

## EtherNet/IP Universal

## SAI-AU

M8



## SAI-AU

M12



## Ordering data

IO variants	
	16 digital inputs
	16 digital inputs / 8 digital outputs
	4 analogue inputs / 2 analogue outputs / 4 digital inputs
Information	

Type	Qty.	Order No.
SAI-AU M8 EIP 16DI	1	1906930000
SAI-AU M8 EIP 16DI/8DO	1	1906940000
Information		

Type	Qty.	Order No.
SAI-AU M12 EIP 16DI	1	1906900000
SAI-AU M12 EIP 16DI/8DO	1	1906910000
SAI-AU M12 EIP AI/AO/DI	1	1906920000
Information		

## Technical data bus system

Bus sharing unit	Server
Transmission rate	10 / 100 Mbps
Diagnostic display	red
Fieldbus interface	IEEE 802.3
Electrical isolation available	yes
Station addresses	via DHCP
bps rate	automatic

## Information

## Technical data

General data	
Insulation material of housing	PBT
Flammability class UL 94	V-0
Operation temperature	0 °C ... 55 °C
Storage temperature	-25 °C ... 70 °C
Ingress protection class	IP 67
Electrical data electronics-module	
Operating voltage	24,0 V DC (18...30 V)
Max. current carrying capacity per output signal	0,5, 2,0 A
Output levels	Short-circuit-protected
Total current. max.	8 A
Digital inputs	TYPE1 to EN61131-2
Analogue outputs	-10...+10 V, 0...+10 V, 0...20 mA, 4...20 mA
Analogue inputs	-10...+10 V, 0...+10 V, 0...20 mA, 4...20 mA
Resolution	12 Bit
Accuracy	< 0,2 %
UL certification in preparation	

## Accessories

Plug	
	Metal plug Ethernet, pin M12, D-coded, straight
	Metal plug Ethernet, socket M12, D-coded, straight
Miscellaneous accessories	
	Marker, transparent
	M8 protective cap
	M12 protective cap
Information	

Type	Qty.	Order No.
SAISM-4/8S-M12-4P D-COD	1	1892120000
SAIBM-4/8S-M12-4P D-COD	1	1892130000
Information		
ESG 8/13.5/43.3 SAI AU	5	1912130000
SAI-SK M8	50	1802760000
SAI-SK-M12-UNI	20	2330260000
Voltage supply with standard M12 plug-in connectors (see catalogue)		

# Modbus TCP



## Principle

### B

Modbus TCP is a fieldbus system for automation technology based on Ethernet TCP/IP. It has been accepted by the Internet Engineering Task Force (IETF) as a draft RFC standard and has been made available for all to use by Schneider Automation. Modbus TCP is based on Modbus, a well established industrial application protocol. The Modbus object models remain unchanged.

A connection is set up via TCP/IP by the server (e.g. I/O device) being addressed via port number 502. Commands are initiated by the client (Master) and executed by the server (slave). The length of a Modbus telegram is max. 256 bytes.

## Network structure

Like Standard Ethernet, Modbus TCP installations are also wired with a star structure. The star structure is characterized by a central signal distributor (switch) with individual connections to all the network's terminals. A line or tree structure can be set up with the help of a 3-port switch in the device or in the proximity of each device.

Weidmüller can supply products for the network infrastructure – please refer to our Industrial Ethernet catalogue.

## Addressing

The addressing is carried out via a BOOTP (Internet Bootstrap Protocol) inquiry via the client, using the Dynamic Host Configuration Protocol (DHCP), or the user can set the IP address with a software tool.

## Bus extension/transmission rate

The transmission rate is 10 or 100 Mbps. Weidmüller modules detect the transmission rate automatically and set themselves accordingly. The maximum length of the bus cable is the same for both transmission rates.

