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Subject: **Procedure And/Or Report Material**

The following material resulting from the investigation under the above numbers is enclosed.

Issue Date	Vol	Sec	Pages	Revised Date
	1		Revised Index Page(s) 2	2019/09/18
2010/08/11	1	11	Cert of Compliance	
2010/08/11	1	11	Revised Description Page(s) 1,2	2019/09/18
2010/08/11	1	11	New Test Record 12	2019/09/18
2012/08/29	1	15	Cert of Compliance	
2012/08/29	1	15	Revised Description Page(s) 1,2,5	2019/09/18
2012/08/29	1	15	New Test Record 6	2019/09/18

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to UL's Customer Service Professionals. Contact information for all of UL's global offices can be found at http://ul.com/aboutul/locations.

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NBK File

CERTIFICATE OF COMPLIANCE

Certificate Number	20190923-E183151
Report Reference	E183151-20100811
Issue Date	2019-SEPTEMBER-23

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Programmable Logic Controllers for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations.

Communication module Models:

MVI56E; followed by ±GSC, -MCM, -MCMR, MCMXT, -MNET, -MNETXT, MNETC, MNETCXT, MNETCR, MNETR, FLN, SIE, DNPNET, 61850S, GSCXT, LDM, AFC or GEC.

MVI56; followed by ±HART or ±PDPMV1.

MVI46; followed by ±HART or ±PDPMV1.

ILX56-MM, ILX56-PBS, ILX56-PBM.

'HYLFHV PD\ EH PDUN-H&&´ZLQWKLVWXWLQJ FRQIRUPDO FRDWLQJ

Bruce Mahrenholz, Director North American Certification Program

UL LLC

DESCRIPTION

PRODUCT COVERED:

USL, CNL – Programmable Logic Controllers for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations.

Communication module Models:

*MVI56E; followed by –GSC, -MCM, -MCMR, MCMXT, -MNET, -MNETXT, MNETC, MNETCXT, MNETCR, MNETR, FLN, SIE, DNPNET, 61850S, GSCXT, LDM, **AFC or GEC**.

MVI56; followed by –HART or –PDPMV1.
MVI46; followed by –HART or –PDPMV1.

ILX56-MM, ILX56-PBS, ILX56-PBM.

Devices may be marked with suffix "-CC" indicating conformal coating.

GENERAL:

These devices are open-type devices intended for installation in an ultimate enclosure.

RATINGS:

Input Electrical:

Model	Electrical Rating
All other models	5V DC, 800 mA, Class 2
Models ILX56-PBS and ILX56-PBM	5V DC, 570 mA, Class 2

Output Electrical Ratings (DB9 Connector):

Model MVI56-PDPV1: 24 Vdc, 3 mA, Class 2.

Environmental:

Ambient Temperature Range:

-25°C to +70°C - Model MVI56E-MCMXT, MVI56E-GSCXT, and MVI56E-MNETXT.

0°C to +60°C - Models MVI56E followed by –GSC, -MCM, -MCMR, -MNET, MNETC, MNETCXT, MNETCR, and MNETR. MVI56; followed by –HART or –PDPMV1, ILX56-MM, FLN, SIE, DNPNET, and 61850S; MVI46-PDPMV1, MVI46-HART; ILX56-PBS, ILX56-PBM.

Temperature Code – T4A for models MVI56-HART, MVI56-PDMPV1, MVI46-PDPMV1, MVI46-HART, T5 for all other models.

