



IS1 remote I/O

ready for the future



1987

250 cm
(98.4")

ICS MUX

R. STAHL Ex i Fieldbus

1997



VOS 200

Profibus DP (Ex i in accordance with STAHL-Standard)



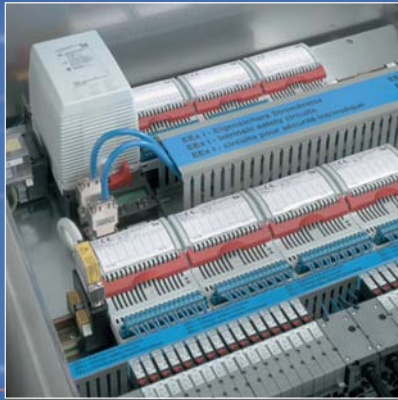
trend-setter

For the last 80 years of our 130-year company history, we at R. STAHL have had a major impact in the sector of explosion protection. Development of explosion protected, electrical control devices and control units was speeded up consistently and successfully as of 1926. The ICS MUX Fieldbus system with intrinsically safe fieldbus interface, developed by R. STAHL, was launched on the market in 1987. It is one of the world's first and most successful Remote I/O Systems for use in hazardous areas. The Profibus DP bus protocol was not rolled out as a standardised fieldbus protocol until 1997. The offshore industry in particular benefits from the advantages of digital data transmission. Three independent fieldbus systems from R. STAHL were used on an offshore drilling platform off the coast of Norway in 1993. What was then the company's largest fieldbus project required customer-specific, innovative solutions and a high engineering share. R. STAHL's Remote I/O System IS1 was introduced in the year 2000 as a decisive step into the new millennium, geared to the future. This pioneering system leads the market worldwide today in the fieldbus engineering sector. In the year 2007, the breakthrough is achieved. Industrial Ethernet technology made it's arrival in the sector of process automation, and it becomes possible to integrate Remote I/O in various generations of fieldbus. Besides its many years of participation in various national and international standardisation committees for electrical apparatus in the sector of explosion protection, R. STAHL has, for some years now, been active in the fieldbus organisation committees. This involvement ensures our customers optimum exchange of information, in the fieldbus technology sector as well, and our know-how and expertise ensure that efficient, well-conceived solutions are provided to customers.



2000

2007



60 cm
(23.6")



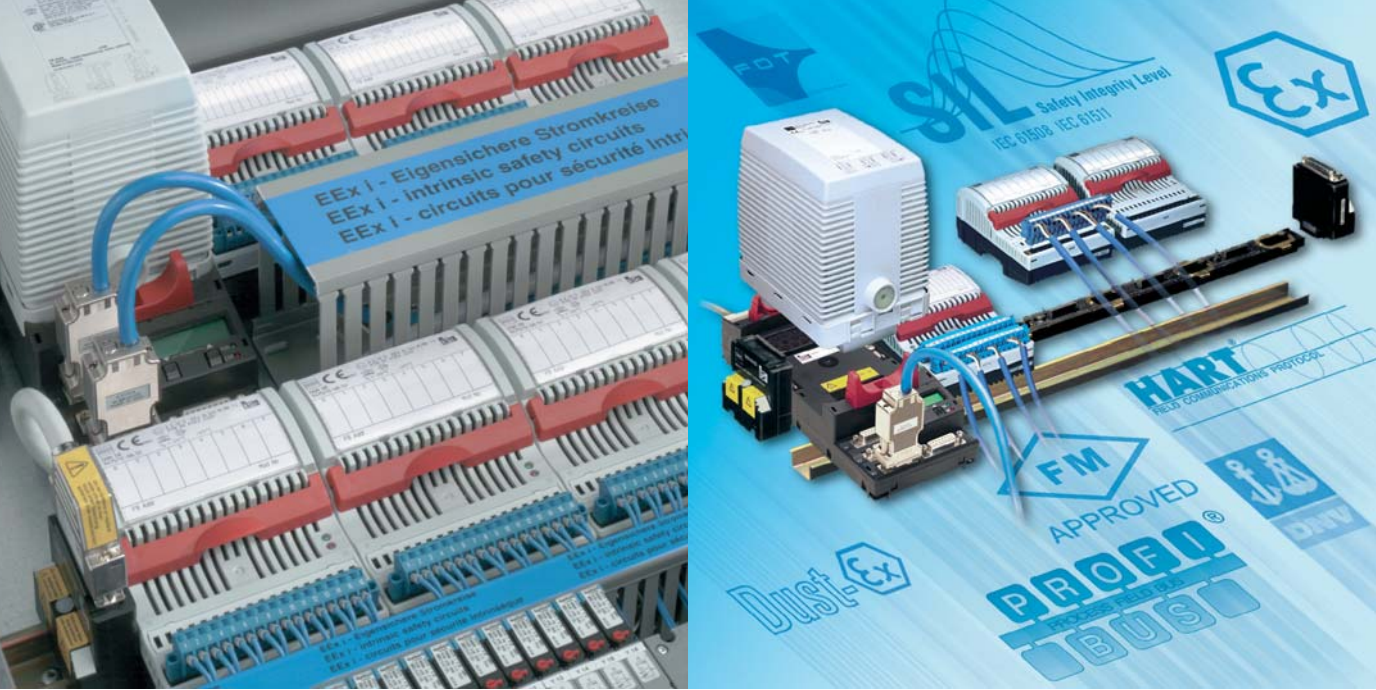
IS1
 ☀ Profibus DP V1 HART
 Ex i, Ex op is (Profibus-Standard)

