



9472/35-16-12 DIOM 16 Ex n



Installation

CLASS I, DIVISION 2

0	1	2	3	4	5	6	7	8	9	10	11	12	13

FB Addr

Mod N

AUMH
9468



THE STRONGEST LINK.

IS1+ THE REMOTE I/O

Standard Solutions for North America

!
operate when energized
location is known to be
ous.

LEADING THE WAY FOR 30 YEARS

For over 30 years, explosion-protected remote I/O systems from R. STAHL have been used for a wide range of process automation applications in Zone 1 and 2 Hazardous Locations Globally. Recent innovations by R. STAHL now address individual solutions for Class I, Division 2 applications as well as unique solutions for Class I, Division 1 locations. It is here that we have proven to be the most cost-effective solution with regards to procurement and installation (CAPEX) as well as during operation (OPEX). Thanks to our large range of functions and unique flexibility, remote I/O solutions from R. STAHL are suitable for virtually all tasks relating to process technology.

New Solutions allow Standard Wiring Methods in Class I, Division 2 Applications enable:

Savings in field wiring reducing associated project

engineering and training costs.

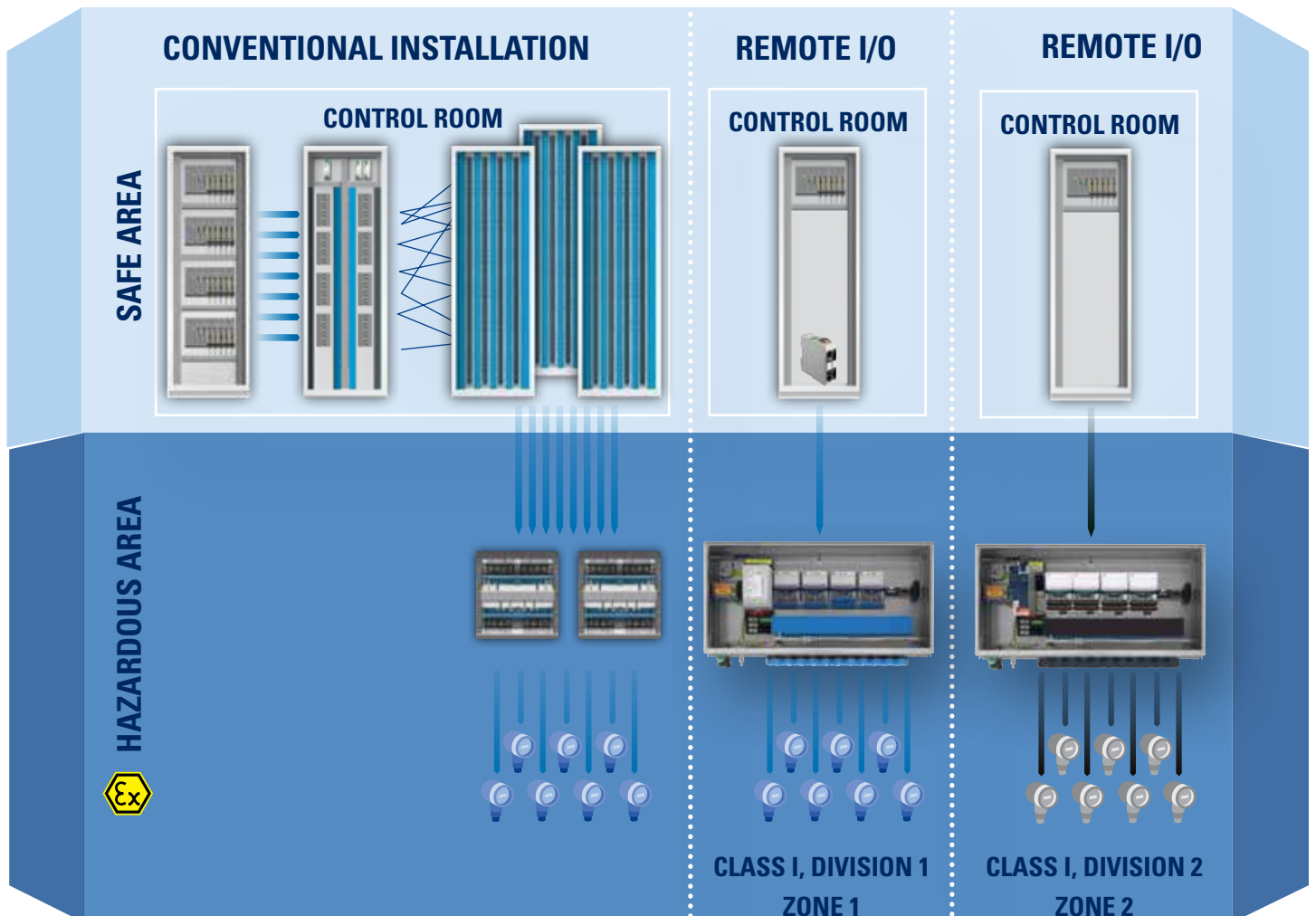
Reduced need for construction labor required for trenching and other construction related tasks