MODEL CONSTRUCTION FEATURES:

Model	Communication Features
MVI56E-MCM	Modbus Serial communication driver
MVI56E-MCMXT	Modbus Serial communication driver
MVI56E-MCMR	Modbus Serial communication driver
MVI56E-LDM	Modbus Serial communication driver
MVI56E-GSC	ASCII Serial communication driver
MVI56E-MNET, MVI56E-GEC	Modbus Ethernet TCP/IP communication driver
MVI56E-MNETXT	Modbus Ethernet TCP/IP communication driver
MVI56E-MNETR	Modbus Ethernet TCP/IP communication driver
MVI56E-MNETC	Modbus Ethernet TCP/IP communication driver
MVI56E-MNETCXT	Modbus Ethernet TCP/IP communication driver
MVI56E-MNETCR	Modbus Ethernet TCP/IP communication driver
MVI56-HART, MVI46-HART	HART Multidrop Master Communication Module
MVI56-PDMPV1, MVI46-PDPMV1	PROFIBUS DPV1 Master Communication Module
ILX56-MM	inRAx Message Manager for Industrial Communication

All model devices using Modbus driver have identical construction features, except for the amount of data transferred via each backplane communication.

CONSTRUCTION DETAILS:

General – Devices shall be constructed in accordance with the Section General and the following description.

Tolerances – Unless specified otherwise, all dimensions are nominal.

Connectors – All used connectors are described in the Description area of the Report. Connectors not described are not to be used in the construction of the Models evaluated.

Make/Break Components - All make and break components are either in non-incendive circuits or are considered as nonarcing components as described.

Corrosion Protection – All metallic parts of the device are suitably plated, painted or otherwise protected against corrosion.

Spacings – Spacings are not required between uninsulated live parts to ground since device is powered by a class 2 source, per Table 32.0..

Printed Wiring Boards –R/C (ZPMV2), rated V-2 and suitable for direct support with a temperature rating of 105°C minimum.

Fuses – There are no fuses.

TEST RECORD NO. 12

SAMPLES:

Information on the model MVI56E-GEC was provided by the manufacture to be added into the report for use in Class I Division 2 Groups A, B, C and D hazardous locations.

GENERAL:

Testing of model MVI56E-GEC was not considered necessary due to results of previous testing.

Additional tests were not considered necessary for MVI56E-GEC due to tests conducted in the test record(s) referenced below

The following tests were waived:

Test	Rationale for Waived Test (See Below)	File Reference	Report Date	Test Record No.
Temperature Test	1	E183151	2010-08-11	1

1. Identical to currently Listed models MVI56E-MNET. Model differs only in software. Changes do not impact Ordinary location requirements.

Test results relate only to the items tested. The following tests were conducted.

TEMPERATURE TEST

Test Record Summary:

The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements shown in the below table and, therefore, such products are judged eligible to bear UL’s Mark as described on the Conclusion Page of this Report.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Standard No. ANSI/ISA-12.12.01-2015, Rev. 2015-11-17, Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
Standard No. CAN/CSA C22.2 No. 213-15, Rev. 2015-11-17, Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
Standard No. UL 508, Standard for Industrial Control Equipment, 17th Edition 2013-10-16
Standard No. CSA C22.2 No. 142-M1987, Process Control Equipment 3rd Edition, 1987-05-01

Test Record by:

NBK

Jerry Bwanhot
Senior Project Engineer

Reviewed by:

Peter Gil
Senior Project Engineer

Javier Villatoro
Senior Project Engineer (UL508)

CERTIFICATE OF COMPLIANCE

Certificate Number	20190923-E183151
Report Reference	E183151-20120829
Issue Date	2019-SEPTEMBER-23
Issued to:	PROSOFT TECHNOLOGY INC 9201 Camino Media, Suite 200 Bakersfield CA 93311
This certificate confirms that representative samples of	PROGRAMMABLE CONTROLLERS FOR USE IN HAZARDOUS LOCATIONS See Addendum Page
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 121201 and CSA C22.2 NO. 213-17, NONINCENDIVE ELECTRICAL EQUIPMENT FOR USE IN CLASS I AND II, DIVISION 2 AND CLASS III, DIVISIONS 1 AND 2 HAZARDOUS (CLASSIFIED) LOCATIONS. UL 508, INDUSTRIAL CONTROL EQUIPMENT. CSA C22.2 NO. 142-M1987, PROCESS CONTROL EQUIPMENT.
Additional Information:	See the UL Online Certifications Directory at https://iq.ulprospector.com for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number	20190923-E183151
Report Reference	E183151-20120829
Issue Date	2019-SEPTEMBER-23

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Programmable Logic Controllers for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations.

