



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx ETL 20.0027X**

Page 1 of 4

Certificate history:

Status: **Current**

Issue No: 3

[Issue 2 \(2022-04-26\)](#)

[Issue 1 \(2021-04-09\)](#)

[Issue 0 \(2020-09-21\)](#)

Date of Issue: 2026-08-05

Applicant: **Milton Roy LLC,
201 Ivyland Road
Ivyland
Pennsylvania
18974
United States of America**

Equipment: **N-400 Controller**

Optional accessory:

Type of Protection: **Intrinsic Safety - 'ia'**

Marking: Ex ia IIB T4 Ga

Ambient Range: $-20^{\circ}\text{C} \leq T_{\text{AMB}} \leq +60^{\circ}\text{C}$

IECEx ETL 20.0027X

Approved for issue on behalf of the IECEx
Certification Body:

Todd L. Relyea

Position:

Certification Officer

Signature:
(for printed version)

Date:
(for printed version)

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3933 US Route 11 South
Cortland NY 13045-2995
United States of America

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IECEx Certificate of Conformity

Certificate No.: **IECEx ETL 20.0027X**

Page 2 of 4

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Manufacturer: **Milton Roy, LLC**
201 Ivyland Road
Ivyland
Pennsylvania
18974
United States of America

Manufacturing
locations: **Milton Roy, LLC**
201 Ivyland Road
Ivyland
Pennsylvania
18974
United States of America

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-11:2023](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:7.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[US/ETL/ExTR20.0070/00](#)
[US/ETL/ExTR20.0070/03](#)

[US/ETL/ExTR20.0070/01](#)

[US/ETL/ExTR20.0070/02](#)

Quality Assessment Report:

[GB/TRC/QAR14.0001/08](#)



IECEx Certificate of Conformity

Certificate No.: **IECEx ETL 20.0027X**

Page 3 of 4

Date of issue: 2026-08-05

Issue No: 3

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The product covered by this report is an intrinsically safe N-400 controller which is a circuit board designed to interface with multiple intrinsically safe inputs and outputs. It has six schematics: Battery pack, Power Limiter Module board, N-400 controller board, Display board, Memory Module board and IS/Non-IS Transition Board.

The product can be powered either by a battery pack or powered by external barriers. All these possible supply options cannot be used at the same time.

- When powered by battery pack, the battery pack is made of 4 primary Li-SOCI2 battery cells in series encapsulated with integrated protective components (fuse and resistor). Nominal: 14.4V, Peak: 15.6V. The battery pack schematic is under encapsulation. The battery pack including the fuse and resistor are formed as a completely replaceable unit in hazardous location.
- When powered by external barriers, it has following input entity parameters options to Power Limiter Module board:
 - o $U_i = 23.6V$, $I_i = 352.8mA$, $P_i = 1.674W$, $L_i = 12\mu H$, $C_i = 0$
 - o $U_i = 15V$, $I_i = 830mA$, $P_i = 3.12W$, $L_i = 12\mu H$, $C_i = 0$
 - o $U_i = 21.5V$, $I_i = 604mA$, $P_i = 3.242W$, $L_i = 12\mu H$, $C_i = 0$
 - o $U_i = 16V$, $I_i = 670mA$, $P_i = 2.69W$, $L_i = 12\mu H$, $C_i = 0$
 - o $U_i = 17V$, $I_i = 480mA$, $P_i = 2.03W$, $L_i = 12\mu H$, $C_i = 0$
 - o $U_i = 18V$, $I_i = 410mA$, $P_i = 1.86W$, $L_i = 12\mu H$, $C_i = 0$
 - o $U_i = 17V$, $I_i = 712mA$, $P_i = 3.011W$, $L_i = 12\mu H$, $C_i = 0$

The Power Limiter Module board provides output to N-400 controller board with the following entity parameters:

- Supply Out+: $U_o = 16.79V$, $I_o = 0.211A$, $P_o = 0.886W$, $C_o = 2.29\mu F$, $L_o = 3.19mH$
- Ext. Power Loss: $U_o = 0V$, $I_o = 0A$, $P_o = 0W$, $C_o = 1000\mu F$, $L_o = 1000mH$

