Instruction

MI 020-540
February 2016

Enterprise Control System Series Component Transmitters Safety Information

Models IDP15D, IDP31D, IDP32D, and IGP60G

Foxboro®

by Schneider Electric

Contents

Preface

Introduction

Correct installation and periodic maintenance are essential to the safe use of your pressure transmitters.

Read the safety instructions provided in this manual carefully and understand them fully before starting installation, operation, and maintenance work.

Inspection

On delivery, make sure that the specifications are correct and check for any damage that may have occurred during transportation. This equipment was tested under a strict quality control program before shipment. If you find any problem in the quality specifications, please contact Global Customer Support immediately, providing the model name and serial number.

The name plate is mounted on the neck of the enclosure.

Precautions

The following symbols are used in this manual to ensure user safety.

⚠ WARNING

This symbol is used to warn of hazards where failure to observe a safety instruction may result in death or serious injury.

⚠ CAUTION

This symbol is used to warn of hazards where failure to observe a safety instruction may result in injury or physical damage.

To ensure safe operation, be sure to observe the safety instructions provided in this document.

No guarantee is offered for any failure resulting from violation of these safety instructions.

1. Introduction

⚠ WARNING

Follow the instructions and procedures in this manual when the transmitter is used in SIS (Safety Instrumented Systems). The following section applies to safety transmitters (Option Q1) of the Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter.

Application

Pressure measurements that shall meet the safety requirements according to IEC61508.

Safety Related Characteristics

Safety Integrity Level

The Models IDP15D, IDP31D, IDP32D, and IGP60G Enterprise Control Series transmitters can be used up to SIL2 application as in single use or SIL3 application as in dual use.

Start-Up

The safety output signal will be effective within 2 seconds after the start-up.

Safety Accuracyl

The safety accuracy is ±% or ±4% depending on models used.

Diagnostics Time

The failures of the Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter can be detected within 5 minutes after they occur. The burnout signal can be output within 5 seconds after detecting the internal faults.

Item	Specification
Mode of operation	Low demand mode
SIL	SIL2 (in single use)
Device type	Type B
HFT	0 (in single use)

Safety Functions

Safety-Relevant Signal

The safety relevant signal of the Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter is the analog output signal 4 to 20 mA. All safety functions refer to this analog output. The contact output or the digital output signal is not the safety relevant signal.

Normal Output

The analog current signal in the normal operating range of 3.6 to 21.6 mA including normal over range and under range is output.

Burnout Output

The output will be driven to the Hi/Lo limit according to the setting.

In the following cases, the output will be driven to LO limit regardless of the burnout direction setting.

- Watchdog timer reset
- Internal voltage fault
- Readback error

After the detection of internal faults, the Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter drives the signal to the fail alarm current of less than 3.6 mA or greater than 21.6 mA.

In case of NE-43 option, after the detection of the internal faults, the Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter drives the signal to the fail alarm current equal to 3.6 mA or equal to 21.0 mA.

Non-Safety Compliant Activities

The transmitter output is not safety-compliant during the following activities

- Configuration modifications
- Multidrop
- Simulation
- Test of the safety function

During transmitter configuration and maintenance work on the Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter, alternative measures must be taken to guarantee process safety.

Settings

Safety-Relevant Signal

Before you start using the Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter after installation, the following parameters must be set.

- Burnout direction
- Write protect switch[1]

Maintenance and Repair

Maintenance and repair shall be performed by a skilled and knowledgeable engineer.

Terms and Abbreviations

SIS: Safety Instrumented Systems

SIL: Safety Integrity Level

HFT: Hardware Fault Tolerance

PFD: Probability of Failure on Demand

PLC: Programmable Logic Controller

B/O: Burnout (It means fail alarm status)

DU: Dangerous Undetected

Proof Test

The procedure of the proof test is shown below. The test will cover 59% of possible DU failures.

1. Bypass PLC or take other appropriate action to avoid a false trip.
2. Use the communicator to retrieve any diagnostics and take appropriate action.
3. Use the communicator to change the mode to B/O simulation mode.
4. Verify the output signal of B/O Hi.
5. Verify the output signal of B/O Lo.
6. Return to normal operation
7. Remove the bypass from the PLC.

   The following would be added to the above test. The tests including the following will cover 99% of possible DU failures.
8. Apply pressure to verify the output at 0%, 20%, 40%, 60%, 80%, and 100%.

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1. The communicator shall not be used during the normal operation when the Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter is used in SIS as a safety transmitter.

2. Precautions

General Precautions

Checking the Product

When you accept the Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter, check its appearance to make sure that it is not damaged.

Checking the Specifications

The specifications are marked on the name plate on the outside of the transmitter case. Make sure that the specifications match your order by referring to the specifications.

In making an inquiry, identify the model number and the product number.

Transportation

We recommend to transport the transmitter to the installation site in the packaged state in order to prevent damages from occurring during transportation.

Storage Environment

1. Storage location

   During storage, protect the transmitter from rain water as well as from heavy vibration and shock. Store it at normal temperature and humidity (about 25°C, 65%RH) as much as possible.

2. Store the transmitter in original packaging if possible.
3. If a used transmitter must be stored for some period, wash it thoroughly after making sure that no fluid remains in the pressure receiving section.

Installation Environment

In order to maintain the original performance and reliability for a long time, install the transmitter in the following environment:

1. Ambient temperature:
   - The temperature gradient and temperature changes in installation environment should be as small as possible.
   - If a transmitter is exposed to heat radiated from the process side, lower its ambient temperature as much as possible by insulating it or by selecting a well-ventilated location for installation.
   - If a process fluid can freeze, prevent freezing by means of heat insulation.

2. Environment:
   - Pollution degree: 2
   - Avoid corrosive environments as much as possible.
   - Install in explosion proof and intrinsically safe conditions.
3. Shock and vibration:
   - Install the transmitter where shocks and vibrations will be as small as possible.

Application of Pressure to Transmitter

In applying pressure to this transmitter, observe the following rules.

1. The locking bolts of the adapter flange are loose when shipped. Tighten them to the specified torque.
2. Do not apply a pressure that exceeds the specified level.
3. Do not tighten or loosen bolts while pressure is being applied to the transmitter.

Electronic Parts

1. This transmitter has several CMOS electronic components. Since static electricity can easily cause the functional destruction of a CMOS component, never directly touch them or touch a circuit with your hands.
2. Is components must be touched, equalize the potential of the components before doing so.
3. When the printed wiring board (PWB) is removed, place it in a non-conductive bag for protection.

PED Conformity (97/23EC)

The maximum pressures applicable under the Sound Engineering Practice (SEP) section of the Pressure Equipment Directive depend on the type of fluid measured, as shown in the table below.

