

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Measurement Converter**

with type designation(s)

Liquiline CM444 / CM448, Liquiline CM444R / CM448R

Issued to

Endress+Hauser Conducta GmbH+Co. KG
Gerlingen, Germany

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:**

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Liquiline CM444 / CM448	B	B	A	A	B
Liquiline CM444R / CM448R	B	B	A	A	A

Issued at **Hamburg** on **2019-10-16**This Certificate is valid until **2021-10-10**.for **DNV GL**DNV GL local station: **Augsburg**Approval Engineer: **Dariusz Lesniewski**

Joannis Papanuskas
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

Liquiline CM444 and CM448:

Multiparameter transmitter with a maximum of 8 measuring channels based on digital Memosens technology.

Liquiline CM444R and CM448R:

Cabinet controller with a maximum of 8 measuring channels based on digital Memosens technology.

Supply voltage (CM44x): 100...230V AC (50/60Hz)

Supply voltage (CM44xR): 24VDC (PULS CD5.241)

Communication interface: HART, Profibus DP, Modbus TCP, Ethernet

Input/Output: 0/4 ... 20mA, Digital I/O, Relay

All sensors and sensor cables which are listed in TI00444C can be connected to the type approved Transmitter CM444 and CM448.

All sensors and sensor cables which are listed in TI001112C can be connected to the type approved Transmitter CM444R and CM448R.

Installation (CM44x): wall mounting

Installation (CM44xR): rail mounting

Degree of protection (CM44x): IP66, IP67

Degree of protection (CM44xR): IP20

Firmware: Release V01.06.xx

Liquiline CM444 – Order codes according to order list (Revision 2.1)

Selection code	Description
10 Approval	
AA	Non-hazardous area
CA	CSA C/US General Purpose
CD	CSA C/US NI Cl. I, Div. 2, GP ABCD T4A
GR	Non-hazardous area + EAC designation
20 Sensor input	
M2	2x digital Sensor
M4	4x digital Sensor
N2	2x digital Sensor, M12 plug
N4	4x digital Sensor, M12 plug
25 Digital communication	
A	Modbus TCP, Webserver + optional Output
B	Webserver + optional Outputs
C	HART, Webserver + optional Outputs
D	Ethernet/IP, Webserver + optional Outputs
0	Without
1	HART
2	PROFIBUS DP (+Ethernet configuration)
3	Modbus RS485 (+Ethernet configuration)
30 Analogue output	
A0	Without
A1	2x 0/4...20mA
A3	4x 0/4...20mA
A5	6x 0/4...20mA
A7	8x 0/4...20mA
40 Additional Function	
FA	2x 0/4...20mA input
FE	2x relay, 2x 0/4...20mA input
FF	4x relay, 2x 0/4...20mA input
FG	2x digital input, 2x digital output
FH	4x digital input, 4x digital output
FI	2x relay, 2x digital input, 2x digital output

Liquiline CM444 – Order codes according to order list (Revision 2.1)	
Selection code	Description
FK	4x relay, 2x digital input, 2x digital output
FM	2x 0/4...20mA input, 2x relay, 2x digital input, 2x digital output
F0	Without
F2	2x relay for cleaning: Limit
F4	4x relay for cleaning: Limit
50 Power supply	
1	100...239V AC (50/60Hz)
60 Cable Entry Housing	
0	Metric
1	NPT
2	G
65 Female Jack Fieldbus Communcation	
BA	Without
BB	M12 (Profibus DP, Modbus RTU)
BC	M12 (Ethernet configuration, Modbus TCP)
70 Cable Entry Set	
A	Enclosed
B	Mounted
610 Additional	
NC	CDI; female jack external
NS	SD-Card, 1GB, industrial Flush Drive

Liquiline CM444R – Order codes according to order list (Revision 5)	
Selection code	Description
10 Approval	
AA	Non-hazardous area
CA	CSA C/US General Purpose
CD	CSA C/US NI Cl. I, Div. 2, GP ABCD T4A
GR	Non-hazardous area + EAC designation
20 Sensor input	
M2	2x digital Sensor
M4	4x digital Sensor
25 Digital communication	
A	Modbus TCP, Webserver + optional Output
B	Webserver + optional Outputs
C	HART, Webserver + optional Outputs
D	Ethernet/IP, Webserver + optional Outputs
0	Without
1	HART
2	PROFIBUS DP (+Ethernet configuration)
3	Modbus RS485 (+Ethernet configuration)
30 Analogue output	
A0	Without
A1	2x 0/4...20mA
A3	4x 0/4...20mA
A5	6x 0/4...20mA
A7	8x 0/4...20mA
40 Additional Function	
FA	2x 0/4...20mA input
FE	2x relay, 2x 0/4...20mA input
FF	4x relay, 2x 0/4...20mA input