No need to take up space in the control room with switching and distribution cabinets.

Extensive functions for simplifying commissioning and troubleshooting.

Integrated diagnostics provide an early warning of failures and avoid system downtimes.

Fully compatible with conventional and HART-enabled field devices.





SIMPLY THE BEST REMOTE I/O

With the IS1+ Remote I/O, R. STAHL has set standards on which the market has been based up to the present day.

Our standard solution is built with our 316L stainless steel NEMA 4X enclosure.

With certain limitations, expansion, modification, maintenance in ongoing operation in hazardous locations is now possible.

Extended temperature range -40 °F to +167 °F.

Hot-swap capabilities for all modules and fieldbus interface connections in Class I, Division 1 & 2 (with certain procedures) or Zone 1 & 2.

Extensive protocol support: PROFIBUS DP, Modbus TCP + RTU, PROFINET, EtherNet/IP.



GOOD CAN ALWAYS BE BETTER

Continuous improvement and product line extensions mean increasingly effective applications:

Mixture of I/O modules for non-intrinsically safe and intrinsically safe signals.

8-channel modules with pneumatics and or Ex d valves.

Multifunctional I/O modules for input/output signals.

Class I, Division 2 and Zone 2 multiprotocol CPU, protocol adjustable by the user.

Innovative proactive diagnostics provide an early warning of failures by means of a blue LED and alert alarms as per NAMUR NE107.

Redundant Power Supply & CPU Modules whenever the protocol supports.

YOUR BENEFITS AT A GLANCE



IS1+ SUPPORTS PROFIBUS DP, PROFINET, MODBUS TCP/RTU AND ETHERNET/IP.

Flexible and easy to use in virtually any automation system.

ATEX

IECEX

cFMus

EAC



IS1+ BASED ON GLOBAL STANDARDS.

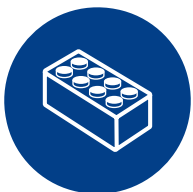
Can be combined with other products and technologies regardless of the manufacturer and process control system.



IS1+ FACILITATES INSTALLATION AND MAINTENANCE.

By effectively combining types of protection, there is no need for the explosion-proof or purged enclosure. Following proper procedures enables all IS1+ to be hot-swapped.

IS1+ IS EASY TO PLAN AND QUICK



TO INSTALL.

System design without special planning tools, three components are sufficient: CPU and Power Module, BusRail, I/O modules.

IS1+ IS UNIQUELY ROBUST AND



DURABLE.

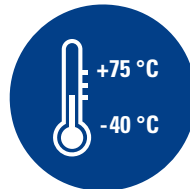
Specially developed and built for harsh field use in hazardous areas typical service life of 15 years or longer.





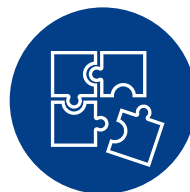
IS1+ IS INNOVATION WITH 30 YEARS OF EXPERIENCE.

IS1+ is our third generation of remote I/O. Our experienced system specialists mean that we can find solutions for virtually all requirements.