Measured Fluid	Group (a)	Pressure	Applicable Models
Gas	1	200 bar (20 MPa)	All models except IDP32D
	2	1,000 bar (100 MPa)	All models
Liquid	1	500 bar (50 MPa)	All models
	2	1,000 bar (100 MPa)	All models

a. Group 1 comprises fluids defines as: explosive, extremely flammable, highly flammable, flammable, very toxic, toxic and oxidizing.
Group 2 comprises all other fluids not refer to group 1.

Any Model IDP15D, IDP31D, IDP32D, or IGP60G Enterprise Control Series transmitter having a maximum working pressure that is higher than the pressure corresponding to its group does not conform to SEP.

The IDP32D transmitter conforms to PED according to Module A.

3. Explosion Protected Models

FM Intrinsically Safe, Nonincendive and Suitable Approvals

Rating Information

Intrinsically Safe

Intrinsically Safe for use in Class I, Division 1, Groups A, B, C and D; Class II, Division 1, Groups E, F and G; Class III, Division 1; Class I, Zone 0, AEx ia IIC; T4 -40°C ≤ Tamb ≤ +60°C

Hazardous (Classified) Locations; Indoor/Outdoor Enclosure TYPE 4X, IP67;

For entity parameters see "FM Intrinsically Safe Approval Criteria" on page 18 (control drawings 80395817, 80395818, and 80395819).

Nonincendive and Suitable

Nonincendive, with Nonincendive Field Wiring Parameters, for use in Class I, Division 2, Groups A, B, C and D, T4; Class I, Zone 2, Group IIC, T4; Suitable for Class II & III, Division 2, Groups E, F and G, T4; -40°C ≤ Tamb ≤ +60°C; Hazardous (Classified) Locations;

Indoor/Outdoor Enclosure TYPE 4X, IP67;

For Nonincendive Field Wiring parameters see "FM Nonincendive Approval Criteria" on page 21 (control drawing 80395820).

Applicable Standards

- FM Class 3600:1998 Electrical Equipment for Use in Hazardous (Classified) Locations - General Requirements
- FM Class 3610:2007 Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II & III, Division 1, Hazardous (Classified) Locations
- FM Class 3611:2004 Nonincendive Electrical Equipment for Use in Class I & II, Division 2, and Class III, Divisions 1 & 2, Hazardous (Classified) Locations
- FM Class 3810:2005 Electrical Equipment for Measurement, Control and Laboratory Use
- ANSI/ISA-12.00.01(IEC 60079-0 Mod):1999 Electrical Apparatus for Use in Class I, Zones 0, 1 & 2 Hazardous (Classified) Locations - Part 0: General Requirements
- ANSI/ISA-12.02.01(IEC 60079-11 Mod):2002 Electrical Apparatus for Use in Class I, Zones 0, 1 & 2 Hazardous (Classified) Locations - Part 11: Intrinsic Safety “i”
- ANSI/ISA-82.02.01(IEC 61010-1 Mod):2004 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
- ANSI/IEC 60529:2004 Degrees of Protection Provided by Enclosures (IP Code)
- ANSI/NEMA 250:1991 Enclosures for Electrical Equipment (1,000 Volts Maximum)

Instruction for Safe Use

- Installations shall comply with the relevant requirements of the National Electrical Code® (ANSI/NFPA 70).
- Installations shall comply with the latest edition of the manufacturer's instruction manual.

  IS models shall be installed in accordance with “FM Intrinsically Safe Approval Criteria” on page 18 (control drawings 80395817, 80395818, and 80395819), and NI models shall be installed in accordance with “FM Nonincendive Approval Criteria” on page 21 (control drawing 80395820).
- The intrinsically safe associated apparatus must be FM Approvals approved.
- Control room equipment connected to the associated apparatus should not use or generate more than 250 Vrms or Vdc.
- See ANSI/ISA RP12.06.01, Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations, for guidance on the installation of intrinsically safe apparatus and systems.
- Tampering and replacement with non-factory components may adversely affect the safe use of the system.
- Insertion or withdrawal of removable electrical connectors is to be accomplished only when the area is known to be free of flammable vapors.

- For ambient temperatures below -10°C (+14°F) and above +60°C (+140°F) use field wiring suitable for both minimum and maximum ambient temperatures.
- Use copper, copper-clad aluminum or aluminum conductors only.
- The recommended tightening torque for field wiring terminals is 0.8 N·m (7 in.·lb) or greater, as specified.
- A dust-tight conduit seal shall be used when installed in Class II & III environments.

