



Marine & Offshore

Certificate number: 31651/C0 BV

File number: AP4391

Product code: 4441H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

www.veristar.com

TYPE APPROVAL CERTIFICATE

This certificate is issued to

ENDRESS+HAUSER CONDUCTA GmbH+Co.KG

Gerlingen - GERMANY

for the type of product

ALARM AND MONITORING SYSTEMS

Multi parameter measurement converter

Liquiline CM442, CM444, CM448, CM442R, CM444R, CM448R

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

EC Code: 21, 21C (see item 4.3)

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate is a renewal of certificate N° 31651/B6 BV expiring on 27/09/2024

This certificate will expire on: 27 Sep 2029

For Bureau Veritas Marine & Offshore,

At BV HAMBURG, on 12 Jun 2024,

Dirk Hoepfner

This certificate was created electronically and is valid without signature



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristarnb.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=icdo7hwdmv>

BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **Liquiline CM442, CM444 and CM448** series are modular multi parameter measuring converter for process monitoring and controlling with a graphic display built in a plastic housing.

The **Liquiline CM442R, CM444R and CM448R** series are modular multi parameter measuring converter for process monitoring and controlling for mounting on DIN rail and with optional graphic display.

1.1 - Main characteristics:

Power supply: 24V AC/DC or 230V AC; 24V DC for -R variants via CD5.241 DC/DC converter
 Degree of protection: IP66/67 with housing, IP20 for -R variants
 Firmware: V01.14.xx

1.2 - Modules of system:

The system may consist of the following modules:

Modules	Description
BASE2-H	Basic Module with power unit 100-230V AC (for CM442 and CM442R)
BASE2-L	Basic Module with power unit 24V AC/DC (for CM442 and CM442R)
BASE2-E	Basic Module with power unit 100-230V AC (for CM444, CM448, CM444R and CM448R)
AOR	2x AO 0/4...20mA; 2x Relay CO
2R	2x Relay CO
4R	4x Relay CO
2DS	2x DI sensor; 2x Sensor power supply (for CM444, CM448, CM444R and CM448R only)
2DS Ex-i	2x DI sensor
2AO	2x AO 0/4...20mA
4AO	4x AO 0/4...20mA
2AI	2x AI 0/4...20mA
485	1x Ethernet; 1x RS485 for Profibus DP or Modbus RS485
DIO	2x DI, 2x DO (for -R variants)

1.3 - Variants:

Type: CM442 **aa bb cc dd e f g hh**

aa = Approval: AA, BM, CA, CD, CL, GR, IE, UM

bb = Sensor input: M1, M2, N1, N2

cc = Communication: A1, A2, A3, A4, B7, B8, B9, CA, CB, CC, CD, CE, CF, CG, CH, CJ, CK

dd = Additional features: F0, F2, F4, FA, FD

e = Power supply: 1, 6, 7

f = Cable entry: 0, 1, 2

g = Cable entry set: A, B

hh = Additional: RS

Type: CM444 **aa bb c dd ee f g hh i jj**

aa = Approval: AA, BM, CA, CD, CL, GR, IE, UM

bb = Sensor input: M2, M4, N2, N4

c = Digital communication: 0, 1, 2, 3, A, B, C, D, J

dd = Analogue output: A0, A1, A3, A5, A7

ee = Additional features: F0, F2, F4, FA, FE, FF, FG, FH, FI, FK, FM

f = Power supply: 1

g = Cable entry housing: 0, 1, 2

hh = Fieldbus communication: BA, BB, BC, BD

i = Cable entry set: A, B

jj = Additional: NS

Type: CM448 **aa b ccc d e ff gg h ii**

aa = Approval: AA, BM, CA, CD, CL, GR, IE, UM

b = Digital communication: 0, 1, 2, 3, A, B, C, D, J

ccc = Digital sensor: 2A6, 2A7, 6AA, 6A1, 6A3, 6A5, 6A6, 6A7, 6A8, 8A2, 8A3, 8A4, 8A5

d = Power supply: 1

e = Cable entry: 0, 1, 2

ff = Cable entry housing, sensor: AA, AB, AC, AD, AE, AF

gg = Fieldbus communication: BA, BB, BC, BD

h = Cable entry set: A, B

ii = Additional: NS

Type: CM442R **aa bb cc dd e ff**

aa = Approval: AA, BM, CA, CD, CL, GR, IE, UM

bb = Sensor input: M1, M2

cc = Communication: A1, A2, A3, A4, B8, CA, CC, CE, CG, CJ

dd = Additional features: F0, F2, F4, FA, FD

e = Power supply: 1, 6, 7

ff = Additional: SA, SS

Type: CM444R **aa bb c dd ee f gg**

aa = Approval: AA, BM, CA, CD, CL, GR, IE, UM

bb = Sensor input: M2, M4

c = Digital communication: 0, 1, 2, 3, A, B, C, D, J

dd = Analog output: A0, A1, A3, A5, A7

ee = Additional function: F0, F2, F4, FA, FE, FF,

FG, FH, FI, FK, FM

f = Power supply: 6

gg = Additional: PK, PP

Type: CM448R **aa b ccc d ee**

aa = Approval: AA, BM, CA, CD, CL, GR, IE, UM

b = Digital communication: 0, 1, 2, 3, A, B, C, D, J

ccc = Digital sensor, output, input: 2A6, 2A7, 6AA, 6A1, 6A3, 6A5, 6A6, 6A7, 6A8, 8A2, 8A3, 8A4, 8A5

