G010514

Manual Call Point IP66/67
CS-MCP HD Ex RED
Part no. 5210033-xxA

System: CFD5000

About the datasheet

This datasheet contains information about the following products:

Product name	Part no.
CS-MCP HD Ex RED	5210033-00A
CS-MCP HD Ex RED, UL listed	5210033-10A (Soon to be released)

General description

CS-MCP HD Ex is an intrinsically safe addressable manual call point. The heavy duty encapsulation, with high level of corrosion resistance, makes it capable of withstanding harsh environment for long time periods.

A fire alarm is activated by breaking the glass that has a protective plastic coating to prevent operator injury. The fire alarm can be reset on the control panel of the fire detection system after the broken glass has been replaced.

CS-MCP HD Ex is designed to comply with the standards for the industrial, maritime, offshore and rolling stock markets up to Safety Integrity Level 2 (SIL 2).

Data

Sensor method	Glass break
Sensor element	Limit switch
Operating voltage	16–38 VDC
Operating current:	
- Normal condition	Appr. 0.1 mA
- Alarm condition	Appr. 1.6 mA
Loop communication protocol	IDAxt
Cable dimension	M25 ø 9–17 mm Material: Black polyamide
Cable terminals	2.5 mm^2
Operating temperature	-40 °C to +70 °C
Storage temperature	-50 °C to +70 °C
Relative humidity	≤ 95 % RH non-condensing
Addressing method	DIP switch
Ingress protection	IP66/67
Material	Anti-static UV resistant glass reinforced polyester
Weight	1.2 kg ± 5%
Loop cable requirement	See the Installation & Commissioning manual

Certifications

Manual call point
IECEx IMQ 16.0008X
IMQ 16 ATEX 017X

$C\epsilon$ 0470

U_i: 28VDC, I_i: 93mA, P_i: 653mW
C_i: 1073pF, L_i: negligible

Consilium Marine & Safety AB
Salsmästaregatan 21
SE-422 46 Hisings Backa

CS-MCP HD Ex RED
Part.No.: 5210033-00A Rev.: RR
$\langle Ex \rangle$ II 1G Ex ia IIC T5 Ga
-40°C ≤ Ta ≤ +70°C

Ser.No.: YYWWXXXXX

WARNING -
POTENTIAL ELECTROSTATIC CHARGING
HAZARD – SEE INSTRUCTIONS.
Made in EU
G021856

EN 54   EN 54-11, EN 54-17

Data sheet no. 5210033-xxA_CS-MCP HD Ex RED_M_EN_2020_N

ATEX Ex ia	Certificate No: IMQ 16 ATEX 017X Certified according to: 60079-0, 60079-11 ⟨Ex⟩ II 1G
IECEx Ex ia	Certificate No: IECEx IMQ 16.0008X Certified according to: 60079-0, 60079-11 Ex ia IIC T5 Ga -40 °C ≤ Ta ≤ +70 °C
UL (Pending)	Listing no. E506803 UL listed to Class 1, Div 1, Groups A – D
SIL	Certificate No: TÜV NORD 44 788 13082116 SIL2 certified according to IEC 61508

CE 0470

Ex parameters

Maximum voltage (U_i)	28 V
Maximum current (I_i)	93 mA
Internal capacitance (C_i)	1073 pF
Internal inductance (L_i)	Negligible
Maximum power (P_i)	0.653 W

Functional Safety Data

Type	B
HFT	0
SFF	93 %
PFD_{avg}	2.79×10^{-4}

PFD_{avg} is calculated for MTTR 8 h and proof test interval 1 year.
Suitable for use in SIL 1 and SIL 2 environments.

Accessories

Spare glass (10pcs.)	Part no. 5210075-00A
Resettable element	Part no. 5200144-00A

Data for built-in Short Circuit Isolator (SCI)

Ic max (Maximum Continuous current)	500 mA
Is max (Maximum Switching current)	800 mA
Current when short circuited (IL max)	< 1 mA
Open to Close voltage	16 ± 3 VDC

| Open to Close, maximum load expressed in ohms on the non-energized side	≈2 kΩ
Close to Open voltage	12 ± 3 VDC

Address switch

The loop units are identified by a physical address. The address number is set on an 8 pole DIP switch located on the loop unit. (For settings use a pointed tool of suitable size.)

⚠ **CAUTION!**
Due to a technical limitation in the address card, using consecutive addressing is prevented. If the MCP unit has address x, the next unit on the loop-line shall have address x+2 (or higher).