The following table can serve as a guide for bus installations complying with the standard:

Max. bus extension (m)	Data rate (Mbps)
100	10
100	100

## Modbus TCP Universal

## SAI-AU

M8



## SAI-AU

M12



## Ordering data

IO variants	
	16 digital inputs
	16 digital inputs / 8 digital outputs
	4 analogue inputs / 2 analogue outputs / 4 digital inputs
Information	

Type	Qty.	Order No.
SAI-AU M8 IE 16DI	1	1906880000
SAI-AU M8 IE 16DI/8DO	1	1906890000
Information		

Type	Qty.	Order No.
SAI-AU M12 IE 16DI	1	1906850000
SAI-AU M12 IE 16DI/8DO	1	1906860000
SAI-AU M12 IE AI/AO/DI	1	1906870000
Information		

## Technical data bus system

Bus sharing unit	Server
Transmission rate	10 / 100 Mbps
Diagnostic display	red
Fieldbus interface	IEEE 802.3
Electrical isolation available	yes
Station addresses	via DHCP
bps rate	automatic

## Information

## Technical data

General data	
Insulation material of housing	PBT
Flammability class UL 94	V-0
Operation temperature	0 °C ... 55 °C
Storage temperature	-25 °C ... 70 °C
Ingress protection class	IP 67
Electrical data electronics-module	
Operating voltage	24,0 V DC (18...30 V)
Max. current carrying capacity per output signal	0,5, 2,0 A
Output levels	Short-circuit-protected
Total current. max.	8 A
Digital inputs	TYPE1 to EN61131-2
Analogue outputs	-10...+10 V, 0...+10 V, 0...20 mA, 4...20 mA
Analogue inputs	-10...+10 V, 0...+10 V, 0...20 mA, 4...20 mA
Resolution	12 Bit
Accuracy	< 0,2 %
UL certification in preparation	

## Accessories

Plug	
	Metal plug Ethernet, pin M12, D-coded, straight
	Metal plug Ethernet, socket M12, D-coded, straight
Miscellaneous accessories	
	Marker, transparent
	M8 protective cap
	M12 protective cap
Information	

Type	Qty.	Order No.
SAISM-4/8S-M12-4P D-COD	1	1892120000
SAIBM-4/8S-M12-4P D-COD	1	1892130000
Information		
ESG 8/13.5/43.3 SAI AU	5	1912130000
SAI-SK M8	50	1802760000
SAI-SK-M12-UNI	20	2330260000
Voltage supply with standard M12 plug-in connectors (see catalogue)		

# PROFINET system description



## Principal function

### B

PROFINET is the open Industrial Ethernet standard for automation from PROFIBUS & PROFINET International (PI). Profinet implements TCP/IP and IT standards. It is capable of real-time Ethernet and can integrate fieldbus systems. The Profinet design is distinguished mainly by the type of data exchange used to meet the speed requirements.

There are two Profinet perspectives – Profinet-CBA and Profinet-IO:

- Profinet-CBA (component-based automation) is suitable for component-based communications via TCP/IP and real-time communications for the real-time demands of modular systems engineering. Both communication channels can be used in parallel.
- Profinet-IO was created for real-time (RT) communication and synchronous communication (IRT: isynchronous real-time) with decentralized peripheral devices. The designations RT and IRT only describe the real-time characteristics of the communication within the Profinet-IO.

Process data and alarms within the Profinet-IO are always transmitted in real time (RT). Profinet „real time“ is based on the definition from the IEEE and IEC. This specifies that only a limited time is allowed within a bus cycle for the execution of real-time services.

This RT communication is the basis for Profinet-IO data exchange. Real-time data is handled with a higher priority than TCP(UDP)/IP data packets. RT is the foundation for real-time communications in the decentralized peripheral zone. Bus cycle times in the 2–6 ms range are possible with this data exchange mechanism.

## Addressing

Module addresses for the Profinet-IO are assigned automatically using DCP (the discovery configuration protocol).

## Network structure

With the integration of a managed, two-port switch in all Profinet modules, it is then possible to implement linear, star or tree network topologies.

## Transmission rate

The transmission rate is 100 Mbit/s. The maximum segment length is 100 m.

PROFINET Universal

SAI-AU

M8



SAI-AU

M12



Ordering data

IO variants	
16 digital inputs	
16 digital inputs / 8 digital outputs	
4 analogue inputs / 2 analogue outputs / 4 digital inputs	
Information	

Type	Qty.	Order No.
SAI-AU M8 PN 16DIM	1	1019310000
SAI-AU M8 PN 16DI/8DOM	1	1019320000
Information		

Type	Qty.	Order No.
SAI-AU M12 PN 16DIM	1	1019270000
SAI-AU M12 PN 16DI/8DOM	1	1019280000
SAI-AU M12PN4/2AI04DIOM	1	1019290000
Information		

