# CS-Loop M H Loop-Line Controller Module

| Product reference | |
|---|---|
| Part No. | 5210003-00A |
| Manufacturer | Consilium / Salwico |
| Model | CS-Loop M H |



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## Product overview

The CS-Loop M H module is intended to be used as a part of a fire detection system and is suitable for use in SIL 1 and SIL 2 environments. This loop-line controller module offers one loop-line interface that is capable of handling 150 addressable loop units. It is designed to comply with the standards for the industrial, maritime, offshore and rolling stock markets up to Safety Integrity Level 2 (SIL 2). The module communicates via the IDAxt protocol on the loop-line and the SSP protocol if connected with other CS-modules. The IDAxt protocol uses a frequency modulation interface to transmit data; this and the signal processing capability of this module ensure very modest cable requirements for installations. The CS-Loop M H can control the loop-line in normal or redundant configuration. Each CS-Loop M H furthermore has: Redundant power supply inputs; Redundant communication channels; A channel for transmitting the fire condition. The CS-Loop M H module consists of two products, the CS-Loop M and the CS-Housing 22.5 H, which can be ordered separately as spare parts. Figure 2. Example of a redundant loop-line configuration with two CS-Loop M H modules For details on assembling a system and definitions of common system terms, please see the Installation & Commissioning manual. CS-Loop M indicators display output and alarm status. Settings The module is identified by a physical address on the Backbone Bus. The address is set with an 8-pole DIP switch. Address switch The DIP switch value follows the binary system. The address no. can be set using DIP-switch poles 1 to 7. The address selected on the DIP-switch must correspond to the settings in the configuration program. CAUTION! If a shielded cable is used on the loop-line it shall be connected to the shield terminal on CS-IC10. The shield from the loop-line shall not be connected with the shield from the hazardous area. Mounting Mount the module on a horizontal 35 mm DIN rail. NOTE! If all LED's are flashing the DIP switches are set to OFF or all are set to ON. Please set according to project documentation.

## Technical specifications

| | | | |
|---|---|---|---|
| Operating voltage | 19–30 VDC | Mounting | Horizontal 35 mm DIN rail |
| Operating temperature | -40 °C to +70 °C | Source datasheet | Data sheet no. 5210003-00A_CS-Loop M H_M_EN_2022_F |
| Relative humidity | ≤ 95 % RH non-condensing | Specification change notice | The specifications described herein are subject to change without notice. |
| Material | Nylon 6.6 | Overall width | 29 mm |
| Weight (with housing) | 140 g ±5% | Body width | 22.5 mm |
| CE conformity | EN 54-2 | Height | 99 mm |
| Approvals | EN 50155, EN 45545-2 | Depth | 114.5 mm |
| Certified according to | Not provided | Connection examples | Ex loop-line and Ex spur are distinct source examples; both show device addresses X/Y/Z and a CS-Isolator external earth connection. The examples do not imply unrestricted compatibility or physical wire routing. |
| Safety integrity level | SIL 1 and SIL 2 | Current consumption | 70 mA at 24 V |
| Safety architecture type | Type B | Loop line output nominal voltage | 35 VDC |
| HFT | 0 | Maximum loop units | 150 loop units |
| SFF | 97 % | Cable terminals | 2.5 mm2 |
| PFD | 1.96 × 10-4 | Storage temperature | -50 °C to +70 °C |
| PFD calculation basis | MTTR 8 h and proof test interval 1 year | Addressing method | DIP switch |
| Continuous output | 200 mA | Colour | Yellow (RAL 1018) |
| Maximum output current | 400 mA (< 15 minutes) | Spare part (module) | CS-Loop M 5210002-00A |
| Redundant power supply inputs | Redundant power supply inputs | Spare part (housing) | 5210069-00A |
| Redundant communication channels | Redundant communication channels | Loop cable requirement | See the Installation & Commissioning manual |
| Fire condition channel | A channel for transmitting the fire condition | Compatible loop units | All loop units that communicate with the IDAxt protocol |
| Invalid DIP-switch condition | All LEDs flashing means all DIP switches are OFF or all are ON; set them according to project documentation. | Production mark | 2531/yyyy; yyyy = year of production |