⚠ WARNING

SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

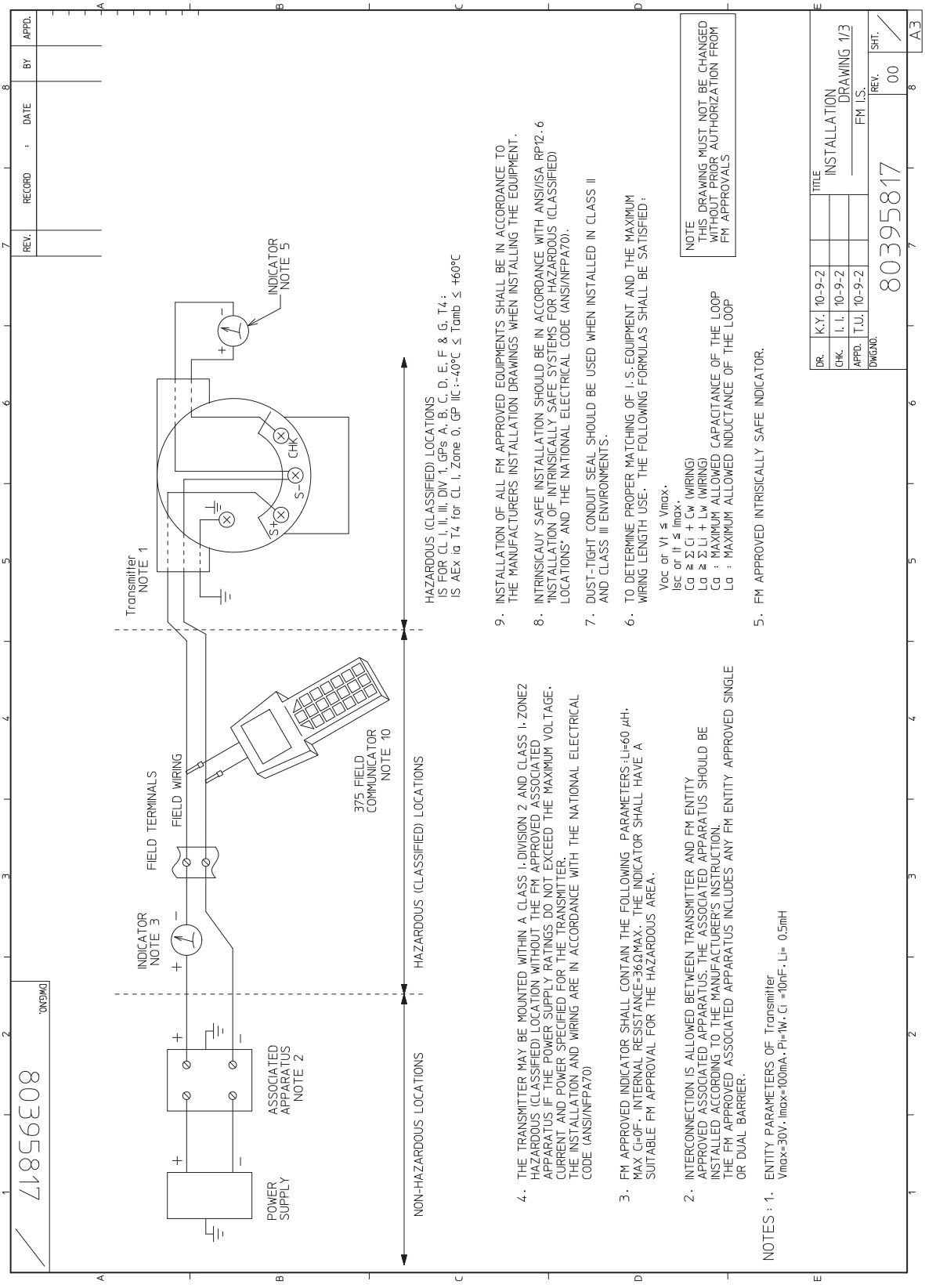
⚠ WARNING

SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR DIVISIONS 1 & 2 AND ZONES 0, 1 & 2.

⚠ WARNING

DO NOT DISCONNECT EQUIPMENT UNLESS AREA IS KNOWN TO BE NONHAZARDOUS FOR CONNECTION ONLY TO NON-FLAMMABLE PROCESSES.

FM Intrinsically Safe Approval Criteria



DWG.NO.	
80395818	

REV.	RECORD : DATE	BY	APPD.

NOTES :

10. THE FM APPROVED 375 FIELD COMMUNICATOR MAY BE CONNECTED AT ANY POINT IN THE LOOP BETWEEN THE FM ENTITY APPROVED ASSOCIATED APPARATUS AND THE TRANSMITTER.
EXAMPLE OF ENTITY PARAMETERS OF THE COMMUNICATOR:
Vmax.=30V, Imax.=200mA, Pi=1W
Voc=1.9V, Isc=32 μA
Ci=0, Li=0

THE MAXIMUM ALLOWABLE CONNECTED INDUCTANCE (La) AND CAPACITANCE (Ca) OF THE LOOP MUST BE CONSIDERED WHEN USING THE COMMUNICATOR. (SEE SHEETS 3)

11. AEx ib IS SUITABLE ONLY FOR CLASS I, ZONE 1 HAZARDOUS (CLASSIFIED) LOCATIONS AND IS NOT SUITABLE FOR CLASS I, ZONE 0 or CLASS I, DIVISION1 HAZARDOUS (CLASSIFIED) LOCATIONS.

12. THE POWER SUPPLY CONNECTED TO THE ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 Vrms OR Vdc.

CONSIDERATION OF AN INTRINSICALLY SAFE LOOP BASED ON ENTITY PARAMETERS

THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN SUCH COMBINATION.

BASICALLY, THE MAXIMUM UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) OF THE INTRINSICALLY SAFE APPARATUS, INCLUDING INTERCONNECTING WIRING PARAMETERS (Lw, Cw), MUST BE EQUAL TO OR LESS THAN THE CAPACITANCE (Ca) AND INDUCTANCE (La) WHICH CAN BE SAFELY CONNECTED TO THE ASSOCIATED APPARATUS. ALSO, THE MAXIMUM OUTPUT PARAMETERS (Voc, Isc, Po) OF THE ASSOCIATED APPARATUS MUST BE EQUAL TO OR LESS THAN THE MAXIMUM ENTITY PARAMETERS (Vmax, Imax, Pmax) OF THE INTRINSICALLY SAFE APPARATUS.

IF THE HHT IS CONNECTED TO THE INTRINSICALLY SAFE LOOP.
FURTHER CONSIDERATION MUST BE TAKEN AS SHOWN IN THE FOLLOWING EXAMPLES.

DR.	K.Y.	10-9-2			TITLE INSTALLATION DRAWING 2/3 FM I.S.
CHK.	I. I.	10-9-2			
APPD.	T.U.	10-9-2			
DWG.NO. 80395818					REV. 00 / SHT. / A3

REV.	RECORD : DATE	BY	APPD.

Isum = Isc (ASSOCIATED APPARATUS) + Isc(375 FIELD COMMUNICATOR)

Vsum = Voc (ASSOCIATED APPARATUS) + Voc (375 FIELD COMMUNICATOR)

EXAMPLE 1. La

MAXIMUM OUTPUT CURRENT (Isum) TO THE LOOP IN THE WORST SITUATION IS THE SUM OF THE DELIVERED CURRENT (Isc) BY THE BARRIER AND THAT (Isc) BY THE HHT. IF Isc OF THE BARRIER IS 93mA.

Isum = 93mA + 0.032mA = 93.032mA.

THEN, BY APPLYING 100mA (THE NEXT HIGHER VALUE OF THE RESULTING Isum) TO THE RIGHT TABLE, La FOR GROUP A/B IS DETERMINED : La=4.00mH.

THE ABOVE OBTAINED La VALUE MUST SATISFY THE BELOW RELATIONSHIP.

La ≧ Li (TRANSMITTER) + Lw (WIRING) + Li (HHT).

ACCORDINGLY, THE WIRING INDUCTANCE NEVER EXCEEDS THE VALUE La - Li (TRANSMITTER) - Li (HHT), i.e. IF Li OF TRANSMITTER IS 0.308mH,

Lw ≦ 4.00mH - 0.308mH - 0 = 3.692mH

NOTE : IF THE ABOVE Lw VALUE IS SMALLER THAN THE INDUCTANCE OF A CABLE, ANOTHER BARRIER WITH A SMALLER Isc VALUE SHOULD BE SELECTED.

EXAMPLE 2. Ca

MAXIMUM OUTPUT VOLTAGE (Vsum) TO THE LOOP IN THE WORST SITUATION IS THE SUM OF THE DELIVERED VOLTAGE (Voc) BY THE BARRIER AND THAT (Voc) BY THE HHT. IF Voc OF THE BARRIER IS 28V.

Vsum = 28V + 1.9V = 29.9V.

THEN, BY APPLYING 30V (THE NEXT HIGHER VALUE OF THE RESULTING Vsum) TO THE RIGHT TABLE, Ca FOR GROUP A/B IS DETERMINED : Ca=0.12μF.
THE ABOVE OBTAINED Ca VALUE MUST SATISFY THE BELOW RELATIONSHIP.

Ca ≧ Ci (TRANSMITTER) + Cw (WIRING) + Ci (HHT).