IS1 Ethernet
 ☀ Industrial Ethernet/ Ex op is



ready for the future

Remote I/O IS1 Profibus DP and Modbus	4
Remote I/O IS1 Ethernet	7
Fieldbus Systems Engineering	8
Asset Management	10
Engineering Support Service	11

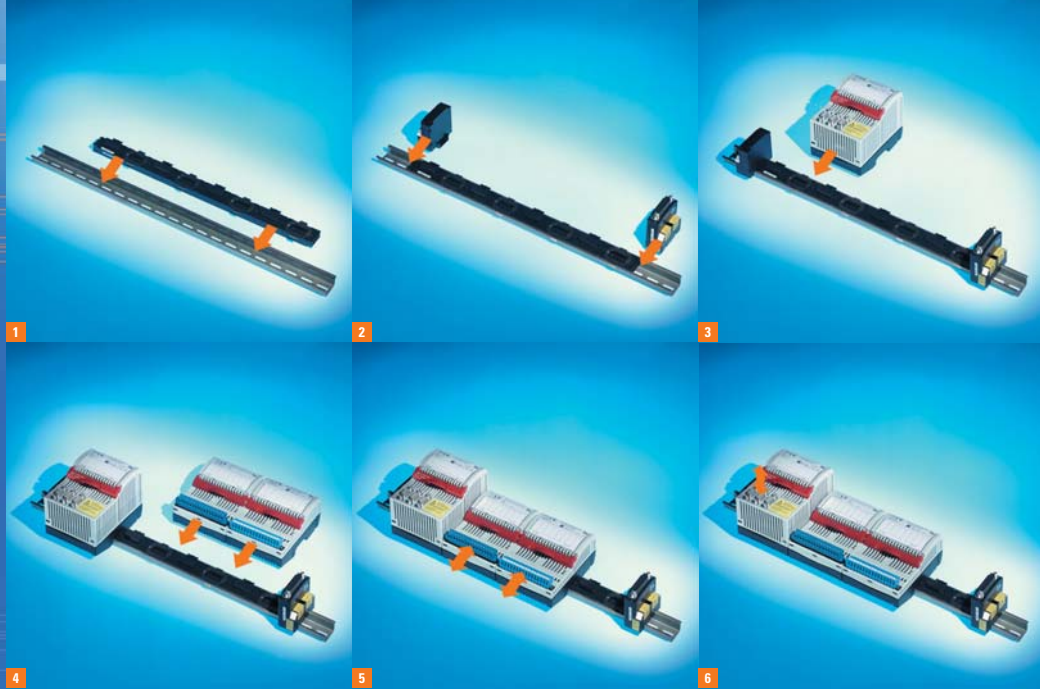
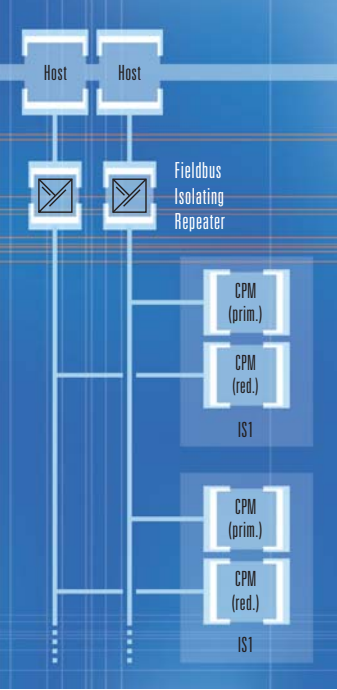