| | | | |
|---|---|---|---|
| Shielded loop-line condition | Connect a shielded loop-line to the CS-IC10 shield terminal; do not connect it to the hazardous-area shield. | System association | CFD5000 |

| Indicator and safety states · Source page 6 | | | | |
|---|---|---|---|---|
| **Front label** | **Indicator** | **Colour / pattern** | **Module status** | **Failure classification** |
| | | | | |
| | ALARM | Red, steady | One or more fire alarms are present | Follow local procedures |
| | | Red, flashing | Pre-alarm | Follow local procedures |
| | | None | There are no alarms | N/A |
| | FAULT | Yellow, steady | One or more faults are present | * |
| | | Yellow, flashing | Module is booting or re-scanning the loop | * |
| | | None | There are no faults | N/A |
| | PS (Power Supply) | Green | OK | N/A |
| | | Yellow, steady | Power fault on one of the two power channels feeding the module. A single power fault does not prevent the loop module to communicate with the loop units. | Minor fault* |
| | | Yellow, flashing: 0.5 sec On, 0.5 sec Off. | Boot loader mode. Only active during firmware download to the loop module. In this mode the loop unit can't communicate with the loop units. | * |
| | | Yellow, flashing: 1 sec On, 0.5 sec Off. | Safe State Predefined state to avoid disturbing system integrity. | * |
| | COM (Backbone communication) | Green, steady | OK | N/A |
| | | Green, flashing | Unconfigured. Could be a configuration error in the application program file. (Communication working.) | Minor fault* |
| | | Yellow, steady | System fault | Major fault* |
| | | | Normal condition for defined slave module, if only channel 1 is used. | N/A |
| | | Yellow, flashing | Communication fault on the backbone interface. | Major fault* |
| | | None | No communication | Major fault* |
| | PS + COM (both flashing) | PS Yellow, flashing | Transferring software. (Download or upload.) | * |
| | | COM Green, flashing | | |

* Check fault alarm on the control panel and refer to fault code information in CFD5000 Installation & Commissioning manual or Service & Maintenance manual.




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# Loop Controller Module
# *CS-Loop M H*

Part no. 5210003-00A

System: CFD5000

## General description

The CS-Loop M H module is intended to be used as a part of a fire detection system and is suitable for use in SIL 1 and SIL 2 environments.

This loop-line controller module offers one loop-line interface that is capable of handling 150 addressable loop units. It is designed to comply with the standards for the industrial, maritime, offshore and rolling stock markets up to Safety Integrity Level 2 (SIL 2).

The module communicates via the IDAxt protocol on the loop-line and the SSP protocol if connected with other CS-modules.

The IDAxt protocol uses a frequency modulation interface to transmit data; this and the signal processing capability of this module ensure very modest cable requirements for installations.

The CS-Loop M H can control the loop-line in normal or redundant configuration. Each CS-Loop M H furthermore has:

- Redundant power supply inputs
- Redundant communication channels
- A channel for transmitting the fire condition

For details on assembling a system and definitions of common system terms, please see the Installation & Commissioning manual.

The CS-Loop M H module consists of two products, the CS-Loop M and the CS-Housing 22.5 H, which can be ordered separately as spare parts.