d = Power supply: 6

ee = Additional: PK, PP

2. DOCUMENTS AND DRAWINGS:

- TI00444C/07/EN dated 15.12; 401228 Rev. C dated 01.02.2012; 71129408-410 Rev. A dated 28.01.2011;
- 71138719-410 Rev. A dated 09.06.2011; 71140015-410 Rev. B dated 07.07.2011; 71140016-410 Rev. B dated 07.07.2011;
71140017-410 Rev. B dated 07.07.2011; 71145201-410 Rev. A dated 02.09.2011; 71193471-410 Rev. A dated 23.07.2012;
71195355-410 Rev. A dated 16.08.2012; 71196190-410 Rev. A dated 11.09.2012; 71196277-410 Rev. A dated 03.09.2012
For B0 version:

- TI01112C/07/EN/03.15; 414613 Rev. B dated 2017-05-31; 402351 Rev. A dated 2017-02-14

- 3200542 Rev. E dated 20.07.2017; 71195355-410 Rev. A dated 16.08.2012; 71217046-410 Rev. A dated 26.03.2013;
71208414-410 Rev. B dated 01.03.2013; 71268041-410 Rev. A dated 24.09.2014; 3201220 Rev. C dated 08.08.2016;
3200514 Rev. A dated 19.08.2015; 3200393 Rev. B dated 02.07.2015; 3200401 Rev. B dated 02.07.2015;
71293007-410 Rev. A dated 16.06.2015; 71186546-410 Rev. A dated 25.05.2012

For B1 Version:

- TI00444C/07/EN/19.16; CM44x_REP_Differences_FXHC1_FXHC2_EN dated 17. May 2019

For B2 version:

- SQP Rev. 0.3 dated Dec 1, 2020, Software changes to version 01.08.xx

For B3 version:

- Software changes to version 01.09.xx

For B4 version:

- TI01112C/07/DE/09.19; CM44x_2DSExi Technical description dated 2020-Sep-14; Overview CM44x

- Software changes to version 01.11.xx and 01.12.xx

- TÜV: IECEX TUR 21.0004X Issue No: 0 dated 2021-02-19; TÜV 20 ATEX 8597 X dated 19.02.2021

For B5 version:

- Software changes to version 01.13.xx

For B6 version:

- Software changes to version 01.14.xx

3. TEST REPORTS:

- Endress+Hauser: 01_2010 Rev. 1.00 dated 28.01.2010; 970003308 dated 17.05.2012; 970003310 dated 22.05.2012;
0005707-01 Rev. 2.00 dated 16.11.11

- Hansecontrol: 13-L-00387-01 dated 15 August 2013

- Paconsult: 11-3881A dated 30 Dec 2011; 12-4253 dated 14.Nov 2012

For B0 version:

- Treo: 001-18 dated 15-Mar-18; 081-19 dated 2019-03-22

- Paconsult: 14-5856 dated 04 April 2014; 17-9052B dated June 28, 2017; 19-11390 dated March 7, 2019

For B1 version:

- Phoenix Testlab: E190664E1, second version dated 05.11.2019; E190664E2 dated 02.09.2019;

E190664E2 dated 12.07.2019; E190664E2 dated 12.07.2019

For B4 version:

- Phoenix Testlab: E210641E1 dated 28.06.2021; U210641E1 2 nd version dated 26.01.2021; U212423E1 dated 18.01.2022

4. APPLICATION/LIMITATION:

4.1 - Bureau Veritas Rules for the Classification of Steel Ships

4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**

4.3 - Bureau Veritas Environmental Category, **EC Code: 21** for CM44x, **21C** for CM44xR

4.4 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev8.

4.5 - Ex-certification is not covered by this certificate. Applications in hazardous areas are to be approved in each case according to the Rules and Conditions for Safe Use specified in a valid Ex-Certificate issued by a Notified Body.

4.6 - In accordance with IACS UR E22 and as applicable to programmable devices for computer based systems of Category II, for each ship application:

- Ship specific documentation is to be submitted including software documentation and categorization of the computer based system.

- Inspection and testing before installation onboard is to be performed under the surveillance of the Society.

4.7 - Only Hardware and Firmware / Software successfully tested together in compliance with the Rules as referred to in page one, according to the declaration of the manufacturer is covered by this certificate.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above mentioned products are to be supplied by **Endress + Hauser Conducta GmbH + Co. KG** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **Endress + Hauser Conducta GmbH + Co. KG** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

5.4 - For information, **Endress + Hauser Conducta GmbH + Co. KG** has declared to Bureau Veritas the following production site:

Endress+Hauser Conducta GmbH + Co. KG
Dieselstraße 24
70839 Gerlingen
GERMANY

6. MARKING OF PRODUCT:

- Maker's name or trademark

- Equipment type or model identification

- Date of manufacture and/or serial number

- Ex marking, as relevant

- The title and version of each software element included in the installed software system shall be either marked or displayed on command on the equipment.

- When the marking and the title and version of the software are displayed only on the display, such information shall also be included in the equipment manual.

7. OTHERS:

7.1 - It is the responsibility of **Endress + Hauser Conducta GmbH + Co. KG** to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 31651/B6 BV issued on 19 Jun 2023 by the Society.

*** END OF CERTIFICATE ***