

A large offshore oil rig is illuminated at night, with a bright flame visible from its central stack. A support vessel is positioned nearby on the dark sea under a cloudy night sky.

APPLICATIONS

OIL & GAS INDUSTRY



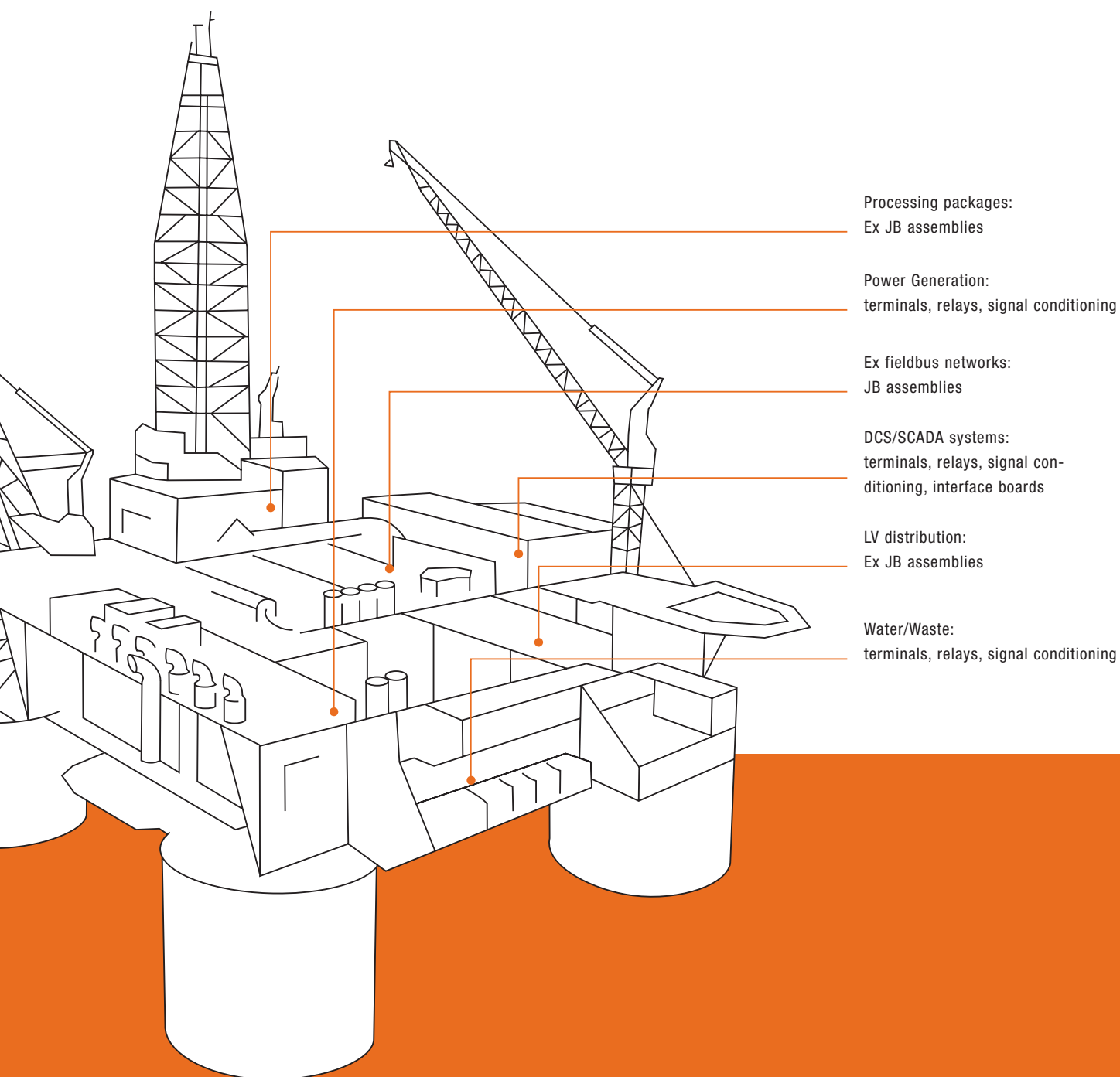
OIL & GAS – UPSTREAM AND DOWNSTREAM

OFFSHORE AND ONSHORE – WHERE QUALITY COUNTS

Just a tiny fraction of the value of a process plant? Maybe, but Weidmüller products have a giant reputation among electrical and instrumentation engineers. They know that the names “Weidmüller” and “Klippon” stand for the supreme quality and reliability they depend on for the success of their engineering projects.