ACCORDINGLY, THE WIRING CAPACITANCE NEVER EXCEEDS THE VALUE Ca - Ci (TRANSMITTER) - Ci (HHT), i.e. IF Ci OF TRANSMITTER IS 0.032μF,

Cw ≦ 0.12μF - 0.032μF - 0 = 0.088μF.

NOTE : IF THE ABOVE Cw VALUE IS SMALLER THAN THE CAPACITANCE OF A CABLE, ANOTHER BARRIER WITH A SMALLER Voc VALUE SHOULD BE SELECTED.

Isum (MILLI AMPERES)	La (MILLI HENRYS)		
	A/B	C	D
20	90.00	330.00	700.00
21	82.00	300.00	635.30
23	68.00	250.00	530.10
25	58.00	210.00	449.00
28	46.00	170.00	358.40
30	40.00	150.00	312.40
32	36.00	135.00	274.80
35	31.00	110.00	229.90
40	23.00	87.00	176.30
45	19.00	70.00	139.40
50	15.00	56.00	113.10
55	12.00	48.00	93.50
57	11.00	43.00	87.10
60	10.00	40.00	78.70
62	9.50	37.00	73.70
65	8.80	34.00	67.10
70	7.50	28.00	57.90
75	6.70	25.00	50.50
80	6.00	22.00	44.40
85	5.50	20.00	39.30
90	5.00	18.00	35.10
100	4.00	15.00	28.50
110	3.00	12.00	23.60
120	2.50	10.00	19.80
130	2.00	9.00	16.90
140	1.60	8.00	14.60
150	1.30	7.00	12.70
160	1.00	6.20	11.20
170	0.80	5.50	9.90
180	0.60	5.00	8.80
200	0.50	4.00	7.20
220	0.40	3.20	5.90

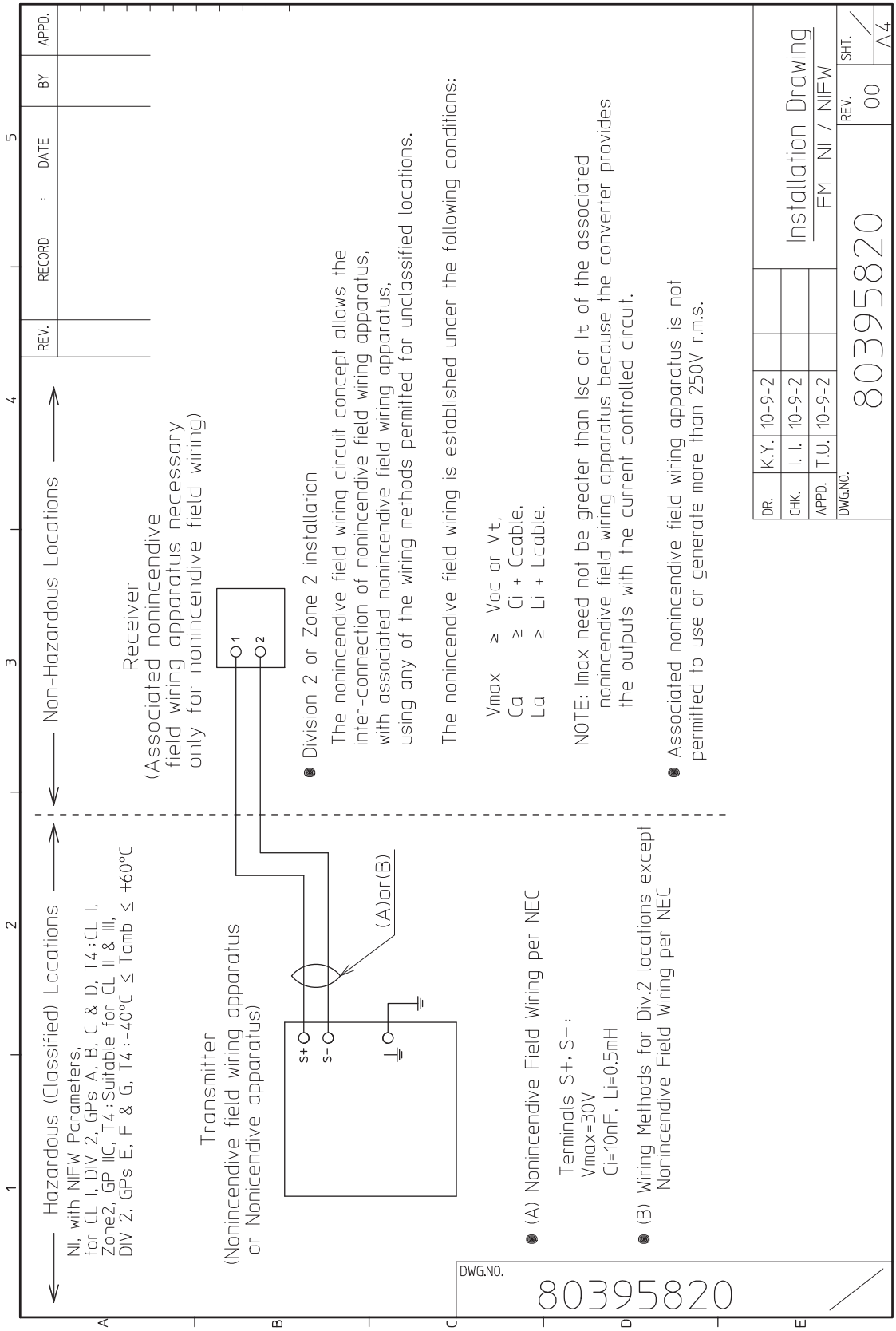
Vsum (VOLTS)	Ca (MICROFARADS)		
	A/B	C	D
5	91.97	275.91	735.77
10	3.21	9.64	25.69
15	0.78	2.35	6.26
20	0.34	1.01	2.7
22	0.26	0.78	2.09
24	0.21	0.63	1.67
26	0.17	0.51	1.37
28	0.14	0.43	1.14
30	0.12	0.36	0.97
32	0.11	0.32	0.84
34	0.09	0.28	0.73
36	0.08	0.24	0.65
38	0.08	0.22	0.58
40	0.06	0.19	0.52
42	0.06	0.18	0.47

DR.	K.Y.	10-9-2			TITLE INSTALLATION DRAWING 2/3 FM I.S.
CHK.	I. I.	10-9-2			
APPD.	T.U.	10-9-2			
DWG.NO. 80395819					REV. 00 / SHT. /

A3

DWG.NO. 80395819

FM Nonincendive Approval Criteria



FM Explosionproof/Dust-Ignition Proof Approval

⚠ CAUTION

Install the apparatus only in areas for which the apparatus has been approved.
Do not open the apparatus enclosure when an explosive atmosphere is present.