IS1 remote I/O

the market leader in Zone 1, Division 1

R.STAHL has already marketed the second generation of an explosion protected Remote I/O System: the IS1. It features a simple structure, unique flexibility and tremendous efficiency and economy, and these aspects make it the most popular Remote I/O System for Zone 1 and Division 1. Any requirement can be met flexibly with IS1, regardless of whether the application requires only a few signals or very many signals or whether it necessitates installation in Zone 1, Zone 2, Division 1 and Division 2 or in the control room. The intrinsically safe system structure with Ex i fieldbus, using either copper wires or fibre-optic cables, allows the system to be serviced and repaired even in hazardous areas. The system may be provided with a redundant structure if availability requirements are stringent. Many additions and enhancements have made R.STAHL's Remote I/O IS1 even better and more effective in recent years. These add-ons have also optimised the system for mixed operation of Zone 1/Zone 2, Division 1/Division 2 and non-Ex signals. The intrinsically safe Profibus DP fieldbus interface is now also available in accordance with Profibus Standard RS 485-IS, and an automatic baud rate detection and repeater function has been introduced with the new Fieldbus Isolating Repeater. This provides line redundancy as a second redundancy option. HART integration has also been adapted optimally to various automation systems. The IS1 System has been classified SIL 1 for safety-related applications in accordance with IEC 61508 and a Plant Stop function has been integrated for SIL 2. All international approvals allow worldwide use. IS1 from R.STAHL – the simplest, technically perfect, efficient and economic solution. The easy way.