Weidmüller has been well known as a component supplier for many years. But Weidmüller’s service also extends to custom assemblies. Those could be new terminals and terminal assembly variations, or junction box assemblies. But also tailored systems embodying Weidmüller’s vast experience in electronics and connectivity applications.

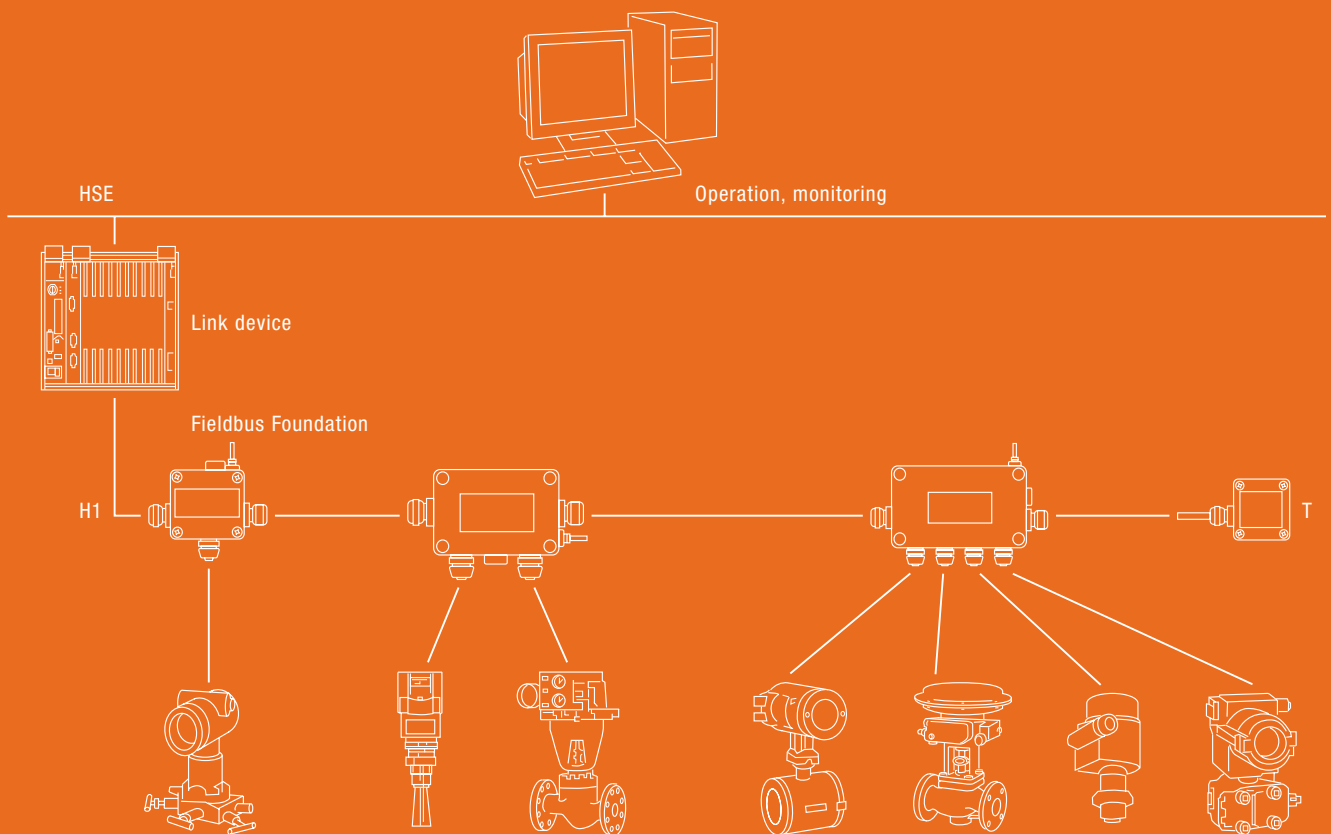
Many Weidmüller products are designed and manufactured to the European standards covering electrical apparatus for potentially explosive atmospheres. Or the recent ATEX directive, in use since 1996 and mandatory throughout EU member states since July 2003. Weidmüller offers a comprehensive range of ATEX-certified Fieldbus connection products, enclosures, rail-mounted terminals and accessories.



The diagram highlights just some of the typical applications where Weidmüller products really count. On the following pages we illustrate the practical concepts and special features that make Weidmüller products indispensable in both the upstream and downstream sectors of the oil and gas industries.

To find out more, go to www.weidmueller.com and select Industries/Process.

