






# EU-Type Examination Certificate

- [2] EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 2014/34/EU
- [3] EU-Type Examination Certificate Number: Presafe 17 ATEX 10727 Issue 0
- [4] Product: Radio remote control terminal unit
- [5] Manufacturer: Cavotec Micro-control AS
- [6] Address: Gevinglia 112  
7517 Hell, NORWAY
- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] DNV GL Nemko Presafe AS, notified body number 2460, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 the Directive.  
The examination and test results are recorded in confidential reports listed in section 16.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: EN 60079-0:2012/A11:2013, EN 60079-11:2012 and EN 50303: 2000
- [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 EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:
- |               |   |         |                    |  |
|---------------|---|---------|--------------------|--|
| Terminals:    |  | I M1    | Ex ia I Ma         |  |
| Terminals:    |  | II 2 G  | Ex ia IIB T4/T3 Gb | See « Ambient temperature » below for details. |
| Radio module: |  | I (M1)  | [Ex ia Ma] I       |  |
| Radio module: |  | II (1)G | [Ex ia Ga] IIB     |  |

  
Asle Kaastad  
For DNV GL Nemko Presafe AS

The Certificate has been digitally signed.  
See [www.presafe.com/digital\\_signatures](http://www.presafe.com/digital_signatures) for more info



Date of issue: 2017-11-13

*This certificate may only be reproduced in its entirety and without any change, schedule included.*

[13]

## Schedule

[14] EU-TYPE EXAMINATION CERTIFICATE No.: Presafe 17 ATEX Issue 0

[15] **Description of Product**

The Radio Remote Control comprises a portable terminal unit for use in the hazardous location. The system is designed to communicate by radio or cable. When the system communicates by radio, a battery is placed in the terminal unit and supplies it with power. When the system communicates by cable, a zener barrier is used (Presafe 15ATEX7369X or Nemko 10ATEX3217X). Charging of battery must take place in non-classified location. The Base unit is connected to a machine/PLS (for use in non-classified locations). The radio module MC-EX-RX-CD-TRX in the base unit has an intrinsically safe output for connection of an antenna cable and antenna. An antenna placed directly at the base unit or connected via an antenna cable is not part of the certified apparatus but may be used under the concept of IEC 60079-11 clause 5.4 "Simple Apparatus". The Radio module, MC-EX-RX-CD-TRX, shall be installed in an enclosure of minimum IP20.

The terminals don't satisfy the Ga requirements for avoiding electrostatic charging of some parts of the non-metallic surface of the enclosure. Therefore EPL Gb. The electronics satisfies "ia" requirements.

**Type designation**

MC-3200 EX and MC-3300 EX  
Radio module : MC-EX-RX-CD-TRX

**Electrical Safety Parameters**

Base unit with MC-EX-BARRIER2: Um: 125V  
Base unit with MC-EX-BARRIER3: Um: 250V

MC-EX-RX-CD-TRX (LMD-400)			
Um: 60V			
		Group I	Group IIB
Uo:	5,88V		
Io:	2,13A		
Po:	3,13W		
Co:		565,1μF	565,1μF
Lo:		99μH	27μH
Lo/Ro	45,6μH/Ω		

MC-EX-RX-CD-TRX (STD-302S)			
Um: 60V			
		Group I	Group IIB
Uo:	5,88V		
Io:	2,13A		
Po:	3,13W		
Co:		833,5μF	833,5μF
Lo:		100μH	28,8μH
Lo/Ro:	45,6μH/Ω		

MC-3200 EX and MC-3300 EX			
Power input (Terminal J8-3)		Signal RS485 input (Terminal J8-1 and J8-2)	
Ui:	9,3V	Ui:	9,1V
Ii:	2,95A	Ii:	111mA
Pi:	4,77W	Pi:	214mW
Ci:	7,037μF	Ci:	7,037μF
Li:	Negligible	Li:	Negligible

The terminals shall either be powered from the base unit (barriers MC-EX-BARRIER2 or MC-EX-BARRIER3), MC-EX-BATTERY3 or MC-EX-BATTERY3 UL. The electrical safety parameters above are only for IS calculations including cable.

### Degrees of protection (IP Code)

IP55 (Terminal unit)

IP4X (Battery pins)

### Ambient temperature:

Terminal:

-20°C ≤ Ta ≤ +60°C → T4 (powered by MC-EX-BATTERY3)

-20°C ≤ Ta ≤ +60°C → T3 (powered by MC-EX-BATTERY3 UL)

-20°C ≤ Ta ≤ +45°C → T4 (powered by MC-EX-BATTERY3 UL)

-30°C ≤ Ta ≤ +60°C → T4 (powered by cable)

Base unit and MC-EX-RX-CD-TRX (antenna output): -30°C ≤ Ta ≤ +60°C

### Routine tests

None

[16] Report No.: D0003148

[17] Specific Conditions of Use

None

## [18] Essential Health and Safety Requirements

Essential Health and Safety Requirements (EHSRs) are covered by the standards listed at item 9