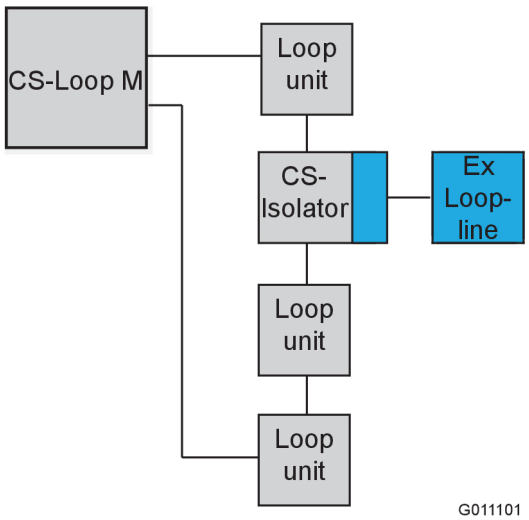



*Figure 1. Example of a normal loop-line configuration*

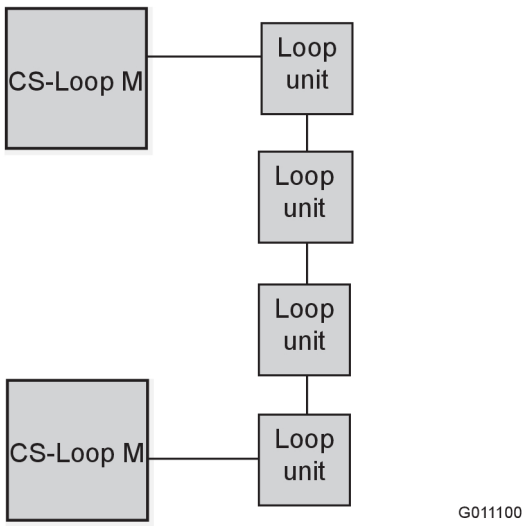



*Figure 2. Example of a redundant loop-line configuration with two CS-Loop M H modules*

## Data

| | |
|---|---|
| Operating voltage | 19–30 VDC |
| Current consumption (at 24 V) | 70 mA |
| Loop line output: | |
| - Nominal voltage | 35 VDC |
| - Max. output current | 400 mA (< 15 minutes) |
| - Continuous output current | 200 mA |
| Max. no. of loop units | 150 |
| 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 |
| Material | Nylon 6.6 |
| Weight (with housing) | 140 g ±5% |
| Colour | Yellow (RAL 1018) |
| Spare part no. CS-Loop M (without housing) | 5210002-00A |
| Spare part no. for housing | 5210069-00A |
| Loop cable requirement | See the Installation & Commissioning manual |
| Compatible loop units | All loop units that communicate with the IDAxt protocol |
| CE Conformity | EN 54-2 |
| Approvals | EN 50155, EN 45545-2 |
| Certified according to | 2531/yyyy<br>yyyy = year of production |

### Functional Safety Data

| | |
|---|---|
| Type | B |
| HFT | 0 |
| SFF | 97 % |
| $PFD_{avg}$ | $1.96 \times 10^{-4}$ |

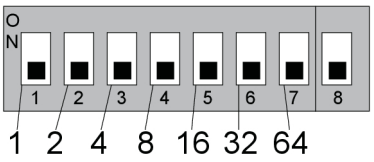
$PFD_{avg}$ is calculated for MTTR 8 h and proof test interval 1 year.
Suitable for use in SIL 1 and SIL 2 environments.

## Settings

The module is identified by a physical address on the Backbone Bus. The address is set with an 8-pole DIP switch.

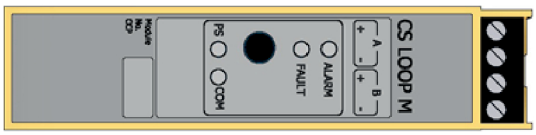
## Address switch

The DIP switch value follows the binary system. The address no. can be set using DIP-switch poles 1 to 7. The address selected on the DIP-switch must correspond to the settings in the configuration program.