Communication modules:

MVI69; followed by E, followed by -61850S, -DNPNET, -MBS, -SIE, –MBTCP, LDM, AFC, GEC or GSC. May be marked with suffix “-cc” indicating conformal coating.

MVI69; followed by L, followed by -DNPSNET, -MBS, and MBTCP. May be marked with suffix “-cc” indicating conformal coating.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

DESCRIPTION

PRODUCT COVERED:

USL, CNL - Programmable Logic Controllers for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations.

Communication modules:

*MVI69; followed by E, followed by -61850S, -DNPNET, -MBS, -SIE, -MBTCP, **LDM**, **AFC**, **GEC or GSC**. May be marked with suffix "-cc" indicating conformal coating.

MVI69; followed by L, followed by -DNPSNET, -MBS, and MBTCP. May be marked with suffix "-cc" indicating conformal coating.

GENERAL:

These devices are open-type devices intended for installation in an ultimate enclosure. The subject devices are powered by a Switch Mode Power Supply (SMPS) that has a regulated output voltage of 5 VDC.

RATINGS:

Input Electrical:

Model	Electrical Rating
MVI69E	5V DC, 500 mA, Class 2
MVI69L	5V DC, 450 mA, Class 2

Environmental:

Ambient Temperature Range: 0°C to + 60°C

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

USL indicates investigation to the U.S. National Standard, UL 508, The Standard for Industrial Control Equipment, 17th Edition and UL 121201 NONINCENDIVE ELECTRICAL EQUIPMENT FOR USE IN CLASS I AND II, DIVISION 2 AND CLASS III, DIVISIONS 1 AND 2 HAZARDOUS (CLASSIFIED) LOCATIONS- Edition 9 - Issue Date 2017/09/15.

CNL indicates investigation to the Canadian National Standard, C22.2 No. 142-M1987, Process Control Equipment, and CSA C22.2 NO. 213 NONINCENDIVE ELECTRICAL EQUIPMENT FOR USE IN CLASS I AND II, DIVISION 2 AND CLASS III, DIVISIONS 1 AND 2 HAZARDOUS (CLASSIFIED) LOCATIONS- Edition 3 - Issue Date 2017/09/01.

MODEL CONSTRUCTION FEATURES:

Model	Communication Features
MVI69E-61850S	Ethernet Server for IEC-61850 communication protocol.
MVI69E-DNPNET	Ethernet client/server for DNP3.0 Ethernet communication protocol.
MVI69E-MBS, MVI69-GSC	Modbus Master/Slave for RS232/422/485 with two (2) communication Ports, 1 Ethernet debug port.
MVI69E-LDM	Modbus Master/Slave for RS232/422/485 with two (2) communication Ports, 1 Ethernet debug port.
MVI69E-SIE	Ethernet Client for Siemens Industrial Ethernet protocol.
MVI69E-MBTCP, MVI69E-GEC	Ethernet client/server for Modbus TCP/IP communication protocol.
MVI69L-DNPSNET	Ethernet server for DNP3.0 Ethernet Communication protocol.
MVI69L-MBS	Modbus Master/Slave for RS232/422/485 with one (10 communication port, one (1) Ethernet port.
MVI69L-MBTCP	Ethernet Client/server for Modbus TCP/IP communication protocol (light or limited support).
MVI69E-AFC	Modbus Master/Slave for RS232/422/485 with two (2) communication Ports, 1 Ethernet debug port.

MODEL DIFFERENCES:

The only difference between models MVI69E and MVI69L is the communication ports. Models MVI69L has one serial port that allows for a single RS232/422/485 serial ports while MVI69E has two (2) serial ports. The hardware is the same for all units with only hardware variation being one (1) or two (2) serial ports.

