

TYPE EXAMINATION CERTIFICATE



[2] **Equipment or Protective System intended for use
in Potentially Explosive Atmospheres
Directive 2014/34/EU**

[3] Type Examination Certificate Number: **DEMKO 17 ATEX 1897X Rev. 0**

[4] Product: **Programmable Controllers, "Bedrock Automation" Series**

[5] Manufacturer: **Bedrock Automation Platforms, Inc.**

[6] Address: **160 Rio Robles, San Jose, CA 95134 USA**

[7] This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

The examination and test results are recorded in confidential report no. **4787924447**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013

EN 60079-7:2015

except in respect of those requirements listed at item 18 of the Schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

[11] This Type examination certificate relates only to the design of the specified product, and not to specific items of product subsequently manufactured.

[12] The marking of the product shall include the following:

 **II 3 G Ex ec IIC T4 Gc**

Certification Manager
Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2017-07-31

Certification Body

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
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Schedule

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[13]

[14]

[15] Description of Product:

The Bedrock Automation Series interfaces with a variety of industrial sensors. The sensors are connected to the input modules, which then digitize and filter data from these sensors and forward that data to the Secure Control and Communication Module (SCC). The SCC takes the data from the sensors, executes control code, then sends the resulting data to output modules. The SCC module is the command module that receives and executes the programming. The SCC also reports data to upper layer Supervisory Control and Data Acquisition (SCADA) systems via an Ethernet connection. The (BMI) is the backplane module for the Bedrock Automation Series that provides power to the SCC and inductively to all of the Secure I/O Modules (SIO). The BMI provides physical locations (slots) for the SIO modules. The SIO modules physically screw into the BMI, however does not have a physical connection electrically. The BMI provides the SIO power from the SPM via an inductive backplane. The SPM provides a 24 V dc source to the SCC and BMI. The SPM also provides 20 high frequency current limited voltage sources to inductive power coils on the BMI. These coils provide power to (up to) 20 SIO modules.

Model nos.: SPM, SCC, BMI 5, BMI 10, BMI 20

Secure I/O Modules (SIO), Model nos. SIO1.5, SIO2.10, SIO3.10, SIO5.10, SIO6.20, SIO7.20, SIO4.E, SIOU.10 and SIOS.5

Controller Accessories: AC Power Assembly, DC Power Assembly and Wetting Cable Assembly.

The optical radiation output of the product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 1 to the scope of EN 60079-28:2015 .

The relation between ambient temperature and the assigned temperature class is as follows:

	Ambient temperature range	Temperature class
BMI 5 with DC input power	-40 °C to +80 °C	T4
BMI 5 with AC input power	-40 °C to +70 °C	T4
BMI 10 with DC input power	-40 °C to +80 °C	T4
BMI 10 with AC input power	-40 °C to +60 °C	T4
BMI 20 with DC input power	-40 °C to +70 °C	T4
BMI 20 with AC input power	-40 °C to +50 °C	T4

Electrical data

Model SPM

Input ratings: 90-240 Vac, 1 A, 50/60 Hz
24 Vdc, 4 A

Output ratings: 24 Vdc, 0.4 A per module slot.

Model SCC

Input ratings: 24 Vdc, 0.5 A from system backplane
Output ratings: Communication only, approx. 3.3 Vdc, 20 mA

Models BMI 5, BMI 10, BMI 20

Ratings: System backplane only (may contain 5, 10 or 20 slots)
24 Vdc, 0.5 A between SCC and SPM modules
24 Vdc, 0.4 A per SIO module slot

Model SIO1.5

Function: Five channel isolated universal input/output module.

Channel Type: 5 channels, programmable input or output

Power Input: From system backplane

Channel Rating: 30 Vdc max, 4 – 20 mA in/out, mV, thermocouple and RTD (5 channels total)

Model SIO2.10

Function: 10 channel isolated voltage input module. Monitors up to 240 Vac/dc.

Channel Type: 10 input channels

Power Input: From system backplane

Input Channels: 240 Vac/dc max, 5 mA per channel (10 channels total)

Model SIO3.10

Function: 10 channel isolated output module.

Channel Type: 10 MOSFET switched dry output channels

Power Input: From system backplane

Channel Rating: 240 Vac/dc max, 2 A per channel, 3 channel max.
240 Vac/dc max, 0.6 A per channel, 10 channels

Model SIO5.10

Function: 10 channel isolated voltage input module.

Channel Type: 10 input channels.

Power Input: From system backplane

Channel Rating: 24 Vdc, 5 mA per channel (10 channels total)

Model SIO6.20

Function: 20 Channels of 4-20mA in with HART

Channel Type: 2 Groups of 10 that are group isolated

Power Input: From system backplane

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- [13] Channel Rating: 30 Vdc max, 4-20mA per channel (20 channels total)
- [14] Model SIO7.20
Function: 20 channels discrete in
Channel Type: isolated channel to channel and channel to ground
Power Input: From system backplane
Channel Rating: Voltage monitor, DC turn off 7V or less, DC turn on 20V or more, max 60V or less, max 48Vac

Model SIOU.10
Function: 10 channels; isolated and independent.
Channel Type: Analog, Discrete or NAMUR inputs and outputs.
Power Input: From system backplane
Channel Rating: 0-25 mA per channel, max 30 Vac

Model SIOS.5
Function: Communication
Channel Type: 5 Serial Channels
Power Input: From system backplane
Channel Rating: Communication Only, max 57 Vac

Model SIO4.E
Function: P.o.E. module.
Channel Type: 5 Ethernet Channels
Power Input: From system backplane
Channel Rating: Communication Only, max 57 Vac

Accessory AC Power Assembly, DC Power Assembly and Wetting Cable Assembly
Ratings: 300 V, 7 A

Routine tests:
No routine testing necessary

- [16] Descriptive Documents
The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this Type Examination Certificate.

- [17] Special Conditions of Use:
- The equipment shall only be used in an area of not more than pollution degree 2, as defined in EN 60664-1.
 - The equipment shall be installed in an enclosure that provides a degree of protection not less than IP 54 in accordance with EN 60079-0 and that is only accessible with the use of a tool.
 - Transient protection shall be provided that is set at a level not exceeding 140 % of the peak rated voltage value at the supply terminals to the equipment".

- [18] Essential Health and Safety Requirements
The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.