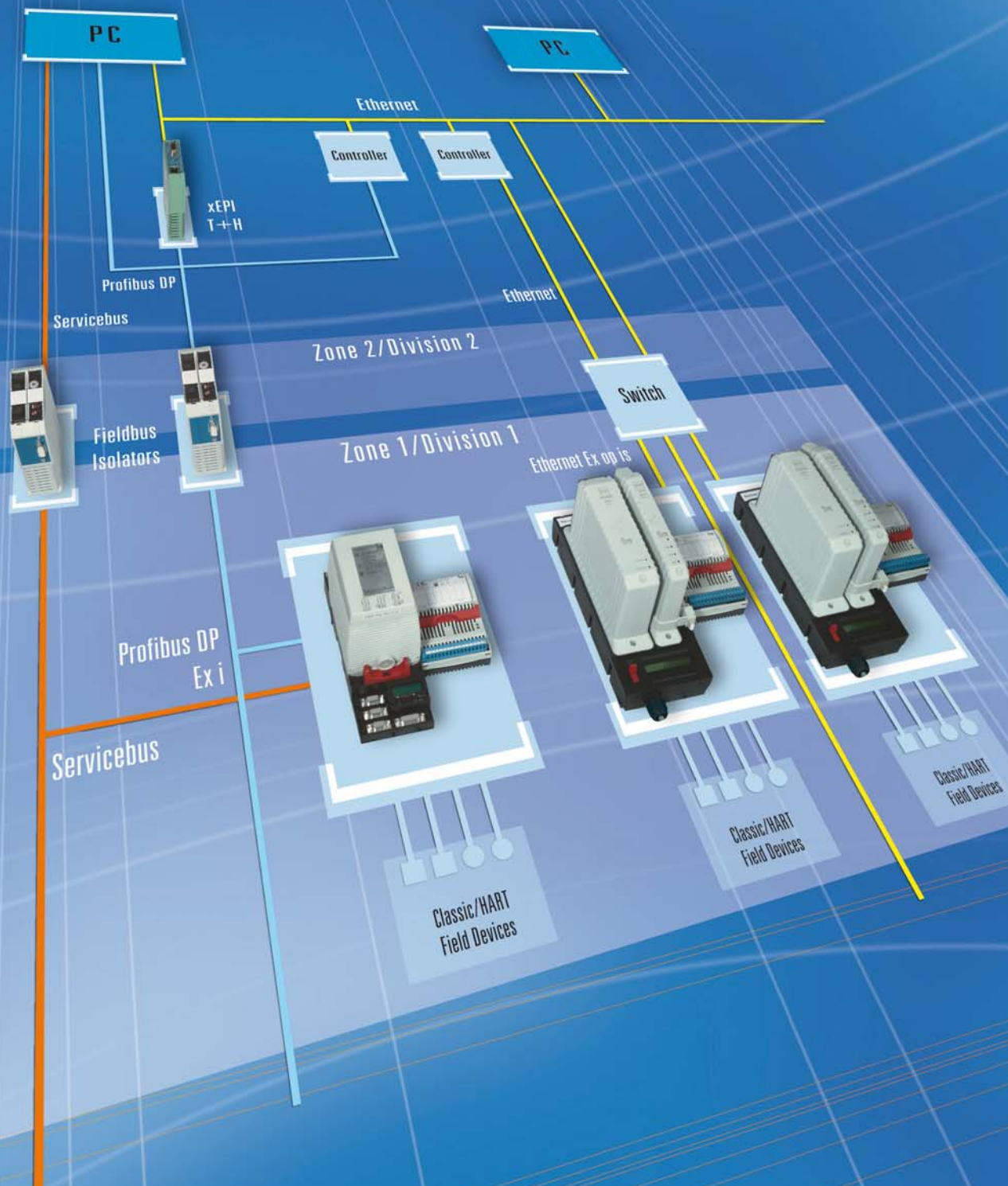




- Simple and fast installation in six steps**
- 1 Fit BusRail into DIN rail
 - 2 Connect bus terminations at start and end
 - 3 Fit CPM in first slot
 - 4 Fit I/O modules in the following slots
 - 5 Connect field signals to I/O modules
 - 6 Connect CPM to fieldbus (Profibus, Modbus)

- > Installation in Zone 1, Zone 2, Zone 21, Zone 22, Division 1 and Division 2
- > Worldwide approvals: IECEx, ATEX, FM, CSA and CTB
- > Plant Stop SIL 2; system SIL 1 in accordance with IEC 61508
- > DNV and ABS approval for installation on board ships, including open deck option
- > Intrinsically safe fieldbus: Profibus DP V0 and DP V1 HART in accordance with RS 485-IS, Modbus RTU
- > BusRail with integrated, redundant Data/Address and Ex i Powerbus for very easy project planning
- > Fieldbus with either with copper or fibre-optic cables
- > Inputs and outputs: Ex ia, Ex e, Ex nL (non arcing), Ex nA (non incendive) and non-Ex connection
- > High-performance digital outputs for non-intrinsically safe solenoid valves
- > Compact system structure thanks to 8 or 16-channel modules
- > Hot-Swap of all I/O modules, power supply and communication modules
- > Easy installation on standard DIN rails
- > Power supply either DC or AC
- > Optical ring with of fibre-optic cable
- > Optional Servicebus for commissioning, fault-finding and HART communication
- > Complete HART support for inputs and outputs
- > Transmission of HART variables via DP V1 HART and DP V0 (cyclic data exchange)
- > Extended parameter set for single modular configuration of the I/O modules
- > System integration and Asset Management with FDT/DTM and EDD available