CONNECTING FIELDBUS INSTRUMENTS



PA/FF SOLUTIONS

Foundation Fieldbus and Profibus are established, robust, open fieldbus standards which form the communications backbone for a growing number of automation tasks. Field equipment connectivity is vital here – and is served by Weidmüller's FBCon products. They couple measuring instruments, sensors and actuators to Foundation Fieldbus and Profibus PA. T-connectors guarantee uninterrupted bus operations even during servicing. We also supply connectors in different variations, tailor-made for applications in process automation – ideal for the oil and gas industries. Ex distributors have die-cast aluminium housings, optionally with integral bus terminator.



FF-constructor



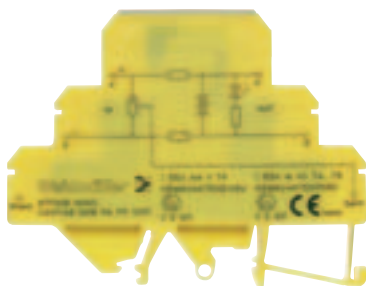
Profibus connector

- Bus maintained with removal of field equipment
- Exe or Exia classification
- Zone 0 or 1 installation
- Distribution for 1, 2, 4, or 8 field items
- Includes trunk line OVP if required
- Spur line cabling available



TRUNK LINE AND SPUR PROTECTION

But connecting field equipment is just one aspect. Protection is also crucial. Weidmüller's T-connectors with self-resetting fuses protect the spur lines to the field devices. They guarantee that the bus itself cannot be interrupted in the event of a short-circuit in the spur connection. Another option for modules is to have built-in overvoltage protection. These protect the trunk line from voltage surges caused by, for example, lightning and inductive feedback. That adds up to effective surge protection for the individual wires and the shielding.



Line In DK6 PA/FF OVP



Current Limiter DK6 PA/FF

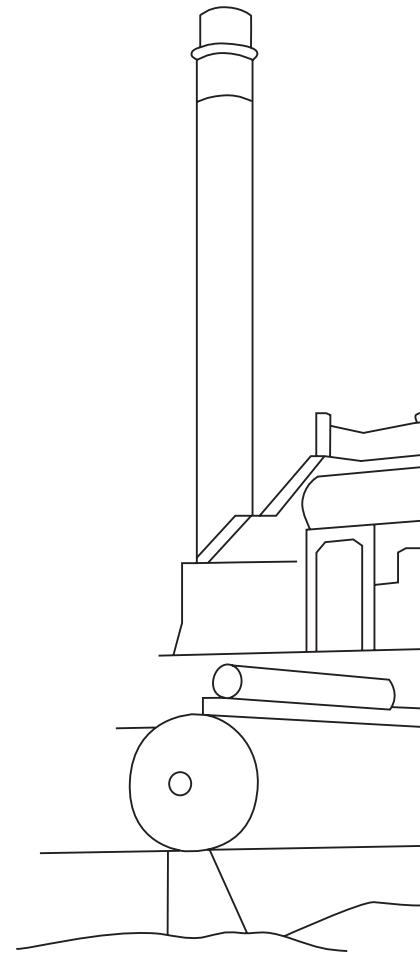
- FF/PA modules in DK6 terminal housing
- Screw connection
- Cross-connections between modules
- FISCO earthing protection

OPTIONS FOR HAZARDOUS AREAS



- For Zone 1 & Zone 2 hazardous areas
- ATEX certification
- Enclosures in steel, stainless, aluminium, polymer materials
- IP66 environmental protection

Exe assembly



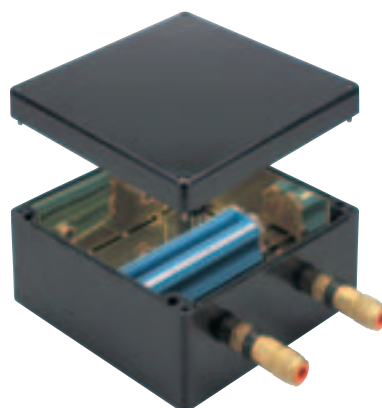
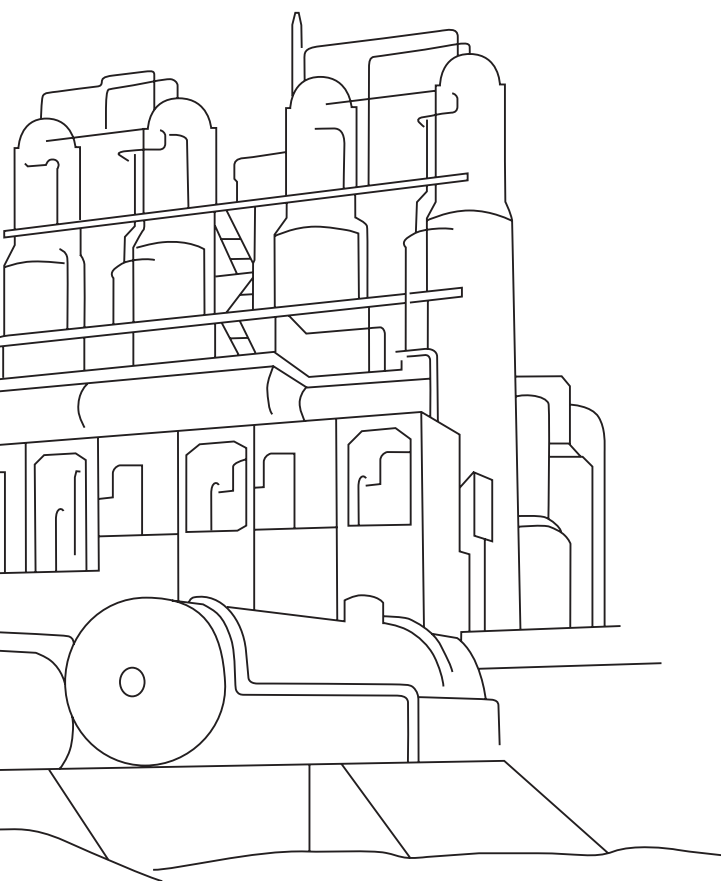
EXE ASSEMBLIES