Liquiline CM444R – Order codes according to order list (Revision 5)	
Selection code	Description
FG	2x digital input, 2x digital output
FH	4x digital input, 4x digital output
FI	2x relay, 2x digital input, 2x digital output
FK	4x relay, 2x digital input, 2x digital output
FM	2x 0/4...20mA input, 2x relay, 2x digital input, 2x digital output
F0	Without
F2	2x relay for cleaning; limit
F4	4x relay for cleaning; limit
50 Power supply	
6	24VDC with the external DC/DC Converter PULS CD5.241 (Railmount)
620 Additional	
PK	External display for cabinet mounted, Navigator+Softkeys including cable IP66
PP	SD card 1 GB

Liquiline CM448 – Order codes according to order list (Revision 2.1)	
Selection code	Description
10 Approval	
AA	Non-hazardous area
CA	CSA C/US General Purpose
CD	CSA C/US NI Cl. I, Div. 2, GP ABCD T4A
GR	Non-hazardous area + EAC designation
20 Digital communication	
A	Modbus TCP, Webserver + optional Output
B	Webserver + optional Outputs
C	HART, Webserver + optional Outputs
D	Ethernet/IP, Webserver + optional Outputs
0	Without
1	HART
2	PROFIBUS DP (+Ethernet configuration)
3	Modbus RS485 (+Ethernet configuration)
25 Digital sensor; Output; Input	
2A6	2x; 2x 0/4...20mA, 4x relay, 4x digital; 4x digital
2A7	2x; 2x 0/4...20mA, 8x relay, 4x digital; 4x digital
6AA	6x; 8x 0/4...20mA, 4x relay; none
6A1	6x; none; none
6A3	6x; 4x relay; none
6A5	6x; 2x 0/4...20mA, 4x relay, 2x digital; 2x digital, 2x 0/4...20mA
6A6	6x; 6x 0/4...20mA; none
6A7	6x; 6x 0/4...20mA, 2x digital; 2x digital
6A8	8x; 6x 0/4...20mA; none
8A2	8x; none; none
8A3	8x; 2x 0/4...20mA; none
8A4	8x; 8x 0/4...20mA; none
8A5	8x; 8x 0/4...20mA, 4x relay; none
50 Power supply	
1	100 ...230V AC (50/60Hz)
60 Cable Entry Housing; Sensors	
AA	Metric; Metric
AB	NPT; NPT
AC	G; G

Job Id: **262.1-028852-1**
Certificate No: **TAA00001ZE**

Liquiline CM448 – Order codes according to order list (Revision 2.1)	
Selection code	Description
AD	Metric; M12
AE	NPT, M12
AF	G; M12
65 Female Jack Fieldbus Communication	
BA	Without
BB	M12 (Profibus DP, Modbus RTU)
BC	M12 (Ethernet configuration, Modbus TCP)
70 Cable Entry Set	
A	Enclosed
B	Mounted
610 Additional	
NC	CDI; female jack external
NS	SD-Card, 1 GB, Industrial Flash Drive

Liquiline CM448R – Order codes according to order list (Revision 5)	
Selection code	Description
10 Approval	
AA	Non-hazardous area
CA	CSA C/US General Purpose
CD	CSA C/US NI Cl. I, Div. 2, GP ABCD T4A
GR	Non-hazardous area + EAC designation
20 Digital communication	
A	Modbus TCP, Webserver + optional Output
B	Webserver + optional Outputs
C	HART, Webserver + optional Outputs
D	Ethernet/IP, Webserver + optional Outputs
0	Without
1	HART
2	PROFIBUS DP (+Ethernet configuration)
3	Modbus RS485 (+Ethernet configuration)
25 Digital sensor; Output; Input	
2A6	2x; 2x 0/4...20mA, 4x relay, 4x digital; 4x digital
2A7	2x; 2x 0/4...20mA, 8x relay, 4x digital; 4x digital
6AA	6x; 8x 0/4...20mA, 4x relay; none
6A1	6x; none; none
6A3	6x; 4x relay; none
6A5	6x; 2x 0/4...20mA, 4x relay, 2x digital; 2x digital, 2x 0/4...20mA
6A6	6x; 6x 0/4...20mA; none
6A7	6x; 6x 0/4...20mA, 2x digital; 2x digital
6A8	8x; 6x 0/4...20mA; none
8A2	8x; none; none
8A3	8x; 2x0/4...20mA; none
8A4	8x; 8x 0/4...20mA; none
8A5	8x; 8x 0/4...20mA, 4x relay; none
50 Power supply	
6	24VDC with the external DC/DC Converter PULS CD5.241 (Railmount)
620 Additional	
PK	External display for cabinet mounted, Navigator+Softkeys including cable IP66
PP	SD card 1 GB

Job Id: **262.1-028852-1**
Certificate No: **TAA00001ZE**

Application/Limitation

This type approval certificate refers to the transmitter CM444/CM444R and CM448/CM448R but not to the connectable sensors.

All sensors and sensor cables which are listed in TI00444C/TI001112C can be connected to the transmitter CM444/CM444R and CM448/CM448R.

Power supply: PULS CD5.241 or other suitable type approved power supply

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE