
  - 24 Va.c. (50/60 Hz) / 24 Vd.c.
- Current I/O: 4 to 20 mA, 32 Vd.c. max.
- Digital I/O: 30 Vd.c. max., 200 mA max.
- Fieldbus I/O: 32 Vd.c. max., 15 mA max.
- Control Drawing: DIE016-A93

**Remote Transmitter**

**Explosionproof**
(Explosion Protection Code: CF2)

- Type of Protection:
  - CL I/II/III GP ABCDEFG
- Enclosure: Type 4X
- Ambient Temperature: –40°C to +60°C
- Temperature class: T6
- Power Supply:
  - 100 to 240 Va.c. (50/60 Hz) / 100 to 120 Vd.c.
  - 24 Va.c. (50/60 Hz) / 24 Vd.c.
- Current I/O: 4 to 20 mA, 32 Vd.c. max.
- Control Drawing: DIE016-A93
### Table 2.1  Temperature Ratings

<table>
<thead>
<tr>
<th>Model</th>
<th>Size</th>
<th>Connection</th>
<th>Lining</th>
<th>Temperature Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXG002, AXG005, AXG010, AXG015</td>
<td>2.5 to 15 mm (0.1 to 0.5 in.)</td>
<td>Wafer, Flange</td>
<td>PFA Lining</td>
<td>Table A, Table C</td>
</tr>
<tr>
<td>AXG025, AXG032, AXG040, AXG050, AXG065, AXG080, AXG100, AXG125</td>
<td>25 to 125 mm (1 to 5 in.)</td>
<td>Wafer, Flange</td>
<td>PFA Lining</td>
<td>Table B, Table D</td>
</tr>
<tr>
<td>AXG150, AXG200, AXG250, AXG300, AXG350, AXG400</td>
<td>150 to 400 mm (6 to 16 in.)</td>
<td>Wafer, Flange</td>
<td>PFA Lining</td>
<td>Table A, Table C</td>
</tr>
<tr>
<td>AXG015, AXG025, AXG032, AXG040, AXG050, AXG065, AXG080, AXG100, AXG125</td>
<td>15 to 125 mm (0.5 to 5 in.)</td>
<td>Clamp, Union, Butt Weld Joint</td>
<td>PFA Lining</td>
<td>Table E, Table F</td>
</tr>
</tbody>
</table>

### Table 2.2  Ambient Temperature and Process Temperature

<table>
<thead>
<tr>
<th>Table No.</th>
<th>Ambient Temperature</th>
<th>Temperature Class</th>
<th>Maximum Surface Temperature</th>
<th>Process Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-40°C to +60°C</td>
<td>T6</td>
<td>T75°C</td>
<td>-40°C to +75°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T5</td>
<td>T90°C</td>
<td>-40°C to +90°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T4</td>
<td>T120°C</td>
<td>-40°C to +120°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T3</td>
<td>T130°C</td>
<td>-40°C to +130°C</td>
</tr>
<tr>
<td>B</td>
<td>-40°C to +45°C</td>
<td>T6</td>
<td>T75°C</td>
<td>-40°C to +50°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T5</td>
<td>T90°C</td>
<td>-40°C to +75°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T4</td>
<td>T120°C</td>
<td>-40°C to +120°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T3</td>
<td>T130°C</td>
<td>-40°C to +130°C</td>
</tr>
<tr>
<td>C</td>
<td>-40°C to +60°C</td>
<td>T6</td>
<td>T75°C</td>
<td>-40°C to +75°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T5</td>
<td>T90°C</td>
<td>-40°C to +90°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T4</td>
<td>T120°C</td>
<td>-40°C to +120°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T3</td>
<td>T150°C</td>
<td>-40°C to +150°C</td>
</tr>
<tr>
<td>D</td>
<td>-40°C to +45°C</td>
<td>T6</td>
<td>T75°C</td>
<td>-40°C to +50°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T5</td>
<td>T90°C</td>
<td>-40°C to +75°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T4</td>
<td>T120°C</td>
<td>-40°C to +120°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T3</td>
<td>T150°C</td>
<td>-40°C to +150°C</td>
</tr>
<tr>
<td>E</td>
<td>-10°C to +45°C</td>
<td>T6</td>
<td>T75°C</td>
<td>-10°C to +50°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T5</td>
<td>T90°C</td>
<td>-10°C to +75°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T4</td>
<td>T120°C</td>
<td>-10°C to +120°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T3</td>
<td>T130°C</td>
<td>-10°C to +130°C</td>
</tr>
<tr>
<td>F</td>
<td>-10°C to +45°C</td>
<td>T6</td>
<td>T75°C</td>
<td>-10°C to +50°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T5</td>
<td>T90°C</td>
<td>-10°C to +75°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T4</td>
<td>T120°C</td>
<td>-10°C to +120°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T3</td>
<td>T150°C</td>
<td>-10°C to +150°C</td>
</tr>
</tbody>
</table>
Fluid Temperature and Pressure:
The figure shows the usable range of the sensor in each specification. It is also limited by the flange pressure rating of the process connection.