“Increased safety” is the most common form of certification required for electrical junction box assemblies. Exe is limited to installations in IEC Zone 1 and 2 hazardous areas. But these are precisely the environments in which electrical equipment often has to operate, e.g. single- and three-phase motors for pumps, fans, actuators, etc. Even for field instrumentation, which may need to be certified (Exia) for Zone 0, the associated junction boxes are mostly Exe.

The usual alternative classification to Exe enclosures for Zone 1 is flameproof (Exd). But this requires much heavier enclosure construction and hence is more expensive. So Exe enclosures are usually preferred.

No special colour coding is required for Exe electrical terminals, but each terminal must carry its ATEX marking. The Weidmüller range includes steel, stainless steel, GRP and aluminium enclosures, plus assemblies with Exe certification.





- For Zone 0 or Zone 1 hazardous areas
- Blue terminals option for Exia identification
- Exia certified enclosure assembly options

IS box assembly

EXIA ASSEMBLIES

“Intrinsic safety” (Exia) is the only approved certification for IEC Zone 0 hazardous areas. However, it is also suitable for Zone 1 hazardous areas (and the classification may then be Exib). Exia junction boxes are regularly used with similarly certified field instrumentation systems. Here it is necessary to identify clearly (and to separate) all elements of intrinsic safety circuits. So the cable's outer sheathing is coloured blue, likewise the electrical terminals. On the outside of the enclosure, which may be of plain stainless steel, the Ex label will be blue, or have blue lettering. The Weidmüller range includes steel, stainless steel, GRP and aluminium enclosures, plus assemblies with Exia certification.

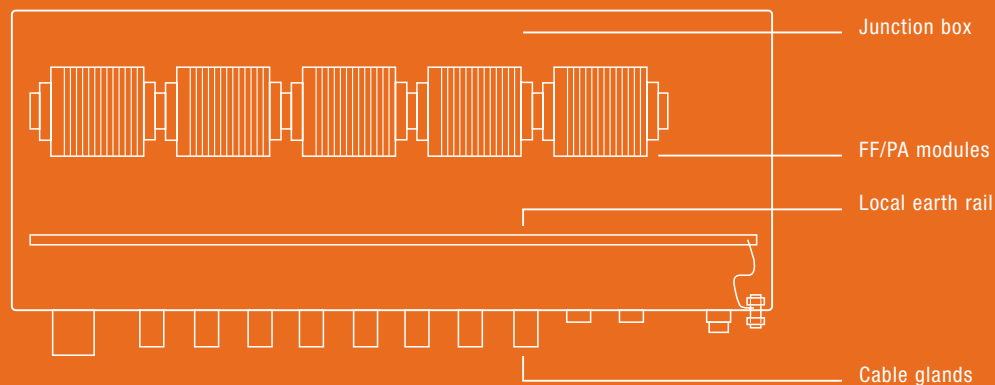


- Metal and plastic gland materials
- Environmental protection up to IP68
- ATEX certified Exia and Exe options
- Range also includes Breather/drains



Glands

EXPANDABLE FIELDBUS SYSTEMS



FF/PA ASSEMBLIES

Some customers prefer the connections to their fieldbus devices to be marshalled into larger enclosures. Weidmüller can supply those customers with rail-mounted Foundation Fieldbus and Profibus modules. These embody the same overall functionality as the aluminium FBCon enclosure and PA-T modules, but are designed to be installed in a larger, normally stainless steel, enclosure. Hence their terminal format. They can also be customised to suit different numbers of trunk lines and spurs, and readily upgraded, too.