IS1+ IS DESIGNED AND MANUFACTURED FOR EXTREME ENVIRONMENTS.

Can be used both horizontally and vertically for temperatures from -40 °F to +167 °F. Also perfect for use on offshore platforms and LNG tankers.



IS1+ IS CONTINUOUSLY BEING EXTENDED AND OPTIMISED.

As a result of our continuous development, the system is becoming increasingly diverse but is always backward compatible.



IS1+ INCREASES THE AVAILABILITY OF YOUR SYSTEMS.

Redundancy and intelligent diagnostics ensure safe operation and predictive maintenance.



IS1+ OFFERS SIGNIFICANT COST SAVINGS COMPARED WITH OTHER SOLUTIONS.

Multifunctionality and new functions mean savings of up to 50% compared to conventional installations.

THE MULTIFUNCTIONAL I/O LEVEL – CLASS I, DIVISION 2, ZONE 2

I/O Modules		
Intrinsically Safe		
SAP	Model Code	Description
210660	9468/33-08-10 AUMH	8-Ch. Analog IS
210448	9470/33-16-10 DIOM	16-Ch. Digital In /Low power out IS
210657	9475/33-08-50 DOM	8-Ch. Digital Out IS (30mA; 12.6V)
210658	9475/33-08-60 DOM	8-Ch. Digital Out IS (20mA; 17.5V)
217644	9482/33-08-10 TIM	8-Ch. RTD /TC
Non - Intrinsically Safe		
168694	9477/15-08-12 DOM relay	8-Ch. Relay module Non-IS
230184	9469/35-08-12 UMH	8-Ch. Universal module non-IS. Analog, Digital (24V/0.5A)
230225	9471/35-16-11 DIOM	16-Ch. Digital In /Low power out
230239	9472/35-16-12 DIOM	16-Ch. Digital In /High power out (24V/0.5A)



Fieldbus isolating repeater Ex i PROFIBUS DP, Modbus RTU.



Fibre optic isolating repeater op is PROFIBUS DP, Modbus RTU.



Switch 4 FX/2 TX op is fibre optic.



Zone 2 CPU and Power Module PROFIBUS DP, PROFINET, Modbus TCP, EtherNet/IP.

Terminals		
SAP	Description	For Use With
162702	Terminal block screw connections	All IS modules
162718	Terminal block screw connections	9470 and 9482
245090	Terminal block spring clamp connections	9469, 9471 and 9472
245091	Terminal block spring clamp connections	9471 and 9472
162704	Terminal block screw connections	For 9477 only
220101	Partition IS1+	If IS and non-IS modules are on the same bus



Zone 2 I/O modules for Ex i field devices.

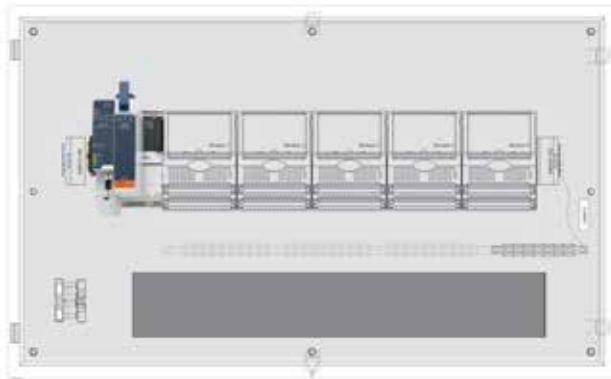


Zone 2 I/O modules for non-Ex i field devices.