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## Connections



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## Connection examples

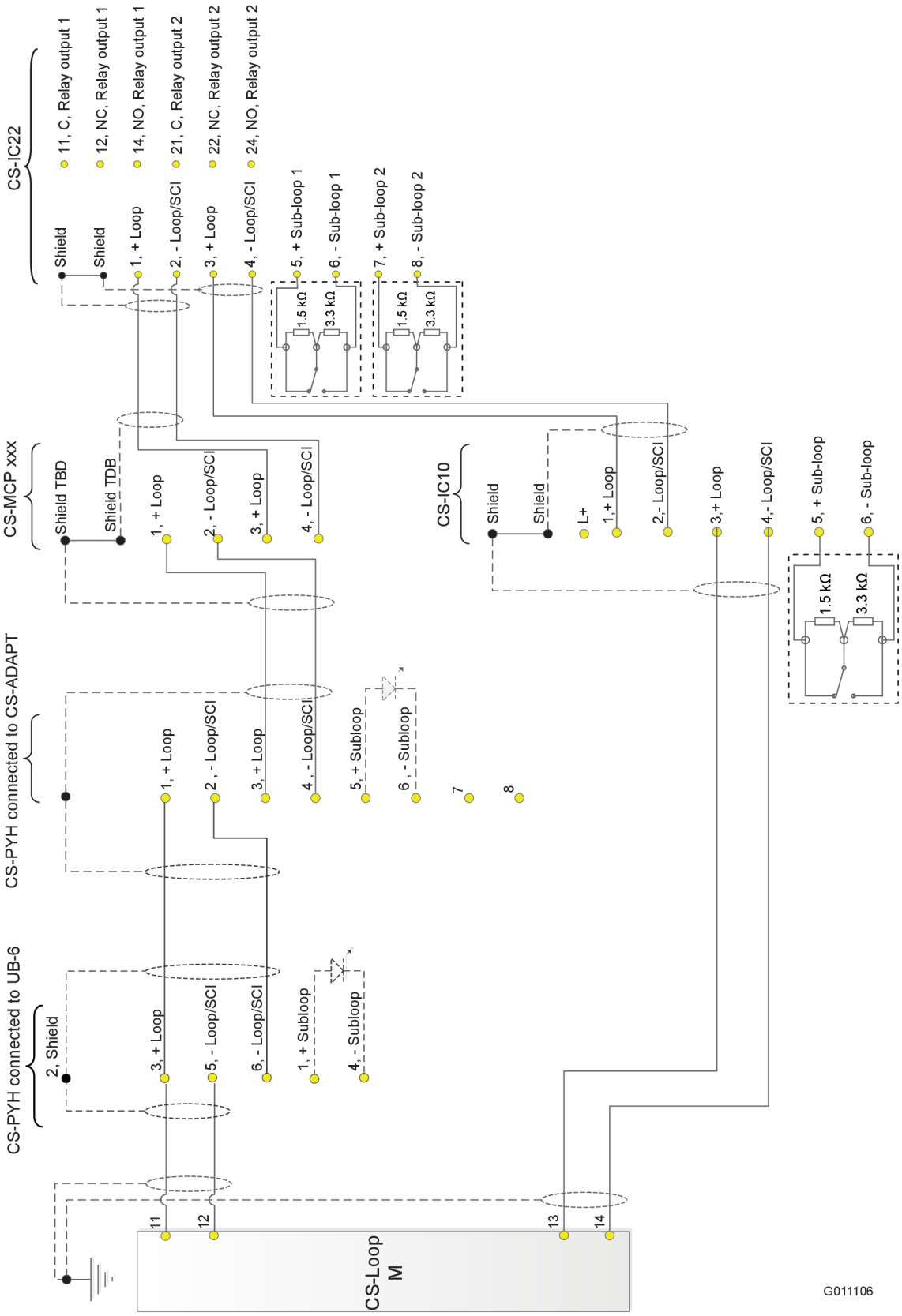



*Figure 3. Connection example of a normal loop-line configuration in a non Ex area*