Three modules are available to provide trunk line voltage surge protection, trunk line termination and spur line connection with current limiting. Weidmüller's DK6 modules with screw clamp connections are certified for use in Zone 0 and 1 hazardous areas.

Fieldbus assemblies were a natural and obvious development for Weidmüller. They tap into Weidmüller's established strength and experience in both fieldbus connectivity products and custom junction boxes for hazardous areas.



- Stainless JBs
- Exe or Exia certified assemblies
- Custom specific assembly solutions
- Easily expandable connection system

Junction Box

CONNECTING FIELD INSTRUMENTATION

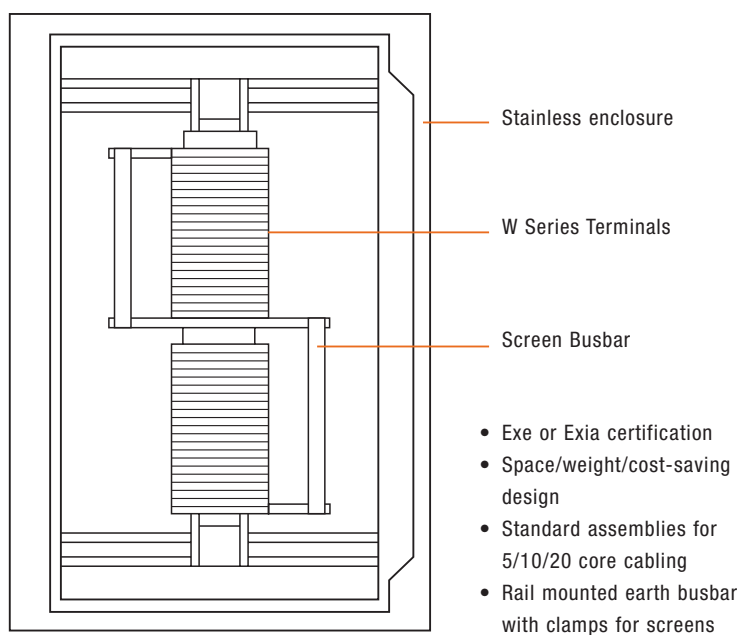
INSTRUMENT JUNCTION BOXES

Britannia enclosure assemblies are a good example of how Weidmüller customises products to suit certain applications.

The Britannia field, 210 km (130 miles) north-east of Aberdeen, was discovered in the mid-1970s and covers approximately 112 km² (70 sq miles). Like all platform installations, a critical factor in the design was minimising the weight and size of equipment supplied.

To save space, the assembly design used Weidmüller W-series terminals. But here a parallel insulated busbar for the paired screens was also mounted on the same TS35 rail. This space-saving concept left ample room for cable terminations. It also ruled out the need for a third (screen) terminal and the associated cross-connections.

The result: terminal content was cut by a third. That paved the way for smaller, lighter enclosures, and that led to some welcome cost-savings for the customer.



