





EC-Type Examination Certificate

- [2] EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC
- [3] EC-Type Examination Certificate Number: Presafe 15 ATEX 7369X Issue 0
- [4] Equipment or Protective System: Barrier
- [5] Applicant – Manufacturer or Authorized representative: Cavotec Micro-control AS
- [6] Address: Gevinglia 112
7517 Hell, NORWAY
- [7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] DNV Nemko Presafe AS, notified body number 2460 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems 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, EN 60079-11: 2012, EN 60079-15: 2010 and EN 50303: 2000
- [10] If the sign “X” is placed after the certificate number, it indicates that the equipment or protective system is subject to specific conditions of use specified in the schedule to this certificate.
- [11] This EC-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.
- [12] The marking of the equipment or protective system shall include the following:

	I (M1)	[Ex ia Ma] I
	II (1)G	[Ex ia Ga] IIB
	II (1)D	[Ex ia Da] IIIC
	II 3(1)G	Ex nA [ia Ga] IIB T4 Gc

Bjørn Spongsveen
For DNV Nemko Presafe AS
Information on electronic signature www.presafe.com



Date of issue: 2016-03-02

[13]

Schedule

[14] EC-TYPE EXAMINATION CERTIFICATE No.: Presafe 15 ATEX 7369X Issue 0

[15] **Description of Equipment or Protective System**

Ex barrier with intrinsically safe output. The barrier, MC-EX-BARRIER3, shall be used together with Cavotec's terminal units MC-3200 EX, MC-3300 EX, MC-3-5 EX or MC-3-6 EX. The barrier has galvanically separation between non-IS and IS.

Type designation

MC-EX-BARRIER3

Electrical Data

Um : 250V

When used in zone 2 Um: 85V d.c / 60V a.c

		Terminal J5 : 1-2	Terminal J5 : 3-4
I / IIB / IIIC	Uo :	9,3V	7,71V
	Io :	2,39A	111mA
	Po :	3,93W	214mW
I	Co :	1000μF	1000μF
IIB / IIIC	Co :	32μF	140μF
I	Lo :	81μH	44mH
IIB / IIIC	Lo :	24μH	14mH
I	Lo/Ro :	84,7μH/Ω	2,1mH/Ω
IIB / IIIC	Lo/Ro :	25,8μH/Ω	668μH/Ω

Degrees of protection (IP Code)

IP20 according to IEC 60529: 2013.

Ambient temperature:

-30°C ≤ Ta ≤ +65°C

Routine tests

For the transformer, T1:

Between input and output windings of T1: 2500VAC for 60 seconds.

Between all the windings and the core of T1: 1000VAC for 60 seconds.

Maximum current allowed is 5mA r.m.s. at any time.

[16] **Report No.:** D0001695

[17] **Specific Conditions of Use**

The following requirements have to be fulfilled before the equipment can be used in zone 2:

- Do not separate J1 in a hazardous area when energized.
- The MC-EX-BARRIER3 shall be mounted in an enclosure which complies to the requirements of EN 60079-15 and fulfil IP54, or alternatively be mounted in an enclosure certified according to EN 60079-7.
- Needs to be installed with two Ex certified thermostats which is set to max. 65°C when installed with other equipment inside the enclosure. The thermostats shall be connected in series before the barrier input, so it will has no voltage potential if the temperature exceeds 65°C. The thermostats must be installed close to the barrier. For ATEX only one Ex certified safety device can be used if certified at least SIL 2 and according to EN 50495: 2010.
- The dimensions of the enclosure have to be minimum 30 cm x 20 cm x 15 cm.
- The power supply has to be SELV certified or external transient protection device to be set at a level not exceeding 140% of the peak rated voltage of 85VDC or 60VAC has to be used.
- Um: 85V d.c / 60V a.c.
- $-30^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$

[18] **Essential Health and Safety Requirements**

See part 9 of this certificate

[19] **Descriptive Documents**

Number	Title	Rev.	Date
MP-14-009	Mounting procedure for M9-1040-3033 MC-EX-BARRIER3	B	2015-11-27
SP-03-021	Procedure for encapsulation of Ex components	7	2012-09-26
SCH-14-007	Schematic MC-EX-BARRIER3-E	2	2015-12-10
LAY-14-005	Layout MC-EX-BARRIER3-E	2	2015-12-10
M5-2004-3313	Label Prod. MC-EX-BARRIER3	A	2014-01-22

SP-09-004	Labelling procedure PCB – product marking	6	2015-05-15
M9-2004-3012	Approval label EX-BARR3 70-50mm	A	2016-02-15
M5-5901-0013	Mould for potting EX-BAR3 potting frame	B	2015-11-24
M9-1040-3033	MC-EX-BARRIER3 EX-barrier	A	2015-11-26
M5-2052-0224	Lock MB2 DIN-rail NC35 for use in MC-MB2-xxx, Black	6	2015-12-22
M5-2052-0213	Encl. top MC-EX-BARRIER3 Blue RAL5015	5	2015-12-22
M5-2052-0031	Enclosure MB2 Left side For MC-MB2-xxx, Black	3	2015-12-18
M5-2052-0030	Enclosure MB2 Right side for MC-MB2-xxx, Black	3	2015-12-18
SP-14-015	Technical specification MC-EX-BARRIER3-E	1	2015-08-28
TP-14-010	Test Procedure for MC-EX-BARRIER3-E	1	2015-11-06
DT 32055-9	Data Sheet for Inductive Component	A7	2016-01-30
MAN-15-006	User manual MC-EX-BARRIER3	1	2016-01-05

[20] Certificate History

Issue	Description	Issue date	Report no.
0	Original issue	2016-02-16	D0001695

END OF CERTIFICATE