Marking Information

Explosionproof for Class I, Division 1, Groups A, B, C and D; Class I, Zone 1, AEx d IIC

Dust-Ignitionproof for Class II, III, Division 1, Groups E, F and G

T5 -40°C ≤ Tamb ≤ +85°C

Hazardous locations

Indoor / Outdoor Type 4X, IP67

Factory sealed, conduit seal not required for Division applications

⚠ CAUTION

Use supply wires suitable for 5°C above surrounding ambient

Instruction for Safe Use

Installations shall comply with the relevant requirements of the National Electrical Code® (ANSI / FAPA 70).

ATEX Flameproof and Dust Certifications

Marking Information

CE 0344 Ex KEMA 10ATEX0188

II 1/2 G Ex d IIC T6 TPROCESS = 85°C -30°C ≤ Tamb ≤ +75°C IP66 / 67

II 1/2 G Ex d IIC T5 TPROCESS = 100°C -30°C ≤ Tamb ≤ +80°C IP66 / 67

II 1/2 G Ex d IIC T4 TPROCESS = 110°C -30°C ≤ Tamb ≤ +80°C IP66 / 67

II 2 D Ex tD A21 IP66 / 67 T85 TPROCESS = 85°C -30°C ≤ Tamb ≤ +75°C

II 2 D Ex tD A21 IP66 / 67 T100 TPROCESS = 100°C -30°C ≤ Tamb ≤ +75°C

II 2 D Ex tD A21 IP66 / 67 T110 TPROCESS = 110°C -30°C ≤ Tamb ≤ +75°C

Applicable Standards

- **EN 60079-0**: 2006 Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
- **EN 60079-1**: 2007 Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures “d”
- **EN 60079-26**: 2007 Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
- **EN 61241-0**: 2006 Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
- **EN 61241-1**: 2004 Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures “tD”
- **EN 60529**:1992 Degree of protection provided by enclosures (IP code)

Instruction for Safe Use

- To maintain the degree of protection of at least IP 66 in accordance with IEC 60529, suitable cable entries must be used and correctly installed. Unused openings must be closed with a suitable stopping plug.
- Use supply wires suitable for 5°C above surrounding ambient.
- Thread type of entry:
  - When the model code is IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□A, the thread type of the end of all entries is 1/2” NPT
  - When the model code is IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□B, the thread type of the end of all entries is M20

Special Conditions For Safe Use

- The barrier diaphragm shall not be subjected environmental conditions which might adversely affect the partition wall.
- Repairs of flameproof joints are allowed only by manufacturer.
- The equipment must be returned to the manufacturer in case of failure.

ATEX Intrinsic Safety, Type n and Dust Certifications (English)

Marking Information

Intrinsic Safety and Dust

CE 0344 Ex KEMA 10ATEX0187 X

II 1 G Ex ia IIC T4 $T_{PROCESS}$ = 105°C -30°C ≤ Tamb ≤ +60°C IP66 / 67
ELECTRICAL PARAMETERS: Ui = 30 V, Ii = 93 mA, Pi = 1 W, Ci = 5 nF, Li = 0.5 mH

II 1 D Ex iaD 20 IP66 / 67 T105 $T_{PROCESS}$ = 105°C -30°C < Tamb < +60°C

Type n and Dust

CE Ex KEMA 10ATEX0187 X

II 3 G Ex nL IIC T4 $T_{PROCESS}$ = 110°C -30°C ≤ Tamb ≤ +60°C IP66 / 67 ELECTRICAL PARAMETERS: Ui = 30 V, Ii = 93 mA, Pi 1W, Ci = 5 nF, Li = 0.5 mH

II 2 D Ex tD A21 IP66 / 67 T85 $T_{PROCESS}$ = 85°C -30°C ≤ Tamb ≤ +75°C

II 2 D Ex tD A21 IP66 / 67 T100 $T_{PROCESS}$ = 100°C -30°C ≤ Tamb ≤ +80°C

II 2 D Ex tD A21 IP66 / 67 T110 $T_{PROCESS}$ = 110°C -30°C ≤ Tamb ≤ +80°C PARAMETERS: Umax = 30 V, Imax = 20 mA

Applicable Standards

- **EN 60079-0:2006,** Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
- **EN 60079-11:2007,** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety “i”
- **EN 60079-15:2005,** Electrical apparatus for explosive gas atmospheres - Part 15: Construction, test and marking of type of protection “n” electrical apparatus
- **EN 60079-26:2007,** Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
- **EN 61241-0:2006,** Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
- **EN 61241-1:2004,** Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures “tD”
- **EN 61241-11:2006,** Electrical apparatus for use in the presence of combustible dust - Part 11: Protection by intrinsic safety “iD”

Instruction for Safe Use

- To maintain the degree of protection of at least IP 66 in accordance with IEC 60529, suitable cable entries must be used and correctly installed. Unused openings must be closed with a suitable stopping plug.
- Thread type of entry:
  - When the model code is IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□A, the thread type of the end of all entries is 1/2” NPT
  - When the model code is IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□B, the thread type of the end of all entries is M20

Special Conditions for Safe Use of Intrinsic Safety Ex ia (X Certificate)

Because the enclosures of the Models IDP15D, IDP31D, IDP32D, and IGP60G Enterprise Control Series transmitters are made of aluminium, if a transmitter is mounted in an area where the use of 1 G apparatus is required, it must be installed such that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

Certification ATEX de sécurité intrinsèque, Type n et Poussières (Français)

Informations de marquage

Intrinsic Safety and Dust

CE 0344 Ex KEMA 10ATEX0187 X

II 1 G Ex ia IIC T4 TTRAITEMENT = 105°C -30°C ≤ Tamb ≤ +60°C IP66/67
PARAMÈTRES ÉLECTRIQUES: Ui = 30 V, Ii = 93 mA, Pi = 1 W, Ci = 5 nF, Li = 0.5 mH

II 1 D Ex iaD 20 IP66/67 T105 TTRAITEMENT = 105°C -30°C ≤ Tamb ≤ +60°C

Type n et poussières

CE Ex KEMA 10ATEX0187 X

II 3 G Ex nL IIC T4 TTRAITEMENT = 110°C -30°C ≤ Tamb ≤ +60°C IP66/67
PARAMÈTRES ÉLECTRIQUES: Ui = 30 V, Ii = 93 mA, Pi 1W, Ci = 5 nF, Li = 0.5 mH

II 2 D Ex tD A21 IP66/67 T85 TTRAITEMENT = 85°C -30°C ≤ Tamb ≤ +75°C

I 2 D Ex tD A21 IP66/67 T100 TTRAITEMENT = 100°C -30°C ≤ Tamb ≤ +80°C

II 2 D Ex tD A21 IP66/67 T110 TTRAITEMENT = 110°C -30°C ≤ Tamb ≤ +80°C
PARAMÈTRES: Umax = 30 V, Imax = 20 mA