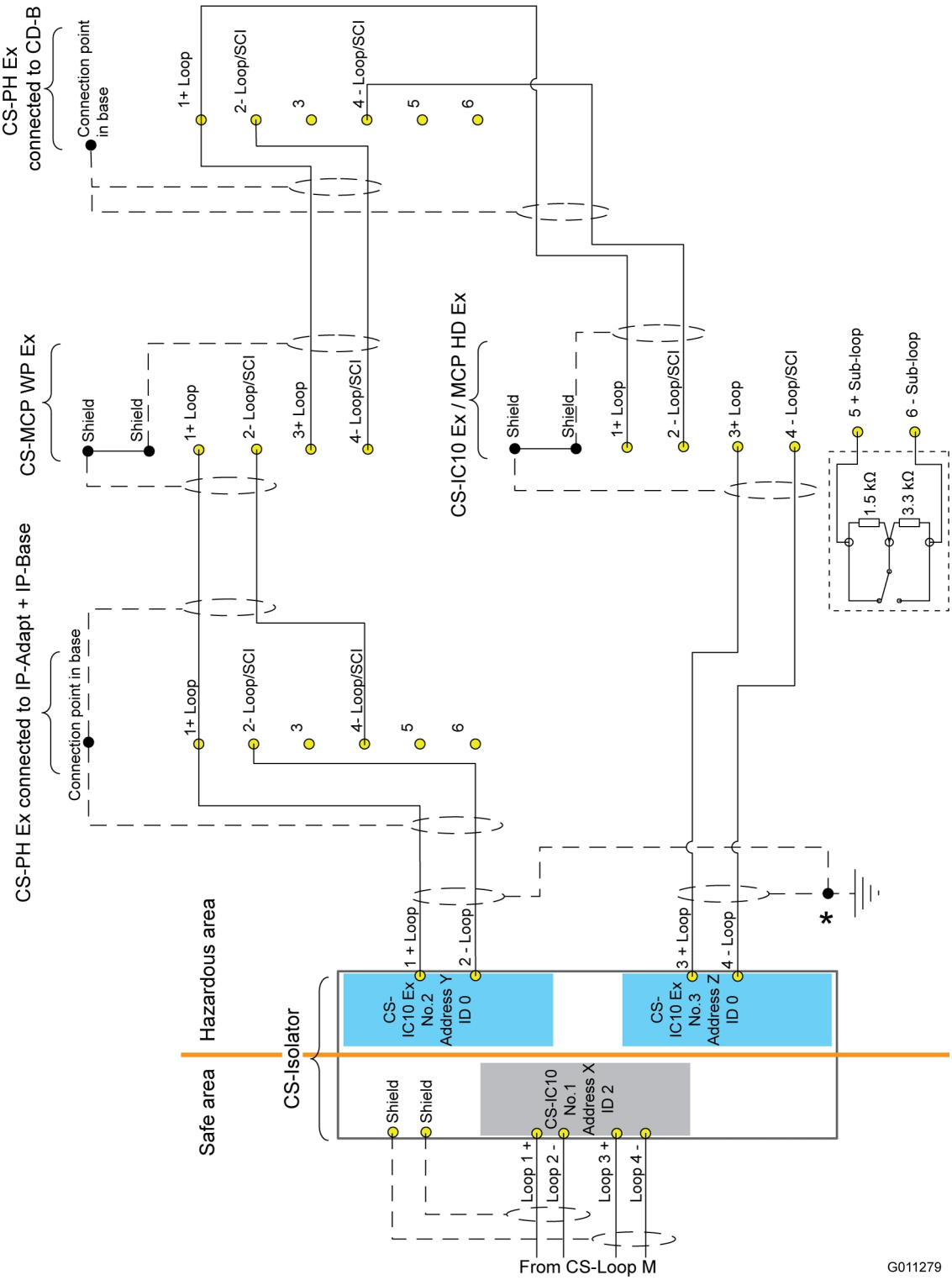



*Figure 4. Connection example for an Ex loop-line*

* External earth connection for CS-Isolator

**CAUTION!**

If a shielded cable is used on the loop-line it shall be connected to the shield terminal on CS-IC10. The shield from the loop-line shall not be connected with the shield from the hazardous area.