1   2   4   8   16   32   64   128   G011112
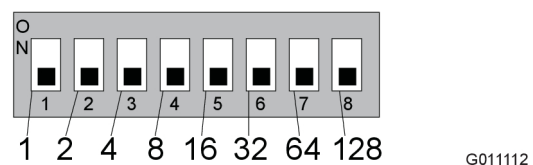
1 to 150 are valid addresses. The DIP switch value follows the binary system.
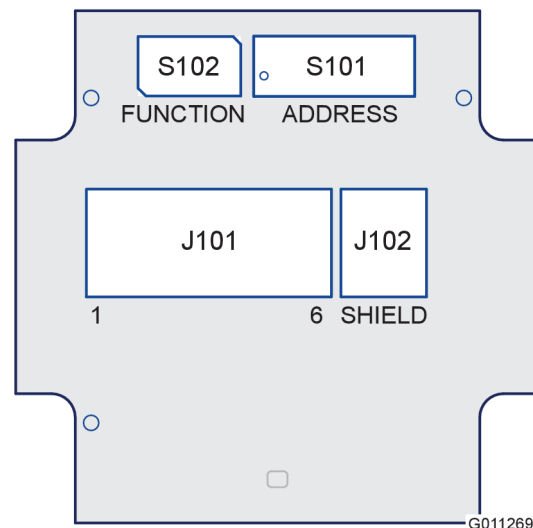
Location of switches and terminals

Figure 1. Location of DIP switches and terminals on the PCB

Address switch S101 (8 pole) for the loop address.

Function switch S102 (5 pole) is factory set to ID1. Do not change!

For terminal no. see section Connection.

Installation

General

The unit should be mounted on a vertical surface using the four ø 6 mm fixing holes in the base. These have been designed to accept M5 screw or bolt.

> **NOTE!**
> The cover assembly needs to be removed to access the unit fixing holes.

Recommendation: Use stainless steel screws.

Access to terminals

1. Unscrew the four M5 screws (4.0 mm A/F hexagon key) holding the lid to the base. The cover screws are captive and should be retained in the cover.

2. Gently remove the cover assembly from the base of the enclosure. The cover assembly should remain attached to the base by means of a retaining strap.

3. Once termination is complete, carefully replace the cover assembly back onto the base avoiding damage to the mating surfaces.

4. Ensure that the retaining strap is not trapped between the mating surfaces and that the O-ring is correctly seated in its groove.

5. Ensure the retaining strap and wires are clear of the micro switch actuator and operating mechanism.

6. Tighten the four M5 screws (4.0 mm A/F hexagon key) evenly.

Connection
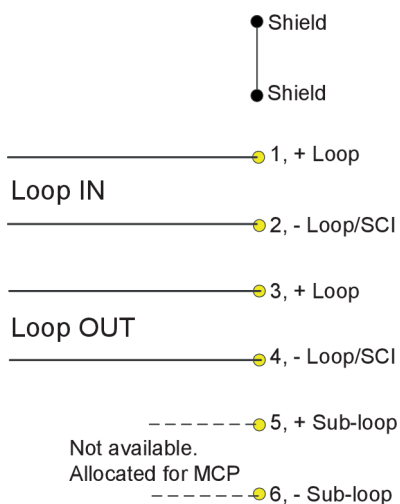
G011390

Figure 2. Terminals J101 and J102

Local intelligence via an integrated CPU

The integrated CPU makes it possible to make decisions locally, like evaluation of the alarm condition.

IDAxt protocol

The IDAxt protocol is an extension of Consilium's communication protocol (IDA) and meets the demands on data integrity, reliability and robustness required for use in SIL 1 and SIL 2 safety functions and safety systems.

Periodic BIST

The Periodic Built-In Self-Test is a central mechanism which the system uses to ensure long proof test intervals.

Countermeasures (defences) have been implemented in order to address the fault modes (threats) in the fire detection system. These countermeasures are done in order to increase the confidence in the system.

The system has two types of Built-In Self-Tests (BIST). The first BIST is made continuously; for instance when reading A/D values from hardware. This typically involves evaluation of the read value to determine if the hardware is broken; i.e. gives measurements outside an acceptable interval.

The second BIST is the Periodic Built-In Self-Test (Periodic BIST) which is made once every five minutes in order to verify the safety function by testing communication paths. All internal communication paths and all testable parts of the loop-units are included in the Periodic BIST mechanism, to verify the whole path from detection to reporting (fire) status.

The system creates a log with the results of the Periodic BIST. This log can be extracted from the system with a USB memory stick.