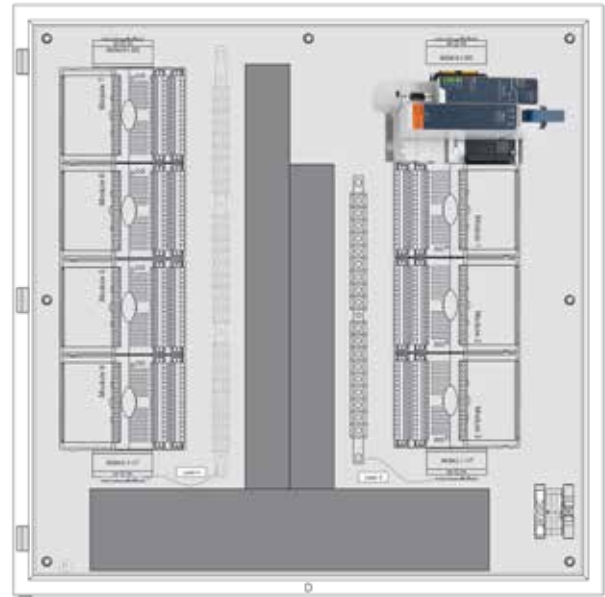
Media Converter		
SAP	Model Code	Description
220381	9721/13-11-14 Converter [op is]	1FO in - 1 CAT5 Out multimode
220382	9721/13-11-54 Converter [op is]	1FO in - 1 CAT5 Out single mode
243427	9721/13-42-14 Switch unmanaged [op is]	4FO in - 2 CAT5 Out multimode
243428	9721/13-42-54 Switch unmanaged [op is]	4FO in - 2 CAT5 Out Single mode
243429	9721/13-42-74 Switch unmanaged [op is]	4FO in - 2 CAT5 Out Single mode and multimode

HART Software		
SAP	Model Code	Description
251237	9499/DTM-IS1-02 Com/Device/HAR	License key for HART capabilities for up to 30 FD
251239	9499/DTM-IS1-04 Com/Device/HAR	License key for HART capabilities for up to 300 FD
251240	9499/DTM-IS1-06 Com/Device/HAR	License key for HART capabilities for unlimited FD

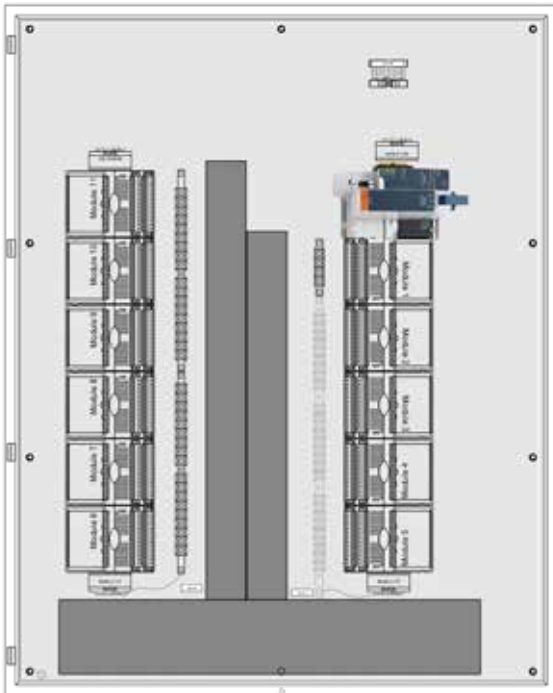
For more options on the Remote I/O visit our online configurator
<http://remote-io.rstahl.com/>