## [19] Drawings and documents

Number	Title	Rev.	Date
BOM-97-006	Bill of materials for MC-EX-PM	11	2016-01-15
LAY-97-006	Layout for MC-EX-PM	5	2009-05-20
SCH-97-006	Schematic for MC-EX-PM	7	2015-08-17
TN-09-030	New moulding jig MC-EX-PM	2	2013-12-09
SP-15-023	PCB specification for MC-EX-PM	1	2015-06-26
TP-09-001	Test procedure for MC-EX-PM	6	2016-03-30
LAY-96-004	Layout for MC-TX-KB-2	6	2009-05-28
SCH-96-004	Schematic MC-TX-KB-2	6	2009-05-28
SP-15-024	PCB specification for MC-TX-KB-2	1	2015-07-06
LAY-07-003	Layout MC-TX-KB4	4	2009-06-24
SCH-07-007	Schematic MC-TX-KB4	3	2009-06-24
TP-97-006	Test procedure for MC-TX-KB2, 3 and 4	12	2012-10-05
SP-15-025	PCB specification for MC-TX-KB4	1	2015-07-06
BOM-97-009	Bill of materials for MC-LCD	6	2015-08-11
LAY-97-009	Layout for MC-LCD	3	2009-05-29
SCH-97-009	Schematic for MC-LCD	3	2009-05-29
TP-09-002	Test procedure for MC-LCD	4	2015-06-22
SP-15-026	PCB specification for MC-LCD	1	2015-06-25
TN-15-024	MC-LCD display modules, circuit plan	1	2015-08-11
LAY-02-003	Layout for MC-LCD2	2	2009-05-29
SCH-02-009	Schematic and bill of materials for MC-LCD2	3	2015-08-12
TP-09-003	Test procedure for MC-LCD2	4	2015-06-22
SP-15-027	PCB specification for MC-LCD2	1	2015-07-07
LAY-06-001	Layout MC-EX-BATTERY3	2	2009-05-29
SCH-05-008	Schematic MC-EX-BATTERY3	6	2015-05-11
MP-06-001	Assembly Instructions for MC-EX-BATTERY3	11	2015-06-24
SP-15-028	PCB specification for MC-EX-BATTERY3	1	2015-06-29
SP-15-015	MC-EX-BATTERY3 UL Specification	1	2015-05-22
LAY-14-012	Layout MC-EX-RX-CD-TRX	2	2015-03-19
SCH-14-010	Schematics MC-EX-RX-CD-TRX	3	2015-08-17

MP-15-004	Assembly Procedure for MC-EX-RX-CD-TRX module	2	2016-01-20
M9-2004-1005	Approval label 48x28mm, MC-EX-RX-CD-TRX-STD-302	B	2017-07-03
M9-2004-1006	Approval label 48x28mm, MC-EX-RX-CD-TRX-LMD-400	B	2017-07-03
M9-2004-1007	Approval label 48x28mm, MC-EX-RX-CD-TRX-STD-302S	B	2017-07-03
SP-15-031	PCB specification for MC-EX-RX-CD-TRX	1	2015-06-26
TN-15-018	Marking of antenna output on MC-EX-RX-CD-TRX	1	2015-07-02
LAY-07-004	Layout MC-CD-PLL	7	2014-01-21
SCH-07-003	Schematics MC-CD-PLL	14	2015-08-17
MP-08-008	Mounting procedure MC-CD-PLL	6	2015-06-24
SP-15-030	PCB specification for MC-CD-PLL	1	2015-07-06
TN-11-021	Safety control drawing	2	2015-05-08
SP-03-021	Procedure for encapsulation of EX components	7	2012-09-26
SP-12-025	Specification of EX marking labels for MC-3 series EX	5	2017-07-04
SP-15-005	Legend plate specification for MC-3 series EX	1	2015-04-09
SP-15-014	EX Conformal coating for CMC products	1	2015-05-21
MAN-11-004	MC-3 Series EX Instruction Manual	5	2017-07-04
90280711A	Project drawing for base unit	A	2013-03-07
M9-2003-3201	Chassis top MC-3200 with inserts	G	2014-08-01
M9-2003-3202	Chassis bottom MC-3200 with inserts	F	2015-05-13
M9-2003-3301	Chassis top MC-3300 with inserts	C	2012-06-08
M9-2003-3392	Chassis bottom MC-3300 with inserts	F	2015-05-13
902807T2B	Project drawing for MC-3200 EX and MC-3300 EX	B	2015-09-03
M5-2020-3201	Tie bar long for MC-3200	A	2012-03-28
M5-2020-3202	Tie bar short for MC-3200	C	2011-10-20
M5-2020-3301	Tie bar long for MC-3300	2	2012-01-12
M5-2020-3302	Tie bar short for MC-3300	2	2012-01-12
SP-10-008	System specification for MC-3200 EX and MC-3300 EX	3	2015-06-03
M5-2000-0461	MC-BAT3 Bottom housing	A	2015-03-23
M5-2000-0462	MC-BAT3 Lid	A	2015-01-27

## [20] Certificate History

Issue	Description	Issue date	Report no.
0	Original issue	2017-11-13	D0003148

END OF CERTIFICATE