Normes applicables

- **EN 60079-0:2006,** Matériel électrique pour atmosphères explosives gazeuses - Partie 0: Règles générales
- **EN 60079-11:2007,** Atmosphères explosives - Partie 11: Protection de l'équipement par sécurité intrinsèque "i"
- **EN 60079-15:2005,** Matériel électrique pour atmosphères explosives gazeuses - Partie 15: Construction, essais et marquage des matériels électriques du mode de protection "n"
- **EN 60079-26:2007,** Atmosphères explosives - Partie 26: Matériel d'un niveau de protection du matériel (EPL) Ga
- **EN 61241-0:2006,** Matériels électriques pour utilisation en présence de poussières combustibles - Partie 0: Exigences générales
- **EN 61241-1:2004,** Matériels électriques pour utilisation en présence de poussières combustibles - Partie 1: Protection par enveloppes "tD"
- **EN 61241-11:2006,** Matériels électriques pour utilisation en présence de poussières combustibles - Partie 11: Protection par sécurité intrinsèque "iD"

Instruction pour une utilisation sure

- Afin de maintenir le degré de protection au moins d'IP 66 en accord avec la norme IEC 60529, les entrées de câble appropriées doivent être utilisées et correctement installées. Les ouvertures inutilisées doivent être obstruées avec les bouchons appropriés.
- Type d'entrée de câble:

  Quand le numéro du modèle est donné avec IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□y:

  - Si y = A, le type d'entrée de câble est 1/2NPT, ou
  - Si y = B, le type d'entrée de câble est M20.

Conditions spéciales pour une utilisation sûre de la sécurité intrinsèque Ex ia (certification X)

Puisque l'enveloppe du Modèle IDP15D/IDP31D/IDP32D/IGP60G est faite en aluminium, s'il est mis en place dans une zone où l'utilisation d'instrument 1 G est requise, il doit être installé de telle manière que même en cas d'incident rare les sources d'ignition dues aux impacts et frictions soient exclues.

ATEX-Bescheinigungen zu Eigensicherheit, Typ n und Staub (Deutsch)

Kennzeichnungsinformationen

Eigensicherheit und Staub

CE 0344 Ex KEMA 10ATEX0187 X

II 1 G Ex ia IIC T4 TPROZESS = 105°C -30°C ≤ Tumg ≤ +60°C IP66 / 67
ELEKTRISCHE PARAMETER: Ui = 30 V, Ii = 93 mA, Pi = 1 W, Ci = 5 nF, Li = 0.5 mH

II 1 D Ex iaD 20 IP66 / 67 T105 TPROZESS = 105°C -30°C ≤ Tumg ≤ +60°C

Typ n und Staub

CE Ex KEMA 10ATEX0187 X

II 3 G Ex nL IIC T4 TPROZESS = 110°C -30°C ≤ Tumg ≤ +60°C IP66 / 67
ELEKTRISCHE PARAMETER: Ui = 30 V, Ii = 93 mA, Pi 1W, Ci = 5 nF, Li = 0.5 mH

II 2 D Ex tD A21 IP66 / 67 T85 TPROZESS = 85°C -30°C ≤ Tumg ≤ +75°C

II 2 D Ex tD A21 IP66 / 67 T100 TPROZESS = 100°C -30°C ≤ Tumg ≤ +80°C

II 2 D Ex tD A21 IP66 / 67 T110 TPROZESS = 110°C -30°C ≤ Tumg ≤ +80°C
PARAMETER: Umax = 30 V, Imax = 20 mA

Gültige Normen

- **EN 60079-0:2006,** Elektrische Betriebsmittel für gasexplosionsgefährdete Bereiche - Teil 0: Allgemeine Anforderungen
- **EN 60079-11:2007,** Explosionsfähige Atmosphäre - Teil 11: Geräteschutz durch Eigensicherheit "i"
- **EN 60079-15:2005,** Elektrische Betriebsmittel für gasexplosionsgefährdete Bereiche - Teil 15: Konstruktion, Prüfung und Kennzeichnung von elektrischen Betriebsmitteln der Zündschutzart "n"
- **EN 60079-26:2007,** Explosionsfähige Atmosphäre - Teil 26: Betriebsmittel mit Geräteschutzniveau (EPL) Ga
- **EN 61241-0:2006,** Elektrische Betriebsmittel zur Verwendung in Bereichen mit brennbarem Staub - Teil 0: Allgemeine Anforderungen
- **EN 61241-1:2004,** Elektrische Betriebsmittel zur Verwendung in Bereichen mit brennbarem Staub - Teil 1: Schutz durch Gehäuse "tD"
- **EN 61241-11:2006,** Elektrische Betriebsmittel zur Verwendung in Bereichen mit brennbarem Staub - Teil 11: Schutz durch Eigensicherheit "iD"

Installationsanleitungen für sicheren Gebrauch

- Zur Beibehaltung eines Schutzgrades von mindestens IP 66 gemäß IEC 60529 sind geeignete Kabeldurchführungen zu verwenden und vorschriftsmäßig zu installieren. Nicht verwendete Öffnungen sind mit einem geeigneten Abdeckstopfen zu verschließen.
- Gewindetyp der Durchführungen:

  Für Modellnummern mit IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□y:
  - Bei y = A ist der Gewindetyp der Durchführungen ½" NPT, oder
  - Bei y = B ist der Gewindetyp der Durchführungen M20.

Spezielle Bedingungen für den sicheren Gebrauch der Eigensicherheit Ex ia (X-Bescheinigung)

Da das Gehäuse des IDP15D, IDP31D, IDP32D, IGP60G aus Aluminium besteht, muss es bei Anbringung in Bereichen, für die die Verwendung eines 1 G Geräts erforderlich ist, so installiert werden, dass bei einer selten auftretenden Störung Zündquellen aufgrund von Funkenbildung durch Stöße oder Reibung ausgeschlossen sind.