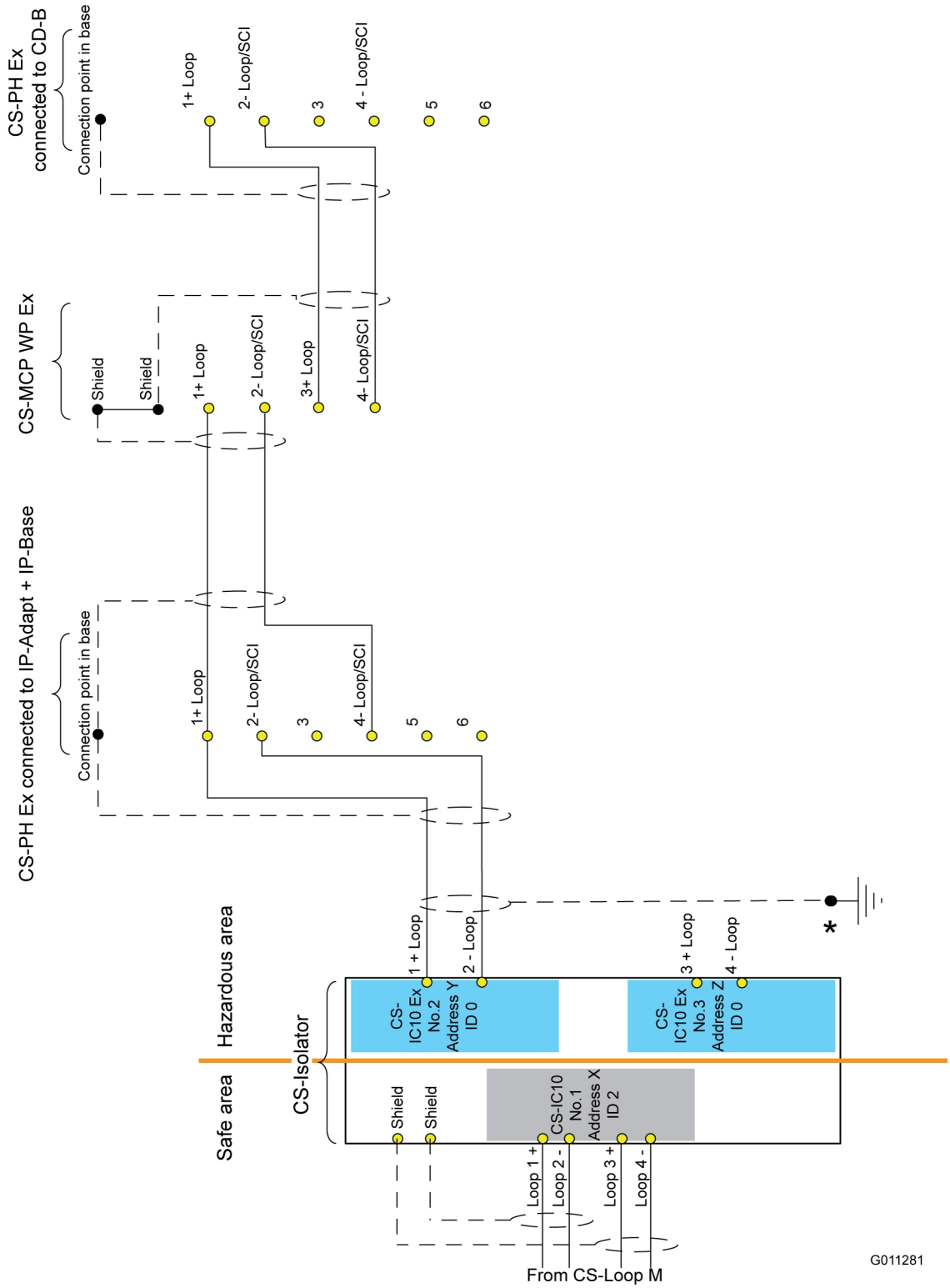



*Figure 5. Connection example for an Ex spur*

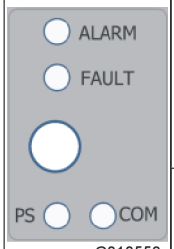
* External earth connection for CS-Isolator

**CAUTION!**

If a shielded cable is used on the loop-line it shall be connected to the shield terminal on CS-IC10. The shield from the loop-line shall not be connected with the shield from the hazardous area.