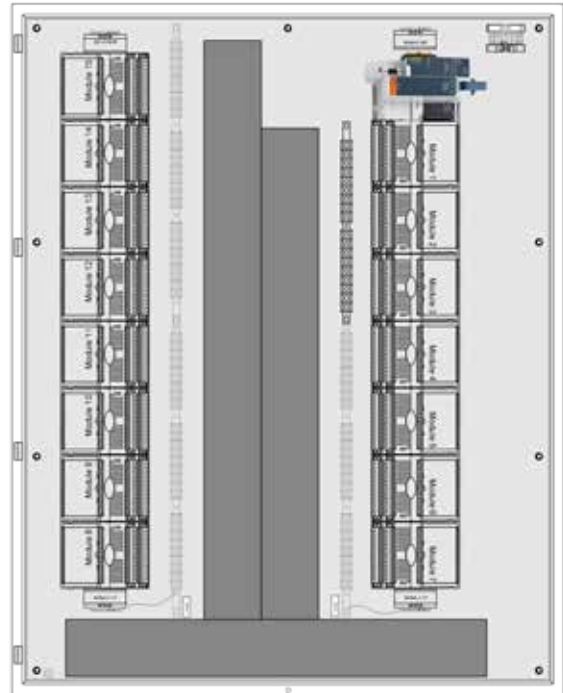
S-MP-C1D2-05



S-MP-C1D2-07



S-MP-C1D2-11



S-MP-C1D2-15

IS1+ Enclosure, Power Supply & Communication Modules

SAP	Enclosure Description & Dimensions inches (mm)	Description
S-MP-C1D2-05	IS1 RIO Station 30.9" x 18.8" x 9" (787 x 480 x 230)	EtherNET I/P, ProfiNET, Modbus TCP, Profibus DP for up to 5 I/O modules
S-MP-C1D2-07	IS1 RIO Station 23.6" x 23.6" x 9" (600 x 600 x 230)	EtherNET I/P, ProfiNET, Modbus TCP, Profibus DP for up to 7 I/O modules
S-MP-C1D2-11	IS1 RIO Station 31.4" x 39.3" x 11.8" (800 x 1000 x 300)	EtherNET I/P, ProfiNET, Modbus TCP, Profibus DP for up to 11 I/O modules
S-MP-C1D2-15	IS1 RIO Station 31.4" x 39.3" x 11.8" (800 x 1000 x 300)	EtherNET I/P, ProfiNET, Modbus TCP, Profibus DP for up to 15 I/O modules

THE MULTIFUNCTIONAL I/O LEVEL – CLASS I DIVISION 1, ZONE 1

I/O Modules

Intrinsically Safe		
SAP	Model Code	Description
210659	9468/32-08-11 AUMH	8-Ch. Analog IS
210651	9475/32-04-12 DOM	4-Ch. Digital Out IS (40mA; 11.3V)
210652	9475/32-04-22 DOM	4-Ch. Digital Out IS (40mA; 12.3V)
210655	9475/32-08-52 DOM	8-Ch. Digital Out IS (30mA; 12.6V)
210656	9475/32-08-62 DOM	8-Ch. Digital Out IS (20mA; 17.5V)
210447	9470/32-16-11 DIOM	16-Ch. Digital In /Low power out IS
217643	9482/32-08-11 TIM	8-Ch. RTD /TC
Non - Intrinsically Safe		
203599	9478/22-08-51 DOMV	8-Ch. Solenoid valve built in
162627	9477/12-08-12 DOMR	8-Ch. Relay module out (base needed)
162630	9477/12-06-12 DOMR	6-Ch. Relay module out (base needed)
162703	9490/11-33 Base for 9477	60V / 8-Ch base for 9477
162705	9490/11-34 Base for 9477	250V /6-Ch base for 9477



Fibre optic isolating repeater op is PROFIBUS DP, Modbus RTU.



Zone 1 CPU and Power Module PROFIBUS DP, PROFINET, Modbus TCP, EtherNet/IP.



Zone 1 I/O modules for Ex i field devices.



Zone 1 I/O modules for non-Ex i field devices (pneumatics, relay).

Terminals

SAP	Description	For Use With
162702	Terminal block screw connections	All IS modules
162718	Terminal block screw connections	9470 and 9482