HART Profibus DP Modbus TCP ProfiNet FF-HSE





IS1 ethernet

the future has begun

- > Remote I/O with Industrial Ethernet communication: Modbus TCP and EtherNet/IP; ready for ProfiNet and FF HSE
- > Installation in Zone 1 or Division 1
- > 100 Mbit/s Fast Industrial Ethernet via optically intrinsically safe fibre-optic cables
- > Redundant Ethernet interworking; very short switchover time down to 200 ms
- > Hot-Swap of all modules: CPU, Power, I/O modules
- > All standard IS1 I/O modules used
- > High-performance Ethernet ComDTM for configuration and diagnosis

Ready? Then let's go: Industrial Ethernet technology makes its appearance in the sector of process automation. This renders Integration of Remote I/O in plant structures even simpler. The fieldbus solutions available today (Profibus DP, Controlnet etc.) will, in some cases, be replaced in future. Field-orientated stations for connection of an extremely wide variety of sensors and actuators will communicate via Fast Industrial Ethernet with the higher-level automation systems. Initial application protocols are already available for this today. R. STAHL is making the crucial step into the future with the Remote I/O System IS1 Ethernet and the effective, Ethernet-compliant Modbus TCP protocol. The IS1 CPU & Power Module has been modified and adapted to Industrial Ethernet. Nothing has changed on the I/O modules. They are still used together with the proven in use BusRail on the new system. The IS1 System is designed for use in Zone 1 and Division 1. The Ethernet interface is optically intrinsically safe (»ex op is« in accordance with IEC 60079-28) with fibre-optic cables so as to span even larger distances in the hazardous location with no interference. In the near future, even better integration will be available with ProfiNet and FF-HSE. R. STAHL actively participates in the Working Groups of Profibus International and Fieldbus Foundation, aiming at integration of Remote I/O technology in the communications engineering of the future. Regardless of the technology for which our customers ultimately choose, R. STAHL provides efficient and economical solutions. R. STAHL's IS1 Ethernet, ready for ProfiNet, ready for FF-HSE, ready for the future.