## Indicators

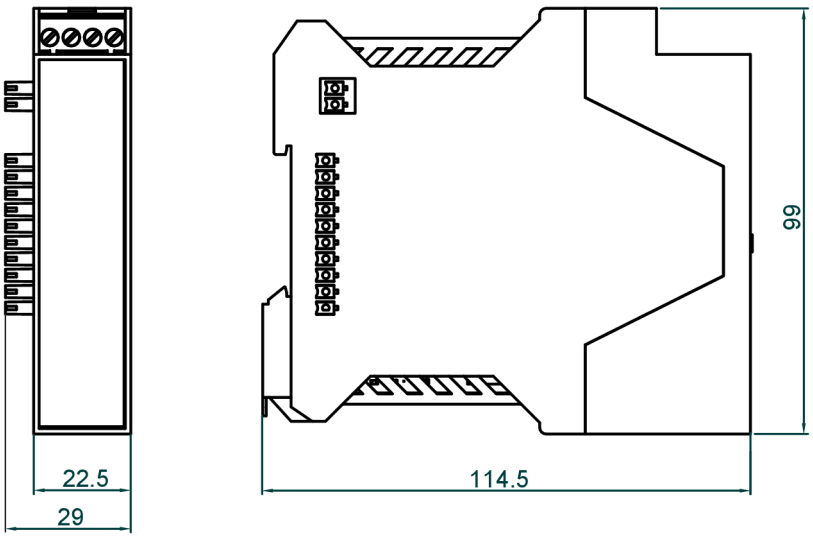
CS-Loop M indicators display output and alarm status.

| Front label | Indicator | Colour, pattern | Module status | Failure classification |
|---|---|---|---|---|
|  G010558 | ALARM | Red, steady | One or more fire alarms are present | Follow local procedures |
| | | Red, flashing | Pre-alarm | Follow local procedures |
| | | None | There are no alarms | N/A |
| | FAULT | Yellow, steady | One or more faults are present | * |
| | | Yellow, flashing | Module is booting or re-scanning the loop | * |
| | | None | There are no faults | N/A |
| | PS (Power Supply) | Green | OK | N/A |
| | | Yellow, steady | Power fault on one of the two power channels feeding the module. A single power fault does not prevent the loop module to communicate with the loop units. | Minor fault* |
| | | Yellow, flashing: 0.5 sec On, 0.5 sec Off. | Boot loader mode. Only active during firmware download to the loop module. In this mode the loop unit can't communicate with the loop units. | * |
| | | Yellow, flashing: 1 sec On, 0.5 sec Off. | Safe State Predefined state to avoid disturbing system integrity. | * |
| | COM (Backbone communication) | Green, steady | OK | N/A |
| | | Green, flashing | Unconfigured. Could be a configuration error in the application program file. (Communication working.) | Minor fault* |
| | | Yellow, steady | System fault | Major fault* |
| | | | Normal condition for defined slave module, if only channel 1 is used. | N/A |
| | | Yellow, flashing | Communication fault on the backbone interface. | Major fault* |
| | | None | No communication | Major fault* |
| | PS + COM (both flashing) | PS Yellow, flashing | Transferring software. (Download or upload.) | * |
| | | COM Green, flashing | | |

* Check fault alarm on the control panel and refer to fault code information in CFD5000 Installation & Commissioning manual or Service & Maintenance manual.

**NOTE!**
If all LED's are flashing the DIP switches are set to OFF or all are set to ON.
Please set according to project documentation.

## Dimensions (mm)




## Mounting

Mount the module on a horizontal 35 mm DIN rail.