Short Circuit Isolator (SCI)

The built-in SCI isolates short circuits on the loop-line and also has a probe function for evaluating a short circuit. The SCI ensures that the fire detection system does not lose contact with the loop units when there is one short circuit on the loop-line. The probe function makes it possible to reset the short circuit condition without restart of the loop-line.

> **NOTE!**
> When used in a hazardous area the loop unit must be connected to a CS-Isolator. Refer to the 5210050-00A CS-Isolator data sheet for connection examples.

Operation

The unit is operated by the breaking of the glass. Due to the design of the unit, there is no need to use a hammer and the operator is protected from the broken glass by the vinyl glass label.

Cleaning

⚠ **WARNING!**
Potential electrostatic charging hazard
If the unit requires cleaning, only clean exterior with a damp cloth to avoid electrostatic charge build up.

ℹ **NOTE!**
The small metal plate on the front has 250pF capacitance to the MCP's surface.

Replacement of the glass

1. To replace the glass after operation of the unit, remove the small outer cover held in place by the two slotted screws.

2. Take out the glass and remove any broken fragments from the unit.

3. Place the new glass element into the unit and replace the cover, ensuring the two slotted screws are tightened evenly.

4. Following replacement of the glass it is advised that the unit is tested using the procedure outlined below.

Testing the unit

1. Using the test key provided, insert the key into the test hole (situated on the bottom right hand side of the glass cover).

2. Turn the key in a clockwise direction (approximately 60°). This will simulate the breaking of the glass.
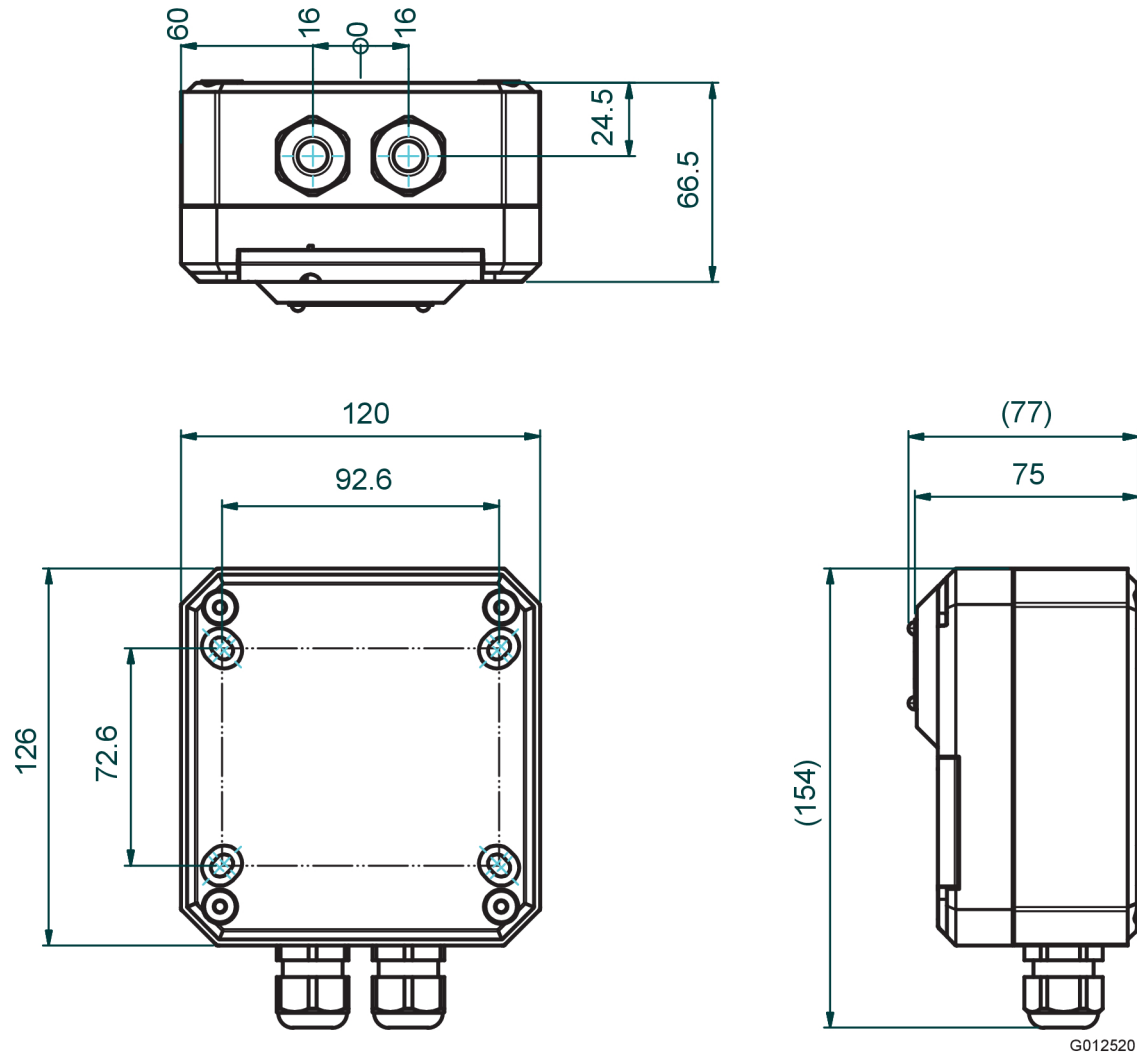
3. Release the key to reset the call point.

