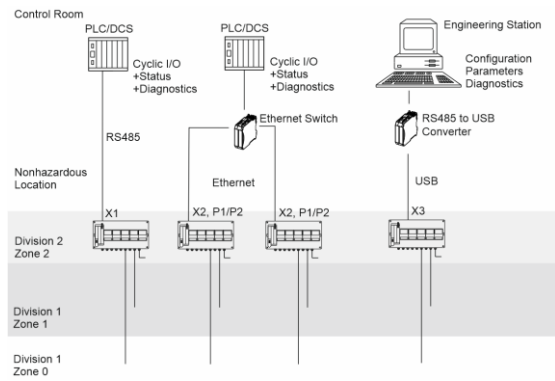


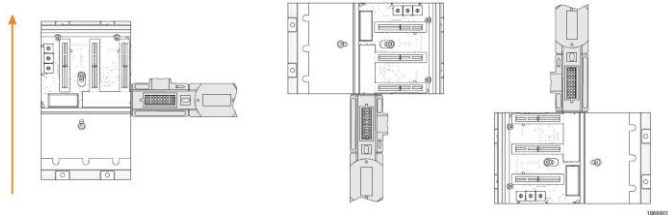
The copying, distribution and utilization of this document as well as the communication of its contents to others without expressed authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or ornamental design registration.

## Examples for System Topology interfacing Automation control systems with DIV 2 / Zone 2 installation of IS1+ Remote I/O System:



The IS1+ Remote I/O System is a DIN rail mounted system designed to record and output process control signals between hazardous location transducers and sensors and a nonhazardous location automation system. It consists of electrical apparatus in the nonhazardous, Class I, Division 2 or Class I, Zone 2 hazardous locations linked by either nonincendive field bus or a field bus installed per the National Electrical Code, ANSI/NFPA 70 Article 500 or Canadian Electrical Code, CSA C22. Direct connected by RS485 or ethernet for PLC/DCS communication. An ethernet switch is optional in this topology. These devices reside in the unclassified (nonhazardous) location or Division 2 / Zone 2 locations and provide a connection to the IS1 resp. IS1+ Remote I/O System. See examples to the left. The apparatus located in the Division 2 or Zone 2 hazardous location are referred to as Remote I/O, and consist of the following major subsystems.

### Mounting direction:



### Construction example for assembly of an IS1 resp. IS1+ System:



### GENERAL NOTES:

1. Installation should be in accordance with Article 504/505 of the National Electrical Code, ANSI/NFPA 70 and ANSI/ISA RP12.06.01.
2. Installation in Canada should be in accordance with the Canadian Electrical Code, CSA C22.1, Part 1
3. Use a general purpose enclosure meeting the requirements of ANSI/ISA 61010-1 for use in nonhazardous or Class I, Division 2 or Class I, Zone 2 hazardous (classified) locations.
4. Use an FM Approved or NRTL listed Dust tight enclosure appropriate for environment protection in Class II and III, Division 2, Groups E, F and G, hazardous (classified) locations.
5. All I/O Modules may be detached from the BusRail or plugged onto it during operation in hazardous areas. For Plugging to the CPU Module and Power Module on the socket, see the corresponding control drawing.

Mount the device in a vertical direction, with the reading of the marking from below, left or right, or in a horizontal direction with the terminals nearest the bottom of the enclosure. Never mount the IO modules upside down (terminals towards the top of the enclosure). As shown above.

#### 1. Socket

The Socket is the Backbone of the Remote I/O System IS1+. It provides connections for Power Modules and CPU Modules via the Backplane. I/O Modules are connected via a BusRail interface, which is also provided by the Socket.

#### 2. Power Module

The Power Module serves as a power supply unit for the CPU Module, as well as for the supply to the I/O Modules and the field circuits. The power supply to the I/O Modules is implemented via the Socket and BusRail. For the configuration with redundant Power Modules the power supply to the I/O Modules is decoupled. The Power Module has an under voltage monitoring circuit.

#### 3. CPU Module

The CPU Module fulfils the function of a gateway between the BusRail and Backplane and the communication interfaces which connects the Remote I/O System with the PLC/DCS or Engineering Station. The gateway is constructed as a dual processor system. The I/O processor controls the data exchange with the I/O Modules and, when plugged-in, with the redundant CPU Module or Power Module. The communication processor controls the data exchange on the communication interfaces.

#### 4. Backplane

The Backplane provides, an internal data bus and the address lines for the interconnection of the CPU Modules and Power Modules and I/O Modules plugged onto the socket. It also provides a Power bus supplied by the Power Module to CPU Modules and I/O Modules plugged to the socket. The communication with the I/O Modules is implemented via the address and data bus lines. The interface of the CPU Module with the internal data bus on the BusRail is designed with redundancy.

#### 5. BusRail

The BusRail provides, an internal data bus and the address lines for the interconnection of the CPU Module to I/O Modules. It also provides a Power bus supplied by the Power Module on the socket to the I/O Modules plugged to the BusRail. The communication with the I/O Modules is implemented via the address and data bus lines to the CPU Module on the socket. The interface of the CPU Module with the internal data bus on the BusRail is designed with redundancy.

#### 6. I/O Modules

All I/O Modules are manufactured in a unique DIN rail mount package which then mounts onto the Remote I/O system BusRail. All I/O Modules provide galvanic isolation between the field circuits and the BusRail's circuits.