The N-400 controller board has multiple I/Os, see Annex for details.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1) WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS

2) MATERIALS USED IN THE CONSTRUCTION OF GROUP II ENCLOSURES FOR EPL Ga EXCEEDS 10% IN TOTAL OF ALUMINUM, MAGNESIUM, TITANIUM AND ZIRCONIUM. PLEASE SEE MANUAL FOR INSTRUCTIONS TO AVOID AN IGNITION HAZARD DUE TO IMPACT OR FRICTION.



IECEx Certificate of Conformity

Certificate No.: **IECEx ETL 20.0027X**

Page 4 of 4

Date of issue: 2026-08-05

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- Updated standard from IEC 60079-11: 2011 Ed.6 to IEC 60079-11: 2023 Ed.7
- Updated General Product Information section
- Updated Marking plate
- Added Routine test
- Updated multiple drawings due to product redesign, see IECEx TEST REPORT COVER for details.

Annex:

[Annex to IECEx ETL 20.0027X - Issue 03_1.pdf](#)



Annex to IECEx Certificate of Conformity

Certificate No:	IECEx ETL 20.0027X	Issue No. 3
Annex No. 1		

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
*N-400 ENCLOSURE ASSY (DRILLED) PN: C2-0222 (Total Sheets = 3)	1S-0503	07	6/23/2022
*NJEX N-400 ENCLOSURE DRILLED, P/N: C2-0273 SCHEDULE DRAWING	1S-0608	00	5/27/2026
N-400 ASSEMBLY SCHEDULE DRAWING F2-0238 (Total Sheets = 1)	1A-0465	00	07/30/2020
*NJEX N-400 CONTROLLER ASSY, P/N: F2-0278 SCHEDULE DRAWING	1A-0647	00	5/27/2026
*INSTALLATION DRAWING ZEO INJECTION SYSTEM INSTALLATION INSTRUCTIONS (Total Sheets = 5)	1E-0378	09	6/16/2026
*INSTALLATION CONTROL DRAWING NJEX 400 SERIES INJECTION SYSTEMS INSTALLATION INSTRUCTIONS	1E-0440	01	06/17/2026
FABRICATION DRAWING E2-0025 N-400 DISPLAY (Total Sheets = 2)	1E-0367	04	11/6/2020
SCHEMATIC, YZ SYSTEMS N400 DISPLAY BOARD E2-0025 (Total Sheets = 1)	1E-0367-SCH	03	11/6/2020
ASSEMBLY DRAWING G0-0090 N400 DISPLAY BOARD (Total Sheets = 1)	1E-0368	04	11/6/2020
*BOM N400 DISPLAY BOARD ASSEMBLY PN: G0-0090 (Total Sheets = 1)	G0-0090_BOM_APP	00	2/1/2021
*FABRICATION DRAWING E2-0025 N-400 DISPLAY (Total Sheets = 2)	1E-0367	05	2/20/2025
*SCHEMATIC, YZ SYSTEMS N400 DISPLAY BOARD E2-0025 (Total Sheets = 1)	1E-0367-SCH	04	2/20/2025
*ASSEMBLY DRAWING G0-0090 N400 DISPLAY BOARD (Total Sheets = 1)	1E-0368	05	2/20/2025
*BOM N400 DISPLAY BOARD ASSEMBLY PN: G0-0090 (Total Sheets = 1)	G0-0090_BOM_APP	01	2/21/2025
FABRICATION DRAWING E2-0026 MM400 MEMORY MODULE (Total Sheets = 1)	1E-0369	03	11/6/2020
SCHEMATIC N400 MEMORY MODULE E2-0026/ G0-0091 (Total Sheets = 1)	1E-0369-SCH	02	11/4/2020
PCB ASSEMBLY DRAWING G0-0091 (E2-0026) MM400 (Total Sheets = 1)	1E-0370	03	11/6/2020
BOM MM400 MEMORY MODULE BOARD ASSEMBLY PN: 0091 (Total Sheets = 1)	G0-0091_BOM_APP	00	2/1/2021
FABRICATION DRAWING PART #: E2-0023 N400 CONTROLLER BOARD (Total Sheets = 4)	1E-0363	04	12/10/2020
*FABRICATION DRAWING PART #: E2-0106 N400 CONTROLLER BOARD	1E-0434	02	05/21/2026
SCHEMATIC, N400 CONTROLLER PCB: E2-0023, PCBA G0-0088 (Total Sheets = 5)	1E-0363-SCH	04	03/02/2021
*SCHEMATIC, N400 CONTROLLER PCB TOP LEVEL PCB: E2-0106, PCBA G0- 0105/G0-0107	1E-0434-SCH	02	06/16/2026
ASSEMBLY DRAWING N400 CONTROLLER G0-0088 (Total Sheets = 1)	1E-0364	05	11/18/2021
*ASSEMBLY DRAWING N400 CONTROLLER G0-0105/G0-0107	1E-0435	02	05/21/2026
BOM N400 CONTROLLER BOARD ASSEMBLY PN: G0-0088 (Total Sheets = 1)	G0-0088_BOM_APP	0	1/26/2021
*BOM N400 CONTROLLER BOARD ASSEMBLY DRAWING: 1E-0435	G0-0105_BOM_APP	02	5/18/2026