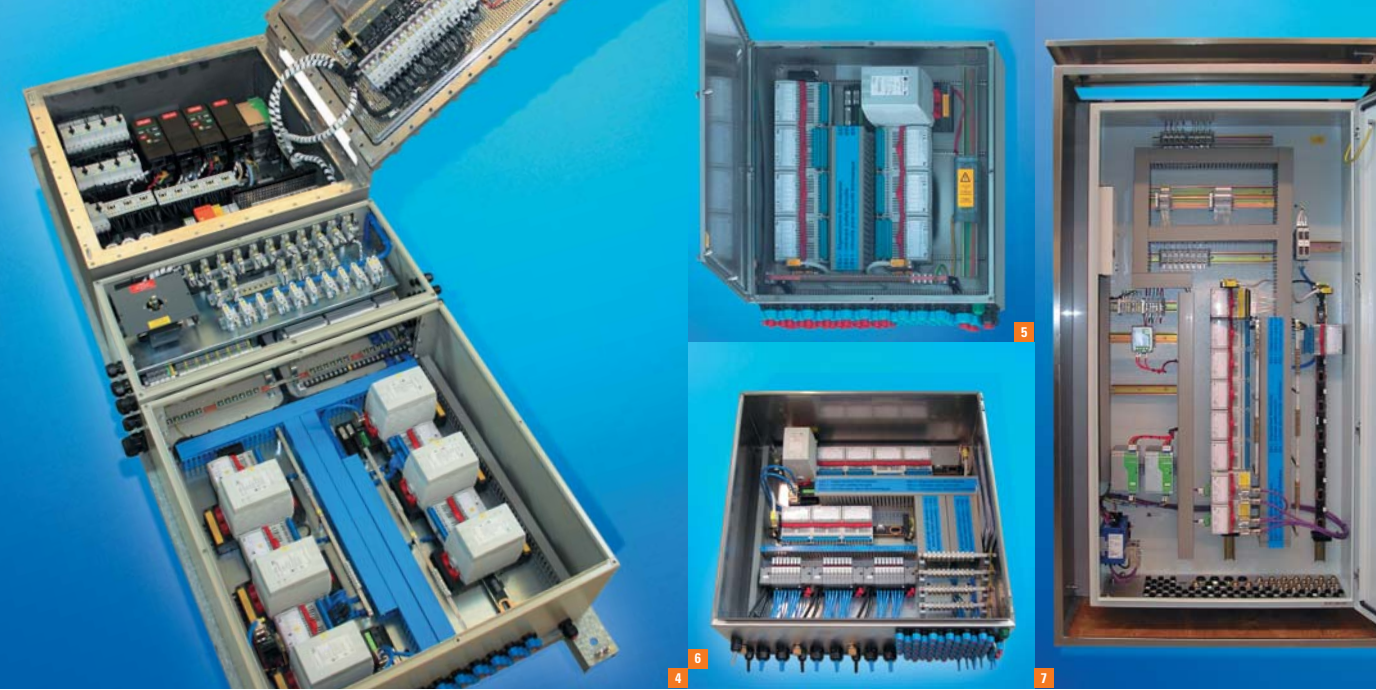
fieldbus systems

the logical conclusion



Nowadays, different applications and diverse customer requirements lead to the use of several fieldbus systems. Mechanical concepts adapted to specific tasks and ambient conditions are also required. Together with its customers, R. STAHL engineers components, bus systems and field-compliant enclosures. R. STAHL consequently supplies the optimum all-in solution for the interface between field devices and automation system. This applies both to conventional sensors and actuators, to HART field devices and field bus devices and to any combination of these. An extremely wide variety of enclosure sizes and various installation materials are available for these system solutions. R. STAHL Remote I/O systems or field device couplers are available in a compact standard enclosure made of glass-reinforced polyester, sheet steel, aluminium or stainless steel. Customised combinations are implemented with our extensive range of enclosures, also made of the above-listed materials. The enclosures are supplied with plastic or metal glands or conduit hubs for the cable connections and can be combined with an extensive range of accessories, such as breather glands, windows, earthing modules and shielding bars etc. Explosion protected miniCLIX connectors are used to allow maintenance work to be performed on non-intrinsically safe circuits in Zone 1 and Zone 2. Various solutions for the installation in Division 1 and Division 2 are also part of our international expertise.





Examples of various applications

- > Zone 1: Field station for Zone 1 with Remote I/O and field device couplers for FF H1 1
- > Zone 1: Several redundant Remote I/O systems in one stainless steel cabinet 2
- > Zone 1: Integration of explosion protected operating terminals and Remote I/O 3
- > Zone 1: Combination PLC in flameproof/explosionproof enclosure and Remote I/O in the terminal chamber 4
- > Zone 1: Typical IS1 field station in stainless steel enclosure for up to 56 signals 5
- > Zone 1: Integration of intrinsically safe solenoid valves and Remote I/O 6
- > Special fanless control cabinet design for extreme ambient temperatures (> 50 °C) 7

Im Netzwerk auswählen

Slot	Typ	Seriennummer	HW-Revision	SW-Revision
prim. CPM	9440/15-01-11	694037-0008	G	V 00-41
1	9461/12-08-11	712652-0033	C	V 02-02
2	9461/12-08-11	431236-0009	C	V 00-34
3	9466/12-08-11	146995-0006	A	V 01-01
4				
5				
6				
7				
8				
9				
10				
11				

CPM 9440 FS1_1 (HART-LiveList)

Im Netzwerk auswählen

Slot	Kanal							
	0	1	2	3	4	5	6	7
1	✓	✓	✓	✓	✓	✓	✓	✓
2	---	---	---	---	---	---	---	---
3								
4	✓	✓	✓	✓	✓	✓	✓	✓
5	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
6	✓	✓	✓	✓	✓	✓	✓	✓
7								
8								
9								
10								
11								
12								

Beschreibung:
Dieser Dialog präsentiert die Stati aller Module einer IS1 STAHL Remote I/O.
Aktuell-Zeit: 1s (neue Geräte bis zu 15s).