Certificacion ATEX de seguridad intrínseca, Tipo n y Polvo (Español)

Información de marca

Seguridad intrínseca y polvo

CE 0344 Ex KEMA 10ATEX0187 X

II 1 G Ex ia IIC T4 en $T_{PROCESO}$ = 105°C -30°C ≤ Tamb ≤ +60°C IP66 / 67
PARÁMETROS ELÉCTRICOS: Ui = 30 V, Ii = 93 mA, Pi = 1 W, Ci = 5 nF, Li = 0.5 mH

II 1 D Ex iaD 20 IP66 / 67 T105 en $T_{PROCESO}$ = 105°C -30°C ≤ Tamb ≤ +60°C

Tipo n y polvo

CE Ex KEMA 10ATEX0187 X

II 3 G Ex nL IIC T4 en $T_{PROCESO}$ = 110°C -30°C ≤ Tamb ≤ +60°C IP66 / 67
PARÁMETROS ELÉCTRICOS: Ui = 30 V, Ii = 93 mA, Pi 1W, Ci = 5 nF, Li = 0.5 mH

II 2 D Ex tD A21 IP66 / 67 T85 en $T_{PROCESO}$ = 85°C -30°C ≤ Tamb ≤ +75°C

II 2 D Ex tD A21 IP66 / 67 T100 en $T_{PROCESO}$ = 100°C -30°C ≤ Tamb ≤ +80°C

II 2 D Ex tD A21 IP66 / 67 T110 en $T_{PROCESO}$ = 110°C -30°C ≤ Tamb ≤ +80°C
PARÁMETROS: Umax = 30 V, Imax = 20 mA

Estándares aplicables

- **EN 60079-0:2006,** Material eléctrico para atmósferas de gas explosivas - Parte 0: Requisitos generales
- **EN 60079-11:2007,** Atmósferas explosivas - Parte 11: Protección del equipo por seguridad intrínseca "i"
- **EN 60079-15:2005,** Material eléctrico para atmósferas de gas explosivas - Parte 15: Construcción, ensayo y marcado de material eléctrico de modo de protección "n" no productor de chispas
- **EN 60079-26:2007,** Atmósferas explosivas - Parte 26: Material con nivel de protección de material (EPL) Ga
- **EN 61241-0:2006,** Material eléctrico para uso en presencia de polvo inflamable - Parte 0: Requisitos generales
- **EN 61241-1:2004,** Material eléctrico para uso en presencia de polvo inflamable - Parte 1: Protección por envolventes "tD"
- **EN 61241-11:2006,** Material eléctrico para uso en presencia de polvo inflamable - Parte 11: Protección por seguridad intrínseca "iD"

Instrucción de instalación para el uso seguro

- Para mantener el grado de protección de al menos IP 66 de conformidad con la norma IEC 60529, se debe utilizar e instalar correctamente las entradas de cable adaptadas. Se debe cerrar las aberturas no utilizadas con un tapón de parada adaptado.
- Tipo de rosca de entrada:

  Cuando se indica el nº de modelo como IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□y:

  - Si y = A, el tipo de rosca de las entradas es 1/2NPT, o
  - Si y = B, el tipo de rosca de las entradas es M20..

Condiciones especiales para un uso seguro de Ex ia de seguridad intrínseca (certificado X)

Como la envolvente del modelo IDP15D/IDP31D/IDP32D/IGP60G está hecha de aluminio, si ésta está montada en un área en la que necesite utilizar material 1 G, se le debe instalar de tal manera que, incluso en caso de incidente raro, se excluya las fuentes de ignición debidas a chispas de impacto y fricción.

Certificazioni ATEX Sicurezza intrinseca, Tipo n e Polvere (Italiano)

Marchi informativi

Sicurezza intrinseca e Polvere

CE 0344 Ex KEMA 10ATEX0187 X

II 1 G Ex ia IIC T4 TPROCESSO = 105°C -30°C ≤ Tamb ≤ +60°C IP66 / 67
PARAMETRI ELETTRICI: Ui = 30 V, Ii = 93 mA, Pi = 1 W, Ci = 5 nF, Li = 0.5 mH

II 1 D Ex iaD 20 IP66 / 67 T105 TPROCESSO = 105°C -30°C ≤ Tamb ≤ +60°C

Tipo n e Polvere

CE Ex KEMA 10ATEX0187 X

II 3 G Ex nL IIC T4 TPROCESSO = 110°C -30°C ≤ Tamb ≤ +60°C IP66 / 67
PARAMETRI ELETTRICI: Ui = 30 V, Ii = 93 mA, Pi 1W, Ci = 5 nF, Li = 0.5 mH

II 2 D Ex tD A21 IP66 / 67 T85 TPROCESSO = 85°C -30°C ≤ Tamb ≤ +75°C

II 2 D Ex tD A21 IP66 / 67 T100 TPROCESSO = 100°C -30°C ≤ Tamb ≤ +80°C

II 2 D Ex tD A21 IP66 / 67 T110 TPROCESSO = 110°C -30°C ≤ Tamb ≤ +80°C
PARAMETRI: Umax = 30 V, Imax = 20 mA

Standard applicabili

- **EN 60079-0:2006,** Costruzioni elettriche per atmosfere esplosive per la presenza di gas - Parte 0: Regole generali
- **EN 60079-11:2007,** Costruzioni elettriche per atmosfere esplosive per la presenza di gas - Parte 11: Apparecchiature con modo di protezione a sicurezza intrinseca "i"
- **EN 60079-15:2005,** Costruzioni elettriche per atmosfere esplosive per la presenza di gas - Parte 15: Costruzione, prove e marcatura delle costruzioni elettriche avente modo di protezione "n"
- **EN 60079-26:2007,** Costruzioni elettriche per atmosfere esplosive per la presenza di gas - Parte 26: Apparecchiature con livello di protezione (EPL) Ga
- **EN 61241-0:2006,** Costruzioni elettriche destinate ad essere utilizzate in presenza di polveri combustibili - Parte 0: Prescrizioni generali
- **EN 61241-1:2004,** Costruzioni elettriche destinate ad essere utilizzate in presenza di polveri combustibili - Parte 1: Protezione mediante custodie "tD"
- **EN 61241-11:2006,** Costruzioni elettriche destinate ad essere utilizzate in presenza di polvere combustibile - Parte 11: Protezione a sicurezza intrinseca "iD"

Istruzioni per un uso sicuro

- Per mantenere il grado di protezione di almeno IP 66 in conformità con la norma IEC 60529, è necessario utilizzare ingressi di cavo adatti correttamente installati. Le aperture non utilizzate devono essere chiuse con un apposito tappo.
- Passo filetto d'ingresso:

  Quando il Modello N. viene fornito con IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□y:

  - Se y = A, il passo filetto d'ingresso è 1/2NPT, oppure
  - Se y = B, il passo filetto d'ingresso è M20.

Condizioni speciali per un uso sicuro di sicurezza intrinseca Ex ia (certificato X)

Poiché l'involucro del Model IDP15D/IDP31D/IDP32D/IGP60G è realizzato in alluminio, se viene montato in un'area dove è richiesto l'uso di un apparato 1 G, deve essere installato in modo tale che, anche nel caso di rari incidenti, siano escluse fonti di ignizione dovute a scintilla da impatto o da frizione.