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Page 1 of 4

SFT-IECEx-OP-19f
(19 November 2025)



Annex to IECEx Certificate of Conformity

Certificate No:	IECEx ETL 20.0027X	Issue No. 3
Annex No. 1		

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
*BOM N400 CONTROLLER BOARD ASSEMBLY DRAWING: 1E-0435	G0-0107_BOM_APP	00	5/28/2026
AXE1034 PRODUCT DRAWING (Total Sheets = 4)	G0-0092	R7	07/23/2020
*AXE1034 PRODUCT DRAWING	G0-0108	R11	12/4/2025
*N-400 CONTROLLER HEAD LABEL A9-3116	1S-0552	01	6/15/2026
*FABRICATION DRAWING E2-0105/G0-0106 N400 POWER LIMITER	1E-0422	01	4/15/2026
*SCHEMATIC, N400 POWER LIMITER MODULE BLOCK DIAGRAM	1E-0422-SCH	01	4/15/2026
*ASSEMBLY DRAWING N400 POWER LIMITER G0-0106	1E-0423	01	4/15/2026
*BOM N400 POWER LIMITER PCB	G0-0106_BOM_APP	00	06/16/2026
*I.S. POWER LIMITER ENCLOSURE, P/N: C2-0276 SCHEDULE DRAWING	1S-0619	00	10/27/2025
*I.S. POWER LIMITER DRILLED ENCLOSURE, P/N: C2-0274 SCHEDULE DRAWING	1S-0642	00	5/28/2026
*I.S. POWER LIMITER ASSEMBLY SCHEDULE DRAWING F3-0036 & F3-0033 (ALTERNATE)	1S-0670	00	5/28/2026
*I.S. POWER LIMITER MODULE ASSEMBLY P/N:G1-0134 SCHEDULE DRAWING	1E-0450	00	5/29/2026
*NJEX BATTERY PACK LABEL A9-3157	1S-0615	00	5/7/2025
*NJEX POWER LIMITER WARNING LABEL SCHEDULE DRAWING P/N: A9-3159	1S-0623	00	5/29/2026
*NJEX I.S. POWER SUPPLY CERT. LABEL P/N: A9-3160 SCHEDULE DRAWING	1S-0643	00	5/29/2026
*NJEX N-400 CONTROLLER CERT. LABEL P/N: A9-3163 SCHEDULE DRAWING	1S-0644	00	5/29/2026
*SCHEMATIC, NJEX E2-2006 INTRINSICALLY SAFE BATTERY PACK	1E-0439	00	7/30/2026
*NJEX BATTERY PACK E3-2006	1S-0607	02	4/26/2026

Note: An * is included before the title of documents that are new or revised.