Legende:

- ✓ HART-Kommunikation OK
- keine Antwort vom HART-Gerät
- Scan deaktiviert
- kein HART-Modul
- ⊗ Reset IOM

9465/12-08-11
IS1 IOM Slot 3
9440/15-01-11 CPM Z2 24V Stahl PROFIBUS DP

IS1

About
Signale/Diagnosen
parameter
I&M
comment
Anschlüsse

Signals / Diagnoses IOM

Diagnoses

Icon	Name	Value
✓	Module diagnosis	Communication to IOM

Signals

No.	Tag	Metered Value(int)	Metered V
0	AD 0	553	2,0001
⊗ 1	AD 1	144	0,5208
2	AD 2	-32768	Value und
3	AD 3	9400	33,998
4	AD 4	15483	56,000
5	AD 5	-32768	Value und
6	AD 6	27095	97,999
7	AD 7	27648	100,00



asset management

the management of your resources

- > Connection to Asset Management Systems via EDD or DTM technology
- > Modular DeviceDTM for parameterization and configuration of IS1 field stations
- > Integrated HART Com-DTM for Profibus DP V1
- > Option for online changes to parameters and configuration via DeviceDTM
- > Diagnosis and status indicators/displays for I/O signals can be read and written via DTM even offline
- > Extensive DTM scope of functions: including HART-Live List, Audit Trail, extended I&M functions and label print

Sophisticated Remote I/O Systems such as IS1 from R. STAHL are recognised state-of-the-art. The HART protocol has also become established in the process automation sector, and this protocol will be essential in the future as well. Both EDDL and FDT/DTM are standard, manufacturer-independent interfaces for intelligent field devices and control systems that are well-suited for supporting both simple field devices and complex automation systems alike. It simplifies integration of intelligent HART field devices of various manufactures in process control systems and asset management software tools. A high-performance DeviceDTM is available for the Remote I/O System IS1. This allows IS1, together with all I/O modules and the CPU & Power Modules, to be configured, parameterized and managed fully via FDT-capable software packages. All information on the system and the connected HART field devices is consequently available for comprehensive system asset management. To date, there have only been very few automation systems fully supporting this new FDT/DTM functionality. However, specific asset management solutions and diagnostic tools are already available. One of the most powerful and extensive solutions for all applications is R. STAHL's Remote I/O System IS1. Always state-of-the-art and allowing simple, flexible and cost-saving use. IS1, the easy way.



EDDL™



expertise

engineering support service

11

- > Project engineering of Fieldbus and Remote I/O installations
- > Engineering and assembly of customised field enclosures and control cabinets
- > Proof of intrinsic safety
- > Functional inspection of bus installation (FF H1, Profibus DP and PA, Industrial Ethernet)
- > Tests and documentation for GAMP, FDA
- > Seminars
- > After-Sales Support and Hotline

The range of services of R. STAHL covers the sectors of project engineering, products, systems and the related advisory services and customer services. Our innovative, international approach is based on the needs of our customers. Our know-how and our competence are deployed wherever the safety of man and machine are at stake and wherever processes need to be operated smoothly. For Fieldbus and Remote I/O engineering specifically, this means project planning and engineering, installation and assembly on site for individual components through customised enclosures and switch cabinets to complex fieldbus solutions. Commissioning, function testing, tests and documentation of the installation on the basis of the most recent Directives and Standards for Remote I/O are a matter of course. Your staff are familiarised with the systems and trained in specialist fields by experienced specialists at our seminars. Our Hotline means that you are connected to R. STAHL virtually round the clock. Our servicing staff can help you either directly on the phone or personally on-site. We like being there for you, so talk to us.



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