ATEX Certificeringen intrinsieke veiligheid, type n en stof (Dutch)

Markeringinformatie

Intrinsieke veiligheid en stof

CE 0344 Ex KEMA 10ATEX0187 X

II 1 G Ex ia IIC T4 $T_{PROCESS}$ = 105°C -30°C ≤ Tamb ≤ +60°C IP66 / 67
ELEKTRISCHE PARAMETERS: Ui = 30 V, Ii = 93 mA, Pi = 1 W, Ci = 5 nF, Li = 0.5 mH

II 1 D Ex iaD 20 IP66 / 67 T105 $T_{PROCESS}$ = 105°C -30°C ≤ Tamb ≤ +60°C

Type n en stof

CE Ex KEMA 10ATEX0187 X

II 3 G Ex nL IIC T4 $T_{PROCESS}$ = 110°C -30°C ≤ Tamb ≤ +60°C IP66 / 67
ELEKTRISCHE PARAMETERS: Ui = 30 V, Ii = 93 mA, Pi 1W, Ci = 5 nF, Li = 0.5 mH

II 2 D Ex tD A21 IP66 / 67 T85 $T_{PROCESS}$ = 85°C -30°C ≤ Tamb ≤ +75°C

II 2 D Ex tD A21 IP66 / 67 T100 $T_{PROCESS}$ = 100°C -30°C ≤ Tamb ≤ +80°C

II 2 D Ex tD A21 IP66 / 67 T110 $T_{PROCESS}$ = 110°C -30°C ≤ Tamb ≤ +80°C PARAMETERS: Umax = 30 V, Imax = 20 mA

Toepasselijke normen

- **EN 60079-0:2006,** Elektrische materieel voor plaatsen waar gasontploffingsgevaar kan heersen - Deel 0: Algemene eisen
- **EN 60079-11:2007,** Explosieve atmosferen - Deel 11: Bescherming van materieel door intrinsieke veiligheid "i"
- **EN 60079-15:2005,** Elektrische apparatuur voor plaatsen waar gasontploffingsgevaar kan heersen - Deel 15: Constructie, beproeven en merken van beschermingswijze "n"
- **EN 60079-26:2007,** Explosieve atmosferen - Deel 26: Materieel met materieelbeschermingsniveau (EPL) Ga
- **EN 61241-0:2006,** Elektrisch materieel voor plaatsen waar stofontploffingsgevaar kan heersen - Deel 0: Algemene eisen
- **EN 61241-1:2004,** Elektrisch materieel voor plaatsen waar stofontploffingsgevaar kan heersen -Deel 1: Drukvast omhulsel "tD"
- **EN 61241-11:2006,** Elektrisch materieel voor plaatsen waar stofontploffingsgevaar kan heersen -Deel 11: Bescherming door intrinsieke veiligheid "iD"

Instructie voor veilig gebruik

- Om een beschermingsgraad van ten minste IP 66 te behouden, in overeenstemming met IEC 60529, moeten geschikte kabelinvoeren worden gebruikt en correct worden geÔnstalleerd. Ongebruikte openingen moeten worden afgesloten met een geschikte afsluitdop.
- Schroefdraadtype ingang:

  Als modelnr. wordt gegeven met IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□y:

  - Als y = A, is het schroefdraadtype van de ingangen 1/2NPT, of
  - Als y = B, is het schroefdraadtype van de ingangen M20.

Speciale voorwaarden voor veilig gebruik van intrinsieke veiligheid Ex ia (X certificaat)

Omdat de behuizing van model IDP15D/IDP31D/IDP32D/IGP60G van aluminium is, moet het bij montage op een plaats waar het gebruik van 1 G-apparaten verplicht is, zo worden geÔnstalleerd dat zelfs in geval van zeldzame incidenten een ontstekingsbron door vonken bij een botsing of door wrijving is uitgesloten.

Certificaçõ ATEX de Segurança intrínseca, Tipo n e Poeira (Português)

Marking information Informações de marcação

Segurança intrínseca e Poeira

CE 0344 Ex KEMA 10ATEX0187 X

II 1 G Ex ia IIC T4 TPROCESSO = 105°C -30°C ≤ Tamb ≤ +60°C IP66 / 67
PARÂMETROS ELÉCTRICOS: Ui = 30 V, Ii = 93 mA, Pi = 1 W, Ci = 5 nF, Li = 0.5 mH

II 1 D Ex iaD 20 IP66 / 67 T105 TPROCESSO = 105°C -30°C ≤ Tamb ≤ +60°C

Tipo n e Poeira

CE Ex KEMA 10ATEX0187 X

II 3 G Ex nL IIC T4 TPROCESSO = 110°C -30°C ≤ Tamb ≤ +60°C IP66 / 67
PARÂMETROS ELÉCTRICOS: Ui = 30 V, Ii = 93 mA, Pi 1W, Ci = 5 nF, Li = 0.5 mH

II 2 D Ex tD A21 IP66 / 67 T85 TPROCESSO = 85°C -30°C ≤ Tamb ≤ +75°C

II 2 D Ex tD A21 IP66 / 67 T100 TPROCESSO = 100°C -30°C ≤ Tamb ≤ +80°C

II 2 D Ex tD A21 IP66 / 67 T110 TPROCESSO = 110°C -30°C ≤ Tamb ≤ +80°C
PARÂMETROS: Umax = 30 V, Imax = 20 mA

Normas aplicáveis

- **EN 60079-0:2006,** Material eléctrico para atmosferas explosivas - Parte 0: Requisitos gerais
- **EN 60079-11:2007,** Atmosferas explosivas - Parte 11: Protecção do equipamento por segurança intrínseca "i"
- **EN 60079-15:2005,** Material eléctrico para atmosferas explosivas - Parte 15: Construção, ensaios e marcação de aparelhos eléctricos do tipo de protecção "n"
- **EN 60079-26:2007,** Atmosferas explosivas - Parte 26: Equipamento com um nível de protecção do equipamento (EPL) Ga
- **EN 61241-0:2006,** Aparelhagem eléctrica para utilização em presença de poeira combustível - Parte 0: Regras gerais
- **EN 61241-1:2004,** Aparelhagem eléctrica para utilização em presença de poeira combustível - Parte 1: Protecção por invólucros "tD"
- **EN 61241-11:2006,** Aparelhagem eléctrica para utilização em presença de poeira combustível - Parte 11: Protecção de segurança intrínseca "iD"

Instrução para utilização segura

- Para manter o grau de protecção de pelo menos IP 66 de acordo com IEC 60529, precisa-se utilizar e instalar correctamente as entradas de cabo adequadas. As aberturas não utilizadas precisam ser fechadas com tampão de paragem adequado.
- Tipo de filete de entrada:

  Quando o No. de Modelo é dado com IDP15D/IDP31D/IDP32D/IGP60G□□□□□□□y:

  - Se y = A, o tipo de filete de entradas é 1/2NPT, ou
  - Se y = B, o tipo de filete de entradas é M20.

Condições especiais para utilização segura da segurança intrínseca Ex ia (certificado X)

Como o invólucro do Modelo IDP15D/IDP31D/IDP32D/IGP60G é feito de alumínio, se estiver montado numa área em que a utilização de da aparelhagem 1 G for necessária, precisa ser instalada de forma tal que, mesmo no caso de raros incidentes, ficam excluídas as fontes de ignição devido às faíscas de impacto e de atrito.

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