OIML Certificate

OIML Member State
The Netherlands

Number R117/2019-A-NL1-24.02 revision 0
Project number 3581943

Issuing authority	NMi Certin B.V. Person responsible: M.Ph.D. Schmidt
Applicant and Manufacturer	Honeywell Process Solutions 2101 CityWest Blvd Houston, TX 77042 United States of America
Identification of the certified type	An **electronic calculating and indicating device** intended to be used as a part of an interruptible or non-interruptible dynamic measuring systems for liquids other than water. Manufacturers mark: Honeywell Type: ControlEdge 2020 Platform
Characteristics	See following page(s)

This OIML Certificate is issued under scheme A.

This Certificate attests the conformity of the above identified type (represented by the sample(s) identified in the OIML Type Evaluation Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

R 117-1: 2019 "Dynamic measuring systems for liquids other than water"

Accuracy class 0,3

This Certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML International Recommendation identified above. This Certificate does not bestow any form of legal international approval.

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate was issued, partial quotation of the Certificate and of the associated OIML Type Evaluation Report(s) is not permitted, although either may be reproduced in full.

Issuing Authority **NMi Certin B.V., OIML Issuing Authority NL1**
18 June 2024

Certification Board

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The conformity was established by the results of tests and examinations provided in the associated report(s):

- NMi-3581943-01 dated 18 June 2024 that includes 54 pages.

Characteristics of the measuring instrument
In Table 1 the general characteristics of the electronic calculating and indicating device are presented. The construction of the electronic calculating and indicating device is recorded in the Documentation folder number TC12622-1.

ControlEdge 2020 Platform provides the control and metering functions that are required for a custody transfer metering solution.

ControlEdge 2020 Platform comes with two RTU (Remote Terminal Unit) controller options: redundant or non-redundant. The redundant controller consists of two Control Processor Modules (CPM) and an Input Output Termination Assembly (IOTA). The CPM is a module to perform the function of a process controller. The IOTA is an assembly that holds the I/O module and the connection for field wiring. And the non-redundant controller comes with an onboard I/O module and both controllers can be expanded with the same ControlEdge platform I/O Modules.

Table 1 General characteristics

<table>
<tr><td>Approved for application</td><td colspan="3">- Measuring systems on pipelines and loading of ships;
- Measuring systems for the (un)loading of ships' tanks and rail and road tankers;
- Measuring systems for loading ships;
- Measuring multiple liquids with different viscosities in one installation using one calibration curve for all (measuring multiple liquids without adjustment);
- Measuring systems for liquefied gases under pressure measured at a temperature equal to or above -10 °C.</td></tr>
<tr><td>Measuring system type</td><td colspan="3">- Interruptible or non-interruptible measuring system</td></tr>
<tr><td>Approved for measuring</td><td colspan="3">- Volume at flowing conditions
- Volume at standard condition (0 kPa, 15 °C)
- Mass</td></tr>
<tr><td>Environmental classes</td><td colspan="3">M3 / E2 / H1</td></tr>
<tr><td>Ambient temperature range</td><td colspan="3">- 25 … + 70 °C; non-condensing humidity</td></tr>
<tr><td>Power supply voltage</td><td colspan="3">23 … 27 V DC</td></tr>
<tr><td rowspan="3">Software identification (ControlEdge Builder)</td><td>Firmware version (see note 1 below)</td><td>Checksum (see note 2 below)</td><td>Code version number</td></tr>
<tr><td>174.X.YY.Z</td><td rowspan="2">4294927296</td><td rowspan="2">See note 3 below</td></tr>
<tr><td>180.X.YY.Z</td></tr>
</table>

Approved inputs	- Pulse input (single pulse) for volume or mass; - Voltage input (1…5 V DC) for temperature, pressure or density; - Current input (4…20 mA) for temperature, pressure or density; - HART input; - TCP/IP Ethernet communication; - Serial communication RS-485; - Serial communication RS-232.
Approved outputs	- TCP/IP Ethernet communication; - Serial communication RS-485; - Serial communication RS-232.
EMC measures	- QUINT4-BUFFER/24DC/20 buffer unit and MEANWELL DRDN 20-24 redundancy module (or equivalent devices) should be used with the electronic calculating and indicating device to block surge and voltage dips; - All the connected signal cables are placed inside the sealed cabinet or not exceeding 10 metres long; - All the connected signal cables are shielded cables. Both ends of the shielded cable should be grounded; - All power input ports and RS-485 ports of the electronic calculating and indicating device should be connected to a shared chassis ground.

Approved conversion methods	- API Manual of Petroleum Measurements Standards, Chapter 11, Physical Properties Data, Section 1 (also known as ASTM D1250-07) at reference conditions (0 psig, 60 °F) • tables 5A, 6A, 23A and 24A (crude oil); • tables 5B, 6B, 23B and 24B (refined petroleum products); • tables 5D, 6D, 23D and 24D (lube oils). - API Manual of Petroleum Measurements Standards, Chapter 11, Physical Properties Data, Section 1 (also known as ASTM D1250-07) at reference conditions (0 kPa, 15 °C) • tables 53A and 54A (crude oil); • tables 53B and 54B (refined petroleum products); • table 54C (Special products); • tables 53D and 54D (lube oils). - API Manual of Petroleum Measurements Standards, Chapter 11, Physical Properties Data, Section 1 (also known as ASTM D1250-07) at reference conditions (0 kPa, 20 °C) • tables 59A and 60A (crude oil); • tables 59B and 60B (refined petroleum products); • table 60C (Special products); • tables 59D and 60D (lube oils). - API Manual of Petroleum Measurements Standards, Chapter 11, Physical Properties Data, Section 2 Part 4 (also known as ASTM/GPA TP-27) at reference conditions (0 psig, 60 °F) • tables 23E and 24E (NGL and LPG). - API Manual of Petroleum Measurements Standards, Chapter 11, Physical Properties Data, Section 2 Part 4 (also known as ASTM/GPA TP-27) at reference conditions (0 kPa, 15 °C) • tables 53E and 54E (NGL and LPG). - API Manual of Petroleum Measurements Standards, Chapter 11, Physical Properties Data, Section 2 Part 4 (also known as ASTM/GPA TP-27) at reference conditions (0 kPa, 20 °C) • tables 59E and 60E (NGL and LPG).

Note:

1. The Firmware version number is denoted by the following format: AAA.X.YY.Z
   - AAA – The major version of the release;
   - X – The minor version of the release;
   - YY – The revisions / bug fixes of the release;
   - Z – The build number of the release.

   Only a change in AAA is metrologically relevant.

   The software version for ControlEdge RTU controller is generated through software build process. They can be seen from the software ControlEdge Builder (Menu Help -> About ControlEdge Builder) or while connecting to a controller – Controller Firmware version. The software version, checksum and Code version number can be seen from the software ControlEdge Builder (Application -> Electronic Flow Measurement -> View Diagnostics), and it will be displayed when selecting API in a dropdown bar “Select Group Name”.

   Software identification can’t be edited and they are read only.

2. Checksum of the firmware will remain the same if there is no change in the ControlEdge Library.
3. If ControlEdge RTU controller loads and runs a calculation project file in the ControlEdge Builder software, The unique "Code version number" of the project file will be made. This code version number is recalculated when the project is built, or when there is an intentional or accidental parameter change. Changes on the code version number are logged in the audit trail.

Certificate history:
This revision replaces the previous version.

Revision	Date	Description of the modification
Initial	18 June 2024	First issue.