**AXG###**

PFA Lining, Remote Sensor (excluding high pressure type (ASME Class 600 flange) and Hygienic Use)
- 2.5 to 50 mm (0.1 to 2 in.) (flange type, wafer type)
- 65 to 200 mm (2.5 to 8 in.) (flange type, wafer type)
- 250 to 300 mm (10 to 12 in.) (flange type)

Pressure

<table>
<thead>
<tr>
<th>MPa (psi)</th>
<th>°C (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 (580)</td>
<td>130 (266)</td>
</tr>
<tr>
<td>2 (290)</td>
<td>100 (212)</td>
</tr>
<tr>
<td>1 (145)</td>
<td>65 (149)</td>
</tr>
<tr>
<td>-0.1 (-14.5)</td>
<td>-10 (-14)</td>
</tr>
</tbody>
</table>

Temperature °C (°F)

---

**2.2 Cable Entry**

The type of cable entry is stamped near the cable entry port according to the following codes.

<table>
<thead>
<tr>
<th>Marking</th>
<th>Screw Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>ASME 1/2 NPT Female</td>
</tr>
</tbody>
</table>

(1) Integral Flowmeter

(2) Remote Sensor

(3) Remote Transmitter

*1: For wafer types of 150 to 200 mm (6 to 8 in.) or carbon steel flange types (process connection code: C###) of 50 to 400 mm (2 to 16 in.), the minimum temperature is -10°C (14°F).

PFA Lining, Hygienic Use (Remote Sensor and Integral Flowmeter)

Pressure

<table>
<thead>
<tr>
<th>MPa (psi)</th>
<th>°C (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (145)</td>
<td>150 (302)</td>
</tr>
<tr>
<td>0 (32)</td>
<td>-10 (-14)</td>
</tr>
</tbody>
</table>

Temperature °C (°F)
2.3 Installation

- All wiring shall comply with C22.1 and local electric codes and requirements.
- Unused apertures shall be closed with suitable certified blanking elements.
  (The plug attached is certified.)
- The sensor is not surrounded by pipe insulation material.
- In order to prevent the grounding conductor from loosening, the conductor must be secured to the terminal, tightening the screw with appropriate torque. Care must be taken not to twist the conductor.
- Warning: In cases where the ambient temperature exceeds 50°C, use external heat resistant wiring with a maximum allowable temperature of 70°C or above.
- For IS Output type, refer to DIE016-A93 (Control Drawing)

The grounding terminals are located on the inside and outside of the terminal area.
Connect the cable to the grounding terminal in accordance with wiring procedure (a) or (b).

(a) Internal grounding terminal
(b) External grounding terminal

(1) Integral Flowmeter

(2) Remote Sensor

(3) Remote Transmitter
Read the Control Drawing.
All wiring shall comply with local installation requirements.