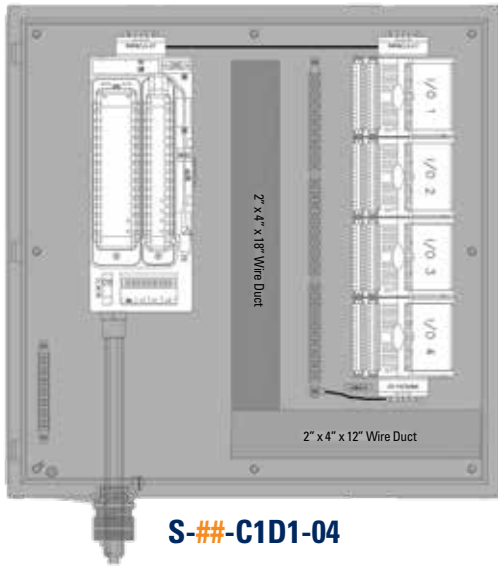
Media Converter

SAP	Model Code	Description
220381	9721/13-11-14 Converter [op is]	1FO in - 1 CAT5 Out multimode
220382	9721/13-11-54 Converter [op is]	1FO in - 1 CAT5 Out single mode
243427	9721/13-42-14 Switch unmanaged [op is]	4FO in - 2 CAT5 Out multimode
243428	9721/13-42-54 Switch unmanaged [op is]	4FO in - 2 CAT5 Out Single mode
243429	9721/13-42-74 Switch unmanaged [op is]	4FO in - 2 CAT5 Out Single mode and multimode

HART Software

SAP	Model Code	Description
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251240	9499/DTM-IS1-06 Com/Device/HAR	License key for HART capabilities for unlimited FD

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S-##-C1D1-04

IS1+ 4 Module Standard Enclosure

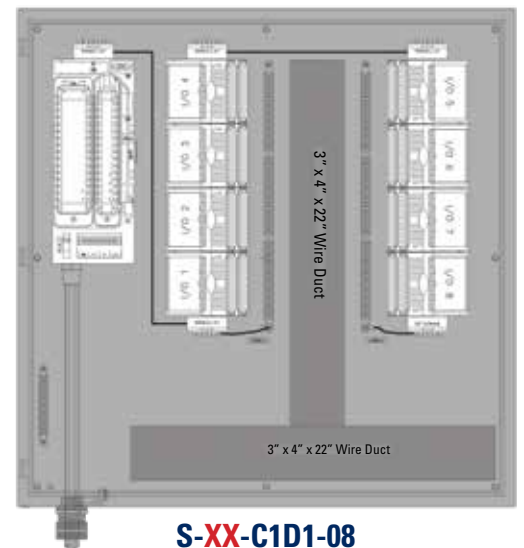
Model Code	Enclosure Description & Dimensions inches (mm)	##Protocol & Number of Modules
S-EIP-C1D1-04	IS1 RIO Station 23.6" x 23.6" x 9" (600 x 600 x 230)	EtherNET I/P for up to 4 modules
S-PN-C1D1-04	IS1 RIO Station 23.6" x 23.6" x 9" (600 x 600 x 230)	ProfiNET for up to 4 modules
S-TCP-C1D1-04	IS1 RIO Station 23.6" x 23.6" x 9" (600 x 600 x 230)	Modbus TCP for up to 4 modules

##Pick Protocol

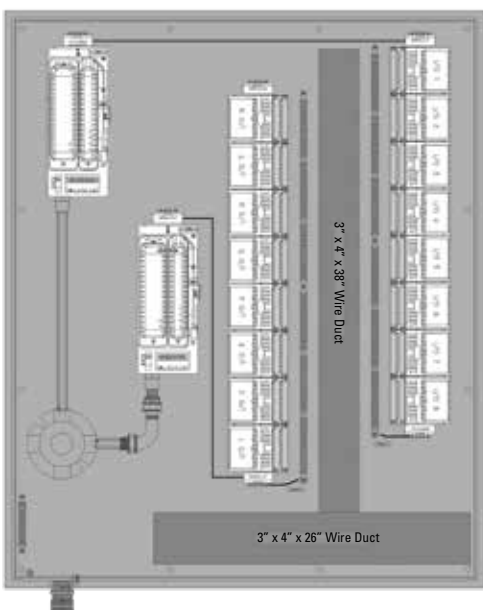
IS1+ 8 Module Standard Enclosure

Model Code	Enclosure Description & Dimensions inches (mm)	XXProtocol & Number of Modules
S-EIP-C1D1-08	IS1 RIO Station 29.9" x 29.9" x 11.8" (760 x 760 x 300)	EtherNET I/P for up to 8 modules
S-PN-C1D1-08	IS1 RIO Station 29.9" x 29.9" x 11.8" (760 x 760 x 300)	ProfiNET for up to 8 modules
S-TCP-C1D1-08	IS1 RIO Station 29.9" x 29.9" x 11.8" (760 x 760 x 300)	Modbus TCP for up to 8 modules