Annex to IECEx Certificate of Conformity

Certificate No:	IECEX ETL 20.0027X	Issue No. 3
Annex No. 1		

The N-400 controller board has multiple I/Os, see details as shown below.

Connection Description	Connector	Terminals	Connection Type (I.S. Input or Output)	U _{I/O}	I _{I/O}	P _{I/O}	C _{I/O}	L _{I/O}
RS485 COM.1 Serial Communications	TB16	2 to 3	Input	4.0V	230mA	0.25W	0μF	0μH
		2 to 3	Output	5.355V	54.1mA	72.5mW	1000μF	48.6mH
RS485 COM.2 Serial Communications	TB16	4 to 5	Input	4.0V	230mA	0.25W	0μF	0μH
		4 to 5	Output	5.355V	54.1mA	72.5mW	1000μF	48.6mH
Flow Signal Analog Input 4-20mA / 1-5V	TB8	2 to 1,3,4	Input	28V	93mA	0.651W	0μF	0μH
Bulk Tank Level Analog Input 4-20mA, Volts	TB11	4 to 1, 3 Shunt JP9 1-2	Output	16.79V	91.7mA	0.385W	2.29μF	16.9mH
	TB11	4 to 1, 3 Shunt JP9 2-3	Output	16.79V	0.974mA	0.385W	2.29μF	16.9mH
	TB11	2 to 1, 3	Input	28V	93mA	0.651W	0μF	0μH
	TB11	2 to 1, 3	Output	28V	0.19mA	1.32mW	0.650μF	1000mH
ALARM Relay Output Voltage Free SSR Contact	TB12	1 to 2	Output	0V	0mA	0W	1000μF	1000mH
			Input	15V	50mA	188mW	0μF	0μH
ODORANT Output Pulse Voltage Free SSR Contact	TB12	3 to 4	Output	0V	0mA	0W	1000μF	1000mH
			Input	15V	50mA	188mW	0μF	0μH
NBS Output DC Voltage	TB14	1 to 2	Output	5.355V	10.8mA	14.5mW	1000μF	1000mH
Pulsed Flow Input IS Voltage or Voltage Free Contact	TB2	1 to 2,4,6	Input	28V	93mA	0.651W	0μF	0μH
Remote Inhibit Digital Input Voltage or Voltage Free Contact	TB2	3 to 2,4,6	Input	28V	93mA	0.651W	0μF	0μH
Load Input Voltage free Contact	TB2	5 to 2,4,6	Input	28V	93mA	0.651W	0μF	0μH

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Page 3 of 4

SFT-IECEX-OP-19f
(19 November 2025)



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Certificate No:	IECEX ETL 20.0027X	Issue No. 3
Annex No. 1		

Required Manufacturer Routine Testing:		
Test	Title/Description of Test	Standard and Clause
1	Routine verification encapsulation : No damage shall be evident to the encapsulation, this includes but is not limited to; - Cracks; - non-homogeneous covering of the encapsulated or coated parts - inadmissible shrinkage; - swelling; - decomposition; - failure of adhesion (separation of any adhered parts) or flaking; and - softening. Alternate: Routine verification may be replaced by batch verification where there is confidence in the manufacturing process, in which case the following criteria based on ISO 2859-1 shall apply: - For a production batch up to 100, a sampling of 8 shall be inspected with no failures - For a production batch from 101 to 1 000, a sampling of 32 shall be inspected with no failure - For a production batch from 1 001 up to 10 000, a sampling of 80 shall be inspected with no failures - Batches above 10 000 shall be subdivided into smaller batches - If there are any non-compliant inspection results, 100 % of all remaining samples in the batch shall be inspected. Future batches shall be routinely inspected until confidence is established to reconsider batch verification.	IEC 60079-11: 2023 Ed.7 Clause 10.4

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Page 4 of 4

SFT-IECEX-OP-19f
(19 November 2025)