ℹ **NOTE!**
Do not force the test key further than 80° clockwise or 0° anti-clockwise as this may lead to premature failure of the test cam.
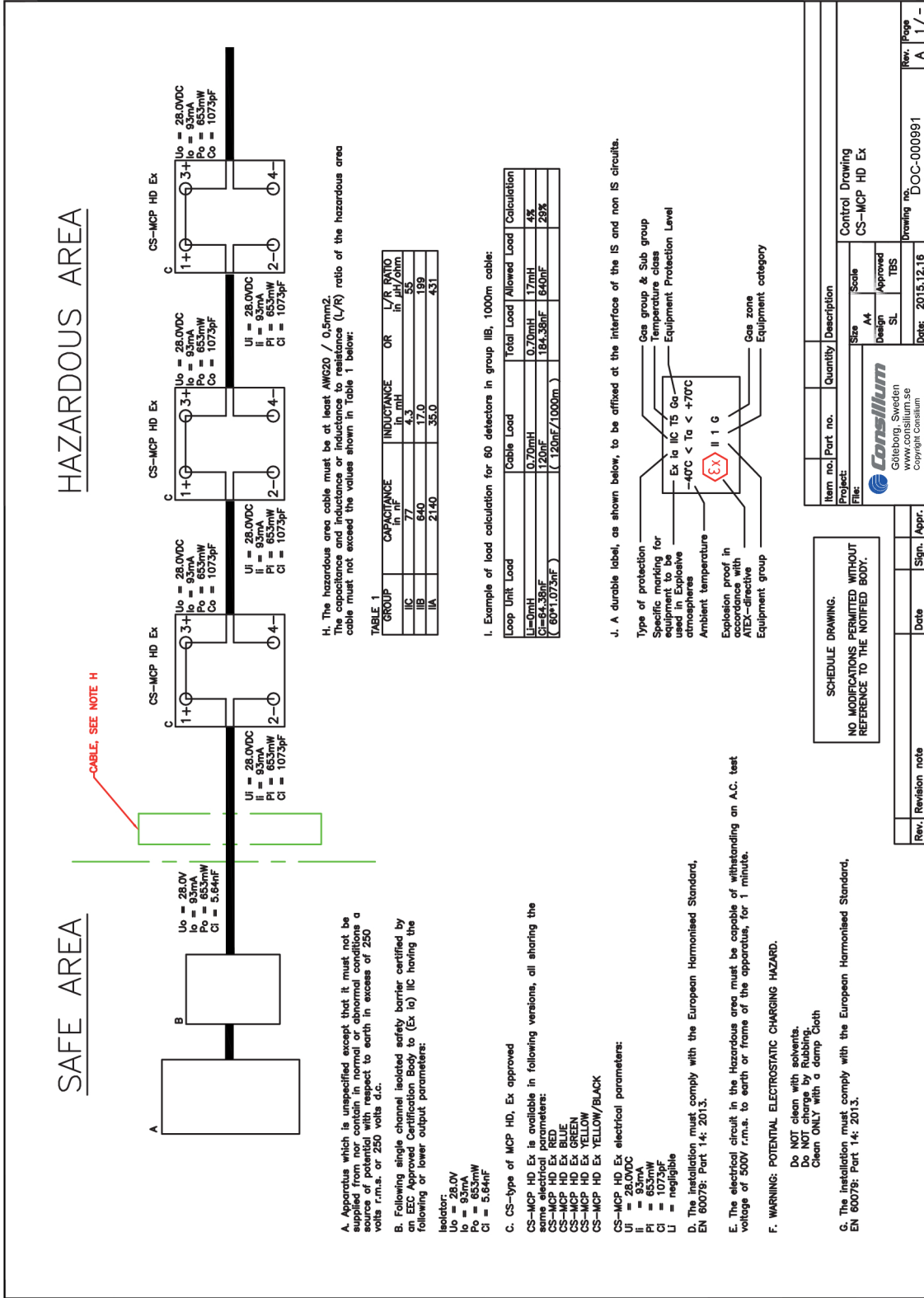
Dimensions (mm)