MODEL MVI69E-MBS
FIGS. 1-3

* General – Fig. 1 and 2 show the overall external view and Fig. 3 shows the internal view of Model MVI69E-MBS. These images are the mother boards. This also represents models MVI69E-61850S, MVI69E-DNPNET, MVI69E-MBS, MVI69E-SIE, MVI69E-MBTCP, MVI69L-MBS, MVI69L-DNPSNET, MVI69L-MBTCP, **MVI69E-LDM**, **MVI69E-AFC**, **MVI69E-GEC and MVI69E-GSC**. The modules consist of following Critical Components:

1. Ethernet Connectors (CN1-CN3) - Three provided. Mechanically secured by 90° latching mechanism.

2. Board Connector (P1) – One provided. Consists of header and plug. Header is soldered directly to the board. Plug is secured with a lever.

3. Mini USB Connector (JP4) – One provided. Mechanically secured by pressure tabs that holds the mating plug in place.

4. Connectors (J3, J4, J6, J2) – Connectors J3, J4, and J6 are not populated. Jumper J2 is not used.

5. Connectors (J1 and J5) – These connectors are soldered directly onto the board. Connector J1 interconnects with connector J5 and held securely in place by housing.

6. Jumpers (JP3, JP4) – Not Used.

Daughter board for MVI69E-AFC
FIGS 4 and 5

1. Switch (S1) – Considered non-arcing component. Not accessible during normal operation.

2. SD Card Connector (J2) – SD card latches into the connector when plugged in.

3. Connector (J4) – Board to board connector. Connectors daughter board to main motherboard and is secured with latches from the housing shown in Figures 1, 2 and 3.

TEST RECORD NO. 6

SAMPLES:

Information on the models MVI69E-GEC and MVI69E-GSC were provided by the manufacture to be added into the report for use in Class I Division 2 Groups A, B, C and D hazardous locations.

GENERAL:

Testing of models MVI69E-GEC and MVI69E-GSC were not considered necessary due to results of previous testing.

Additional tests were not considered necessary for models MVI69E-GEC and MVI69E-GSC due to tests conducted in the test record(s) referenced below

The following tests were waived:

Test	Rationale for Waived Test (See Below)	File Reference	Report Date	Test Record No.
Temperature Test	1	E183151	2012-08-29	1

1. Identical to currently Listed models MVI56E-MBTCP and MVI69E-MBS. Model differs only in software. Changes do not impact Ordinary location requirements.

Test results relate only to the items tested. The following tests were conducted.

TEMPERATURE TEST

Test Record Summary:

The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements shown in the below table and, therefore, such products are judged eligible to bear UL’s Mark as described on the Conclusion Page of this Report.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

STANDARD NO. UL 121201, 9TH ED., ISSUED 2017-09-15, NONINCENDIVE ELECTRICAL EQUIPMENT FOR USE IN CLASS I AND II, DIVISION 2 AND CLASS III, DIVISIONS 1 AND 2 HAZARDOUS (CLASSIFIED) LOCATIONS
STANDARD NO. CSA C22.2 NO. 213-17, 3RD ED., ISSUED 2017-09, NONINCENDIVE ELECTRICAL EQUIPMENT FOR USE IN CLASS I AND II, DIVISION 2 AND CLASS III, DIVISIONS 1 AND 2 HAZARDOUS (CLASSIFIED) LOCATIONS
UL 508 STANDARD FOR INDUSTRIAL CONTROL EQUIPMENT- Edition 17 - Revision Date 2013/10/16
CSA C22.2 NO. 142-M1987 PROCESS CONTROL EQUIPMENT- Edition 3 - Revision Date 1990/09/01

Test Record by:

NBK

Jerry Bwanhot
Senior Project Engineer

Reviewed by:

Peter Gil
Senior Project Engineer

Javier Villatoro
Senior Project Engineer (UL508)