**Integral Type Flowmeter (Explosion Protection Code: CJ2)**

<table>
<thead>
<tr>
<th>Title</th>
<th>Yokogawa Electric Corporation</th>
<th>Model</th>
<th>AXG / AXW Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>DIE016-A93</td>
<td>Page</td>
<td>01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Revision</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Date</td>
<td>2018-11-20</td>
</tr>
</tbody>
</table>

Hazardous Location
- Class I, Division 1, Groups B, C and D
- Class II, Division 1, Groups E, F and G
- Class III, Division 1
- Zone 1, Group IIB + H₂
- Zone 21, Group IIIC

Non-hazardous Location

---

**ADMAG Model**

**AXG / AXW Series**

**Flowmeter**

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/+, N/-</td>
<td>Um: 250 V</td>
</tr>
<tr>
<td>Iout1(+, -)</td>
<td>U1: 30 V</td>
</tr>
<tr>
<td>Iout2(+, -)</td>
<td>I1: 300 mA</td>
</tr>
<tr>
<td></td>
<td>P1: 1.25 W</td>
</tr>
<tr>
<td></td>
<td>Ci: 4.84 nF</td>
</tr>
<tr>
<td></td>
<td>Li: 12 μH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/Sout1(+, -)</td>
<td>U1: 30 V</td>
</tr>
<tr>
<td>P/Sout2(+, -)</td>
<td>I1: 300 mA</td>
</tr>
<tr>
<td></td>
<td>P1: 1.25 W</td>
</tr>
<tr>
<td></td>
<td>Ci: 14.6 nF</td>
</tr>
<tr>
<td></td>
<td>Li: 12 μH</td>
</tr>
</tbody>
</table>

**Notes:**
1. No revision to this drawing without prior approval of FM.
2. Installation must be in accordance with the Canadian Electric Code Part I (C22.1), ANSI/ISA·RP12.06.01, and relevant local codes.
3. AXG/AXW Series Flowmeter must be grounded to an intrinsic safety ground system in accordance with C22.1 and ANSI/ISA·RP12.06.01.
4. Each associated apparatus must be an FM-approved linear source with the following parameters:
   - \( U_0 (U_{0d}) \leq U_1 \)
   - \( I_0 (I_{sc}) \leq I_1 \)
   - \( P_0 \leq P_1 \)
   - \( C_0 (C_a) \geq C_1 + C_{eable} \)
   - \( L_0 (L_a) \geq L_1 + L_{eable} \)
5. Power Supply and control equipment connected to AXG/AXW Series Flowmeter or Associated Apparatus must not use or generate more than Um of the connected equipment.
6. The control drawing of Associated Apparatus must be followed when installing the equipment.
7. Dust-tight conduit seals must be used when installed in Class II or Class III environments.
8. In selecting I/O code: "JT" or "DT", Iout2 and P/Sout2 cannot be used.
9. In selecting I/O code: "JP", "JR", "DP" or "DR", P/Sout2 cannot be used.
10. **WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD**
# Remote Type Flowmeter (Explosion Protection Code: CJ2)

<table>
<thead>
<tr>
<th>Hazardous Location</th>
<th>Hazardous Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I, Division 1, Group B, C and D</td>
<td>Class I, Division 1, Groups A, B, C and D</td>
</tr>
<tr>
<td>Class II, Division 1, Groups E, F and G</td>
<td>Class II, Division 1, Groups E, F and G</td>
</tr>
<tr>
<td>Class III, Division 1, Zone 1, Group IIB + H2</td>
<td>Class III, Division 1, Zone 1, Group IIC</td>
</tr>
<tr>
<td>Zone 21, Group IIC</td>
<td>Zone 21, Group IIC</td>
</tr>
</tbody>
</table>