Technical data bus system

Bus sharing unit	Server
Transmission rate	100 Mbps
Diagnostic display	red
Fieldbus interface	IEEE 802.3
Electrical isolation available	yes
Station addresses	via DHCP
bps rate	automatic
Information	

Technical data

General data	
Insulation material of housing	PBT
Flammability class UL 94	V-0
Operation temperature	0 °C ... 55 °C
Storage temperature	-25 °C ... 70 °C
Ingress protection class	IP 67
Electrical data electronics-module	
Operating voltage	24,0 V DC (18...30 V)
Max. current carrying capacity per output signal	2,0 A
Output levels	Short-circuit-protected
Total current. max.	8 A
Digital inputs	TYPE1 to EN61131-2
Analogue outputs	-10...+10 V, 0...+10 V, 0...20 mA, 4...20 mA
Analogue inputs	-10...+10 V, 0...+10 V, 0...20 mA, 4...20 mA
Resolution	12 Bit
Accuracy	< 0,2 %
Information	

Accessories

Plug	
Metal plug Ethernet, pin M12, D-coded, straight	
Metal plug Ethernet, socket M12, D-coded, straight	
Miscellaneous accessories	
Marker, transparent	
M8 protective cap	
M12 protective cap	
Information	

Type	Qty.	Order No.
SAISM-4/8S-M12-4P D-COD	1	1892120000
SAIBM-4/8S-M12-4P D-COD	1	1892130000
Information		
ESG 8/13.5/43.3 SAI AU	5	1912130000
SAI-SK M8	50	1802760000
SAI-SK-M12-UNI	20	2330260000
Information		

# Routers – the gateways between Ethernet worlds

## B

Suppose that you are at your place of work in Stuttgart and need to compare the indicator data sets coming from your manufacturing sites in the Middle East. You then dial in, download the data, save it on your password-protected system and then you're ready. But how can you be sure that you are the only person who is currently accessing this data? Information transmitted over the Internet is just as safe as a message in a bottle.

Anyone with a bit of know-how can capture this data and you may never have the slightest clue of this abuse. Damages resulting from spying, sabotage and other abuse of sensitive data have already reached unprecedented levels. Should we then avoid using public networks all together for industrial uses? We at Weidmüller have worked on this problem in depth. We have developed a new technology that provides smart and reliable defence against external dangers. We have created a new data communication path which establishes a new level of security, reliability and user-friendliness.

The two typical applications for routers are:

- to separate Ethernet networks for data security reasons or to simplify configuration
- to enable an Internet link

### Separation of Ethernet networks in the factory

An industrial manufacturing network or an industrial machine network and a typical office network use the same Ethernet standard but are nevertheless totally different. Whereas in the office network larger volumes of data and the associated sluggishness of the network is completely acceptable, an excessively long response time in an industrial network can lead to downtimes and malfunctions. Complete isolation of the two networks is inadvisable, and for the first time there is the chance of using the same network for all procedures in the company. Procedures become more transparent, the management and technical workloads can be reduced. The exchange of data is considerably simplified and decidedly more efficient.

There are many options for isolating and prioritising network data, e.g. VLAN, QoS for layer 2, etc. A router can provide an option for filtering the data on the IP layer (layer 3). Features

such as integral firewall, Network Address Translation (NAT), Port Address Translation (PAT) and remote access via a modem turn such a router into an efficient aid for achieving separation between networks.

Only authorised users can access the protected network from outside and only certain, enabled devices can transmit data out of the protected network. The NAT/PAT feature enables a machine with its own IP subnetwork and several network users to remain concealed from the outside world behind a unique IP address. Access routines to the IP address from outside are automatically forwarded to a predefined IP address in the network behind the router. In this way the device can remain accessible from outside but only as required. The option of concealing a complete machine behind an IP address reduces the installation and management workloads for the machine user.

In addition, the router can be selected via an external modem, thus enabling access to the router and the machine beyond, without compromising the corporate network. Such access routines are carried out via PPP and PAP or Callback with Virtual Private Network (VPN). This means that a high security level can always be guaranteed.

One for all -  
The Weidmüller „Configurator“ Device Management Tool

Managing the firmware updates or backing up configurations for a variety of different devices can be a problematic and slow undertaking. Device manufacturers offer different utilities for their different product lines, and these often have differing user interfaces.

In order to solve this problem, Weidmüller has introduced the „Configurator“ device management tool. It serves as a general foundation for managing and configuring WaveLine routers and a variety of other devices.