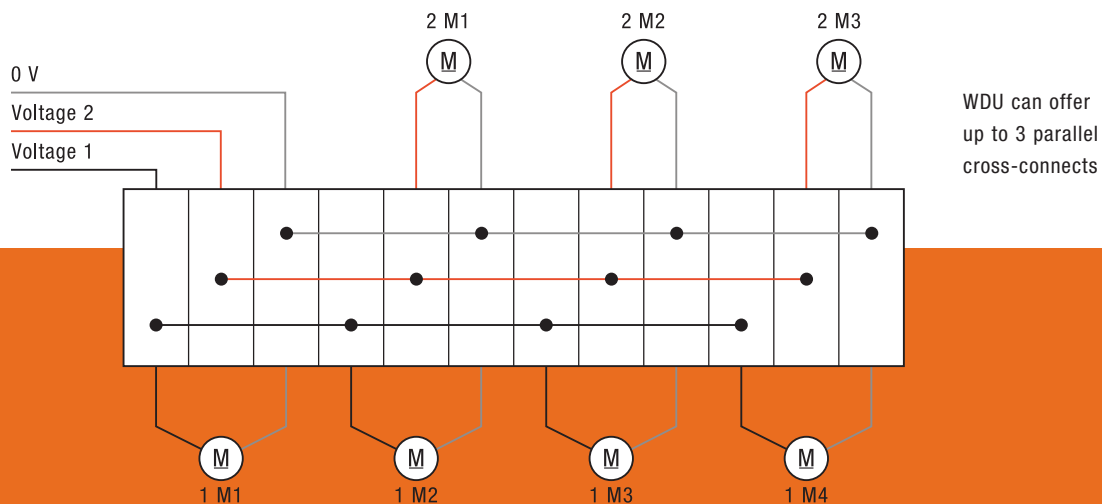
Britannia Box Assy

SIMPLIFYING VOLTAGE DISTRIBUTION

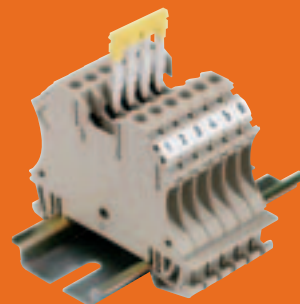
LOW VOLTAGE DISTRIBUTION JUNCTION BOXES

Formidable cross-connection options across a wide range of terminal sizes. Huge variety in the custom box assembly range. Weidmüller combines these features expertly for low-voltage distribution applications. And the Weidmüller configurations make it easy to step down from larger to smaller conductors and to cross-connect same-size terminals internally. That simplifies junction box wiring and makes mistakes less likely during installation.

Weidmüller's feed-through terminals for conductors up to 300 mm² combine high clamping force and minimal voltage drop. That means long-term reliability and connection quality. And that's what oil and gas industry users expect. For both hazardous and safe area installations.



Conductor step-down with screw (WQV) cross-connects

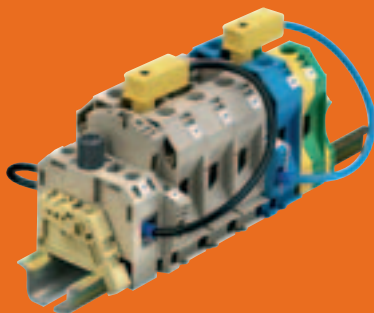


Voltage distribution with pluggable (ZQV) cross-connects

LIGHTING APPLICATION

JUNCTION BOX ASSEMBLIES

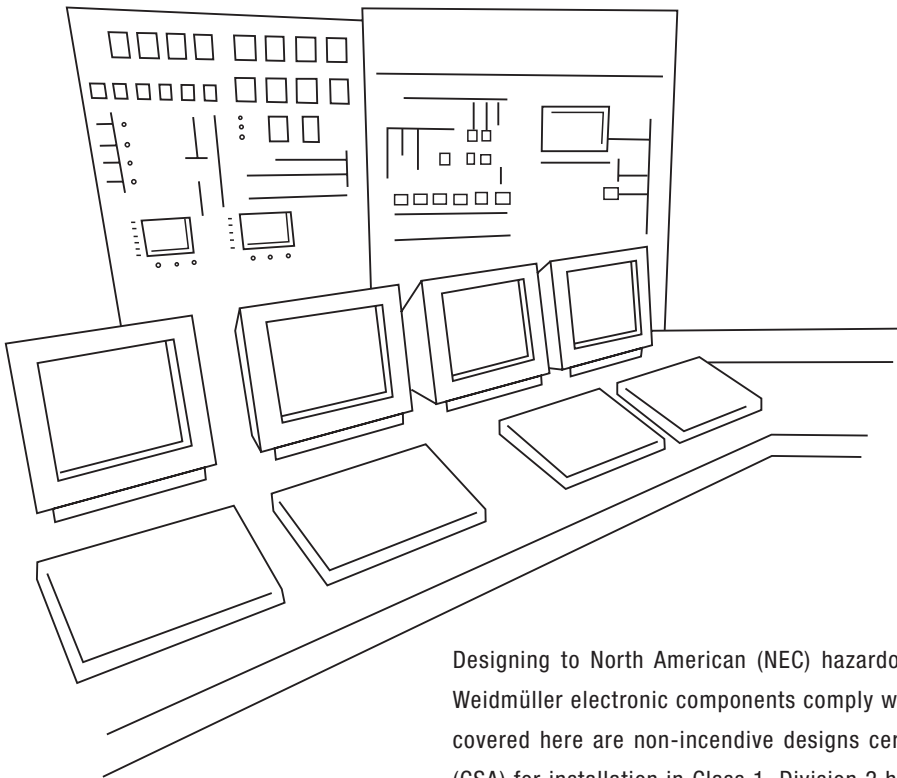
Although the wiring distribution to lamps is not usually complicated, varied requirements such as cable size, number of phases wired, lamp type demand customised terminal assemblies. Common assembly features include feed-through of unused phases, step-down connections and fusing for the local lamp. Assemblies may be fitted directly into the lamp pole, size permitting, or into a separate junction box.