XXPick Protocol



S-XX-C1D1-08



S-††-C1D1-16

IS1+ 16 Module Standard Enclosure

Model Code	Enclosure Description & Dimensions inches (mm)	††Protocol & Number of Modules
S-EIP-C1D1-16	IS1 RIO Station 39.3" x 47.2" x 11.8" (1000 x 1200 x 300)	EtherNET I/P for up to 16 modules
S-PN-C1D1-16	IS1 RIO Station 39.3" x 47.2" x 11.8" (1000 x 1200 x 300)	ProfiNET for up to 16 modules
S-TCP-C1D1-16	IS1 RIO Station 39.3" x 47.2" x 11.8" (1000 x 1200 x 300)	Modbus TCP for up to 16 modules

††Pick Protocol

Please note that all imperial measurements are an estimate. For accurate measurements use millimeters.

Extensive diagnostic features



EDDL™



To optimize processes in process engineering plants and to reduce downtime, informative diagnoses and integration of the devices in Asset Management Systems become more and more important. For conventional analogue field devices, the well-established HART protocol is used in most cases. Remote I/O systems also have to offer the option of being integrated into the diagnostic structure and making HART information transparently available. The times in which each manufacturer offered their own, proprietary software tool are long over. Today, unique interfaces between field device technology and control level – independent of manufacturers – are standard, such as EDDL and FDT/DTM.

Remote I/O device DTM

- + Com-DTM for PROFIBUS DP, Modbus RTU, Ethernet Modbus TCP and EtherNet/IP
- + Including HART gateway DTM for the connection of HART field devices
- + Modular device DTM for parameterization and diagnosis of IS1+ modules
- + Online alteration of parameters and configuration
- + Diagnoses and status displays are also accessible offline, without automation system
- + Support of condition monitoring for HART field devices
- + Convenient functions such as HART-Live-List, topology generation, Audit Trail, I&M query



Integrated web server for Ethernet

- + No separate ServiceBus required, direct access via the installed network
- + Integrated web server in IS1+ Ethernet CPUs – no software installation required
- + Use of standard internet browser for all operating systems
- + Application as loop check during start-up: indication of all the installed and configured I/O modules even without connected automation system
- + Access to I&M functions with serial numbers and software/hardware versions
- + Extensive, password-protected system diagnosis in the specialist mode, including firmware updates via FTP access