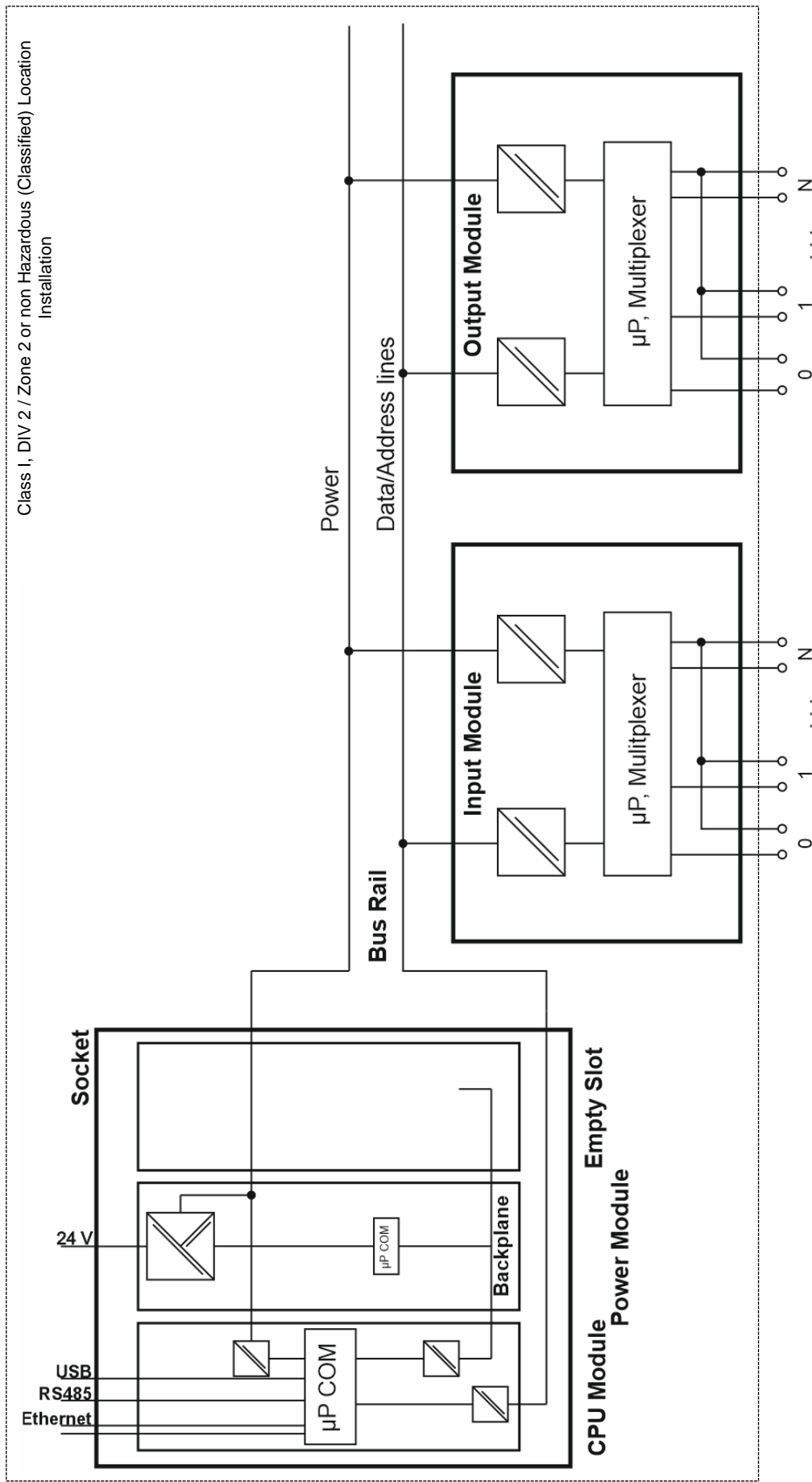
WARNING: Substitution of components may impair Intrinsic Safety.  
 AVERTISSEMENT: Substitution de composants peut compromettre la sécurité intrinsèque.

F 4830 503

Weitergabe sowie Vervielfältigung dieses Dokuments, Verwertung und Mitteilung seines Inhalts sind verboten, soweit nicht ausdrücklich gestattet. Zuwiderhandlungen verpflichten zu Schadensersatz. Alle Rechte für den Fall der Patent-, Gebrauchsmuster- oder Geschmacksmusterrechte vorbehalten.

			2018	Date	Name	Certification drawing <b>IS1+ Remote I/O System          for CL I, DIV 2 / Zone 2          Overview</b>	Scale	none
			Drawn by	08.03.	Bagusch		Sheet	1 of 2
			Checked		Kaiser		Agency	FM
Version	Date	Name	<b>STAHL</b>			9400 6 031 006 1		
						Rep. f.		Rep. t.

**Block Diagram of a Zone 2 Field Station:**



Class I, DIV 2 / Zone 2 or non Hazardous (Classified) Location Installation

I.S. Inputs and Outputs  
Class I, II, III, DIV 1, Groups A-G; Class I, Zone 0, IIC/IB

or Non I.S. or Nonincendive circuits,  
Class I, II, III, DIV 2, Group A-G; Class I, Zone 2, Group IIC/IB

Version	Date	Name	2018	Date	Name	Certification drawing <b>IS1+ Remote I/O System</b> for CL I, DIV 2 / Zone 2 <b>Overview</b>	Scale
			Drawn by	08.03.	Bagusch		none
			Checked		Kaiser		Sheet
							2 of 2
						9400 6 031 006 1	FM
						Rep. f.	Rep. t.
							A4