**ADMAG Model**

**AXG / AXW Series**

Remote sensor

<table>
<thead>
<tr>
<th>EX1</th>
<th>EX2</th>
<th>C</th>
<th>SA</th>
<th>A</th>
<th>B</th>
<th>SB</th>
</tr>
</thead>
</table>

**ADMAG Model**

**AXG / AXW Series**

Remote transmitter

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uo: 250 V</td>
<td>L+/N/-</td>
</tr>
<tr>
<td>Iout1(+, -)</td>
<td>Uo: 30 V</td>
</tr>
<tr>
<td>Iout2(+, -)</td>
<td>li: 300 mA</td>
</tr>
<tr>
<td>Pi: 1.25 W</td>
<td>Ci: 4.84 nF</td>
</tr>
<tr>
<td>Li: 12 μH</td>
<td>Li: 12 μH</td>
</tr>
</tbody>
</table>

Notes:

1. No revision to this drawing without prior approval of FM.
2. Installation must be in accordance with the Canadian Electric Code Part I (C22.1), ANSI/ISA RP12.06.01, and relevant local codes.
3. AXG/AXW Series Remote Sensor and Transmitter must be grounded to an intrinsic safety ground system in accordance with C22.1 and ANSI/ISA RP12.06.01.
4. Each associated apparatus must be an FM-approved linear source with the following parameters

   \[ U_o \leq U_i \]
   \[ I_o \leq I_i \]
   \[ P_o \leq P_i \]
   \[ C_o \geq C_i + C_{able} \]
   \[ L_o \geq L_i + L_{able} \]

5. Power Supply and control equipment connected to AXG/AXW Series Remote Transmitter or Associated Apparatus must not use or generate more than Um of the connected equipment.
6. The control drawing of Associated Apparatus must be followed when installing the equipment.
7. Dust-tight conduit seals must be used when installed in Class II or Class III environments.
8. In selecting I/O code: “JT” or “DT”, Iout2 and P/Sout2 cannot be used.
10. **WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD**

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IM 01E21A03-09EN
**Integral Type Flowmeter (Explosion Protection Code: CT2)**

### Notes:
1. No revision to this drawing without prior approval of FM.
2. Installation must be in accordance with the Canadian Electric Code Part I (C22.1), ANSI/ISA-RP12.06.01, and relevant local codes.
3. AXG/AXW Series Flowmeter must be grounded to an intrinsic safety ground system in accordance with C22.1 and ANSI/ISA-RP12.06.01.
4. FISCO installation must be in accordance with CAN/CSA-C22.2 No.60079-25.
5. The associated apparatus must be an FM-approved FISCO power supply or source.
6. The associated apparatus must be an FM-approved linear source.
7. The following parameters must be satisfied for each circuit.
   - \( U_0 \leq \frac{U_{oc}}{U} \)
   - \( I_0 \leq \frac{I_i}{I} \)
   - \( P_0 \leq P_i \)
   - \( C_0 \geq C_i + C_{cable} \)
   - \( L_0 \geq L_i + L_{cable} \)

8. Power Supply and control equipment connected to AXG/AXW Series Flowmeter or Associated Apparatus must not use or generate more than \( U_m \) of the connected equipment.

9. The control drawing of Associated Apparatus must be followed when installing the equipment.
10. Dust-tight conduit seals must be used when installed in Class II or Class III environments.

11. WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD
<2. Explosion Protection Type>

- **Remote Type Flowmeter (Explosion Protection Code: CT2)**

<table>
<thead>
<tr>
<th>Yokogawa Electric Corporation</th>
<th>AXG / AXW Series</th>
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<tr>
<td><strong>Title</strong></td>
<td><strong>Model</strong></td>
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<td>Control drawing (Canada)</td>
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Hazardous Location
- Class I, Division 1
- Groups A, B, C, D
- Class II, Division 1
- Groups A, B, C, E, F, G
- Class III, Division 1
- Zone 1, Group IIC
- Zone 21, Group IIC
- Remote Type Flowmeter (Explosion Protection Code: CT2)