THE EVOLUTION OF REMOTE I/O

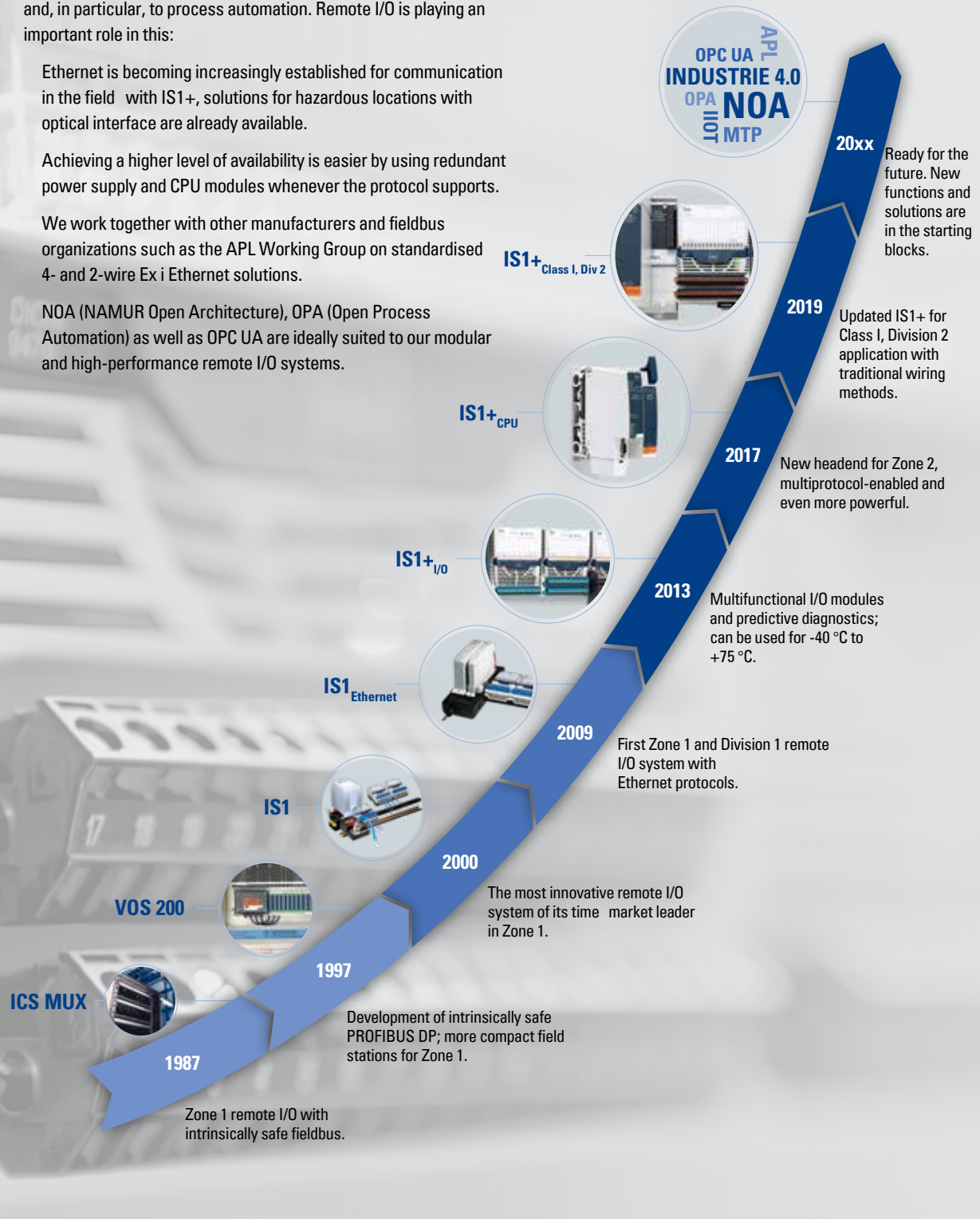
Nothing is more resistant than change – this still applies today and, in particular, to process automation. Remote I/O is playing an important role in this:

Ethernet is becoming increasingly established for communication in the field – with IS1+, solutions for hazardous locations with optical interface are already available.

Achieving a higher level of availability is easier by using redundant power supply and CPU modules whenever the protocol supports.

We work together with other manufacturers and fieldbus organizations such as the APL Working Group on standardised 4- and 2-wire Ex i Ethernet solutions.

NOA (NAMUR Open Architecture), OPA (Open Process Automation) as well as OPC UA are ideally suited to our modular and high-performance remote I/O systems.





CLASS I, DIVISION 2 REMOTE I/O

- MULTIPROTOCOL CPU (PROFIBUS DP, ETHERNET IP, MODBUS, & PROFINET)
- UNIVERSAL I/O (INPUT, OUTPUT, ANALOG, DIGITAL)
- HOT-SWAP CAPABILITIES
- EXTENDED TEMP RANGE -40 °C TO +75 °C

CLASS I, DIVISION 1 REMOTE I/O

- RATED SYSTEM WITHOUT THE NEED OF PURGE OR EXPLOSION PROOF ENCLOSURE
- SUPPORTS PROFIBUS DP, ETHERNET/IP, MODBUS & PROFINET
- BUILT-IN INTRINSIC SAFETY ON I/O MODULES
- HOT-SWAP CAPABILITIES



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WEB SERVICE



REMOTE I/O CONFIGURATOR

Our online Remote I/O Configurator serves as the basis for developing a system solution tailored to your needs.

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