60   16   Ø0   16

24.5

66.5

120

92.6

126

72.6

(77)

75

(154)

G012520

Holes for wall mounting (x4): Max screw thread M5

SAFE AREA

HAZARDOUS AREA

CABLE, SEE NOTE H

Uo = 28.0V
Io = 93mA
Po = 653mW
Ci = 5.64nF

Ui = 28.0VDC
Ii = 93mA
Pi = 653mW
Ci = 1073pF

CS-MCP HD Ex
1+   3+
2   4

Uo = 28.0VDC
Io = 93mA
Po = 653mW
Co = 1073pF

Ui = 28.0VDC
Ii = 93mA
Pi = 653mW
Ci = 1073pF

CS-MCP HD Ex
1+   3+
2   4

Uo = 28.0VDC
Io = 93mA
Po = 653mW
Co = 1073pF

Ui = 28.0VDC
Ii = 93mA
Pi = 653mW
Ci = 1073pF

CS-MCP HD Ex
1+   3+
2   4

Uo = 28.0VDC
Io = 93mA
Po = 653mW
Co = 1073pF

A. Apparatus which is unspecified except that it must not be supplied from nor contain in normal or abnormal conditions a source of potential with respect to earth in excess of 250 volts r.m.s. or 250 volts d.c.

B. Following single channel isolated safety barrier certified by an EEC Approved Certification Body to (Ex ia) IIC having the following or lower output parameters:

Isolator:
Uo = 28.0V
Io = 93mA
Po = 653mW
Ci = 5.64nF

C. CS-type of MCP HD, Ex approved

CS-MCP HD Ex is available in following versions, all sharing the same electrical parameters:
CS-MCP HD Ex RED
CS-MCP HD Ex BLUE
CS-MCP HD Ex GREEN
CS-MCP HD Ex YELLOW
CS-MCP HD Ex YELLOW/BLACK

CS-MCP HD Ex electrical parameters:
Ui = 28.0VDC
Ii = 93mA
Pi = 653mW
Ci = 1073pF
Li = negligible

D. The installation must comply with the European Harmonised Standard, EN 60079: Part 14: 2013.

E. The electrical circuit in the Hazardous area must be capable of withstanding an A.C. test voltage of 500V r.m.s. to earth or frame of the apparatus, for 1 minute.

F. WARNING: POTENTIAL ELECTROSTATIC CHARGING HAZARD.

Do NOT clean with solvents.
Do NOT charge by Rubbing.
Clean ONLY with a damp Cloth

G. The installation must comply with the European Harmonised Standard, EN 60079: Part 14: 2013.

H. The hazardous area cable must be at least AWG20 / 0.5mm2. The capacitance and inductance or inductance to resistance (L/R) ratio of the hazardous area cable must not exceed the values shown in Table 1 below:

TABLE 1

GROUP	CAPACITANCE in nF	INDUCTANCE in mH	OR	L/R RATIO in μH/ohm
IIC	77	4.3		55
IIB	640	17.0		199
IIA	2140	35.0		431

I. Example of load calculation for 60 detectors in group IIB, 1000m cable:

Loop Unit Load	Cable Load	Total Load	Allowed Load	Calculation
Li=0mH	0.70mH	0.70mH	17mH	4%
Ci=64.38nF	120nF	184.38nF	640nF	29%
60*1.073nF	(120nF/1000m)			

J. A durable label, as shown below, to be affixed at at the interface of the IS and non IS circuits.

Type of protection

Specific marking for equipment to be used in Explosive atmospheres

Ambient temperature

Explosion proof in accordance with ATEX-directive

Equipment group

Gas group & Sub group
Temperature class
Equipment Protection Level

Gas zone
Equipment category

Ex ia IIC T5 Ga
-40°C < Ta < +70°C

⟨Ex⟩ II 1 G

Item no.	Part no.	Quantity	Description		
			Control Drawing		
			CS-MCP HD Ex		

Project:
File:

Consilium
Göteborg, Sweden
www.consilium.se
Copyright Consilium

Size	Scale		
A4			
Design	Approved		
SL	TBS		
Date: 2015.12.16			

Drawing no.
DOC-000991

Rev. A   Page 1/-

SCHEDULE DRAWING.

NO MODIFICATIONS PERMITTED WITHOUT REFERENCE TO THE NOTIFIED BODY.

Rev.	Revision note	Date	Sign.	Appr.

G017410

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