Non-hazardous Location
- Terminators
- Apparatus
- (Note 5, 7)
- Power Supply
- Associated Apparatus

ADMAG Model
- AXG / AXW Series
- Remote sensor

EX1
- L/+, N/−

EX2
- Fieldbus (+, −)

C
- FISCO field device or entity
- Ue: 30 V
- Ie: 880 nA
- P: 5.32 W
- C: 5 nF
- Li: 10 μH

A
- P/Sout1
- (+, −)
- Ue: 30 V
- Ie: 300 nA
- P: 1.25 W
- C: 14.6 μF
- Li: 12 μH

B
- L/+, N/−

SB
- (Note 3)

Notes:
1. No revision to this drawing without prior approval of FM.
2. Installation must be in accordance with the Canadian Electric Code Part I (C22.1), ANSI/ISA-RP12.06.01, and relevant local codes.
3. AXG/AXW Series Remote Sensor and Transmitter must be grounded to an intrinsic safety ground system in accordance with C22.1 and ANSI/ISA-RP12.06.01.
4. FISCO installation must be in accordance with CAN/CSA-C22.2 No. 60079-25.
5. The associated apparatus must be an FM-approved FISCO power supply or linear source.
6. The associated apparatus must be an FM-approved linear source.
7. The following parameters must be satisfied for each circuit:
   - Uo (Uoc) ≤ Ui
   - Io (Ioc) ≤ Ie
   - Po ≤ Pi
   - Co (Ca) ≥ Ci + Ccable
   - Lo (La) ≥ Li + Lcable
8. Power Supply and control equipment connected to AXG/AXW Series Remote Transmitter or Associated Apparatus must not use or generate more than Um of the connected equipment.
9. The control drawing of Associated Apparatus must be followed when installing the equipment.
10. Dust-tight conduit seals must be used when installed in Class II or Class III environments.
11. WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD

(Note 3)
F0213.ai

IM D1E21A03-05EN
2.4 Operation

• Take care not to generate mechanical spark when access to the product and peripheral devices in hazardous locations.
• Take care the following warning marking when the opening the cover.

Integral Flowmeter, Remote Transmitter

• Take care the following warning marking.
  "AFTER DE-ENERGIZING, DELAY 20 MINUTES BEFORE OPENING"
  "APRÈS MISE HORS TENSION, ATTENDRE 20 MINUTES AVANT L'OUVERTURE"

Remote Sensor

• Take care the following warning marking.
  "OPEN CIRCUIT BEFORE REMOVING COVER"
  "OUVRIR LE CIRCUIT AVANT D'ENLEVER LE COUVERCLE"

2.5 Maintenance and Repair

Only personnel authorized by Yokogawa Electric Corporation can repair the equipment.

2.6 Specific Condition of Use

• In the case the electrodes and/or grounding rings are made of titanium, the sensor should be kept away from impacts and frictions in hazardous locations.
• Electrostatic charges on the non-metallic parts (excluding glass parts) or coated parts of the product shall be avoided.
• The applicable temperature class, ambient temperature range and process temperature range of the product are shown in Table 2.1 and Table 2.2.
• From the safety point of view the intrinsically safe circuit of product shall be assumed to be connected to ground.
• The product shall be installed as over-voltage category II.
• Remote sensor, for connection to a Remote Transmitter authorized by Yokogawa Electric Corporation.

2.7 Primary Seal Failure Annunciation

For the purpose of failure annunciation, the process fluid must be conductive.
If the Primary Seal fails, a significant change of impedance occurs between the electrodes and the housing.
This is detected as:
- significant decrease of the flow rate output signal when the process fluid is flowing; or
- unusual fluctuation of the flow rate output signal when the process fluid is not flowing.
Revision Information

- **Title**: ADMAG TI Series
  AXG Magnetic Flowmeter FM (Canada) Explosion Protection Type
- **Manual No.**: IM 01E21A03-09EN

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