- Customised assemblies
- Typically 35 mm² terminals used for feed-through of phase(s)
- Small fused terminal (e.g. 2.5 mm²) for supply to local luminaire
- Large-to-small terminals link included

Lighting rail assembly

SOLUTIONS FOR CLASS 1 DIVISION 2



Designing to North American (NEC) hazardous area standards? No problem – numerous Weidmüller electronic components comply with the American specifications. The examples covered here are non-incendive designs certified by the Canadian Standards Association (CSA) for installation in Class 1, Division 2 hazardous areas.

SAFETY BARRIERS



Energy (i.e. current) limiting for field equipment in hazardous areas can be provided for analogue inputs/outputs using 4–20 mA signals. If the barrier detects a fault, it sends a 24 Vdc signal to indicate the fault mode. Another barrier version protects discrete 24 Vdc inputs/outputs.

Non-Incendive Barriers

RELAYS



Need interposing/isolation functions between digital (on-off) controls and remote actuators, limit switches and alarms? Weidmüller's DIN rail-mounted miniature electromechanical relays provide the answer. Input voltage options are 12/24 Vdc and 120 Vac, with output contact ratings up to 250 V/6 A. A dual-output opto-coupler is available, designed for interfacing with a pulse-output flowmeter. The outputs can be used for both local indication of flow rate/volume and as a remote PLC/DCS input.

Relay Module MRS

POWER SUPPLIES



Weidmüller CP-SNT products with 120/230 Vac inputs cover power ratings from 24 W to 160 W for 12/24 Vdc outputs. The Weidmüller ConnectPower BBU is a power supply with battery backup. Simply link it to the customer's battery to create a scalable DC UPS system, for 12 Vdc or 24 Vdc. It includes all the diagnostics users need for applications where it is vital to know the status of the power system.

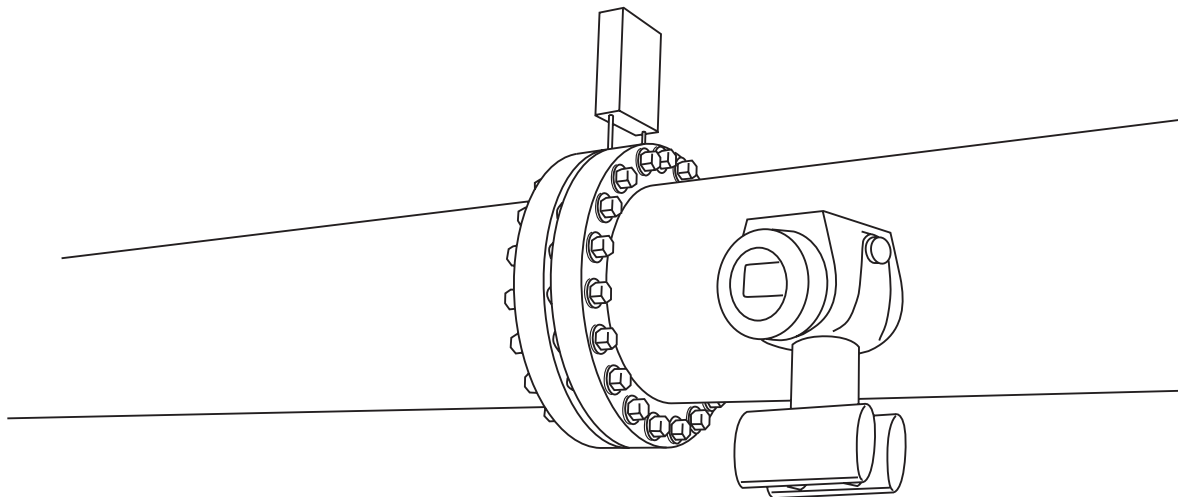
ConnectPower

SIGNAL CONDITIONERS



The new WAVE TTA is a universal Transmitter Trip-Amplifier. It is part of Weidmüller's well-established WAVESERIES family of analogue signal conditioners, which are widely used in process and factory automation applications. The TTA is unique. It has a combination of high performance and exceptional configurability. Designed for process industry applications, the TTA will work accurately and stably over a wide ambient temperature range, and over a wide supply voltage range, and with most types of sensor inputs.

WAVE TTA

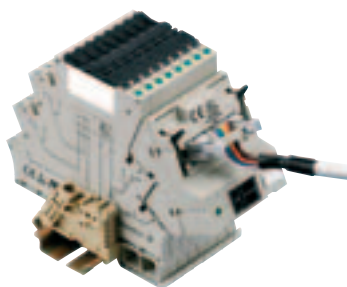


Outputs from process transmitters typically may need splitting (to send to two or more locations), converting (between analogue voltage and current ranges), linearising (e.g. thermocouple temperature measurements) or modifying in other ways. These functions are exactly what Weidmüller's signal conditioning electronics is for.

PROTECTION IN SAFE AREAS

SIGNAL CONDITIONING

Adding a few channels of input/output (I/O)? That can be an expensive scenario with many PLC and DCS systems, even if space exists for the upgrade. But Weidmüller has the answers – one for digital and one for analogue signals. Supplied in 8-channel blocks, Weidmüller's Micro-interfaces take up a minimal 48 mm of space on the DIN mounting rail. Sub-D or flat multi-pin connectors ensure quick connections to the control system, and field wiring is by way of Weidmüller's well-proven tension clamp system. The DIP switches on the sides of each analogue channel module highlight the flexibility of Weidmüller products. Simply flip the switches to change the input/output ranges. These blocks can be used for DCS/PLC inputs and outputs.



- High density process I/O interfacing for control systems
- Integral Isolation
- Mixed DC, Thermocouple & Pt100 analogue inputs
- Mixed mechanical or opto relays for digital interfaces
- 8 channel analogue or digital modules

Micro-digital interface

POWER SUPPLIES

DC power supplies have been a Weidmüller product strength for many years. Recently, the addition of the Ecoline range of switched-mode supplies has created a unified format for loads up to 40 A. And now the Ecoline diode module option provides integral load-sharing and redundant operation functions as well. That makes Ecoline an attractive purpose-built solution for high-integrity control system supplies and protection.

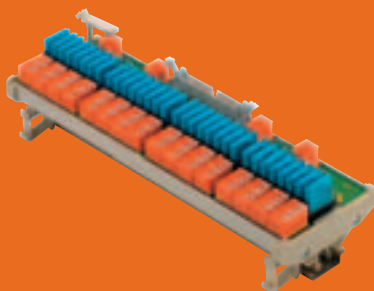


- Single- and three-phase inputs
- 5 V, 12–15 V, 24–28 V, 48 Vdc output options
- Optional redundant operation and load sharing
- Diode module option for redundant operation
- DC/DC converters
- Battery back-up units

Power supplies

PLC INTERFACES

Modular field connection interfaces are the only answer to the extreme complexity of today's wired control systems. The interfaces are fitted between the control system (PLC or DCS) and the cabling to the numerous field input and output devices. Weidmüller manufactures harness-type adapters – with cable and flying field connectors – for plugging directly into the PLC, or DIN rail-mounted assemblies with a multi-pin PLC connector and an array of field terminals on a backplane. The need for isolation often means that the DIN rail assemblies also incorporate a relay or opto device for each channel. Interfaces can reduce both the system installation time and the chances of wiring mistakes.



- Simplifies field wiring for DCS & PLCs
- Provides galvanic isolation for inputs or outputs
- Available with standard numbers of relays
- Multi-pin plug connection to DCS/PLC
- Custom-specific forms available

Relays interface boards

www.weidmueller.com

Argentina	Iran	Romania
Australia	Ireland	Russia
Austria	Israel	Saudi Arabia
Azerbaijan	Italy	Serbia
Bahrain	Japan	Singapore
Belarus	Jordan	Slovakia
Belgium	Kazakhstan	Slovenia
Bosnia-	Kuwait	South Africa
Herzegovina	Latvia	South Korea
Brazil	Lebanon	Spain
Bulgaria	Lithuania	Sweden
Canada	Luxembourg	Switzerland
Chile	Macedonia	Syria
China	Malaysia	Taiwan
Colombia	Malta	Thailand
Costa Rica	Mexico	Tunisia
Croatia	Moldova	Turkey
Czech Republic	Montenegro	UAE
Denmark	Netherlands	Ukraine
Ecuador	New Zealand	United Kingdom
Egypt	Norway	Uruguay
Estonia	Oman	USA
Finland	Pakistan	Venezuela
France	Paraguay	Vietnam
Germany	Peru	Yemen
Greece	Philippines	
Hong Kong	Poland	
Hungary	Portugal	
Iceland	Qatar	
India	Republic of	
Indonesia	Uzbekistan	

Weidmüller is the leading provider of solutions for electrical connectivity, transmission, conditioning and processing of power, signals and data in industrial environments. The company develops, produces and sells products in the field of electrical connectivity, functional electronics and communication electronics. Weidmüller's product and service portfolio is dedicated to add value to the products and thereby the business of our customers. The Weidmüller Group has a global focus with its own manufacturing plants, sales companies and representatives in over 70 countries.

Order number:
5662460000/04/2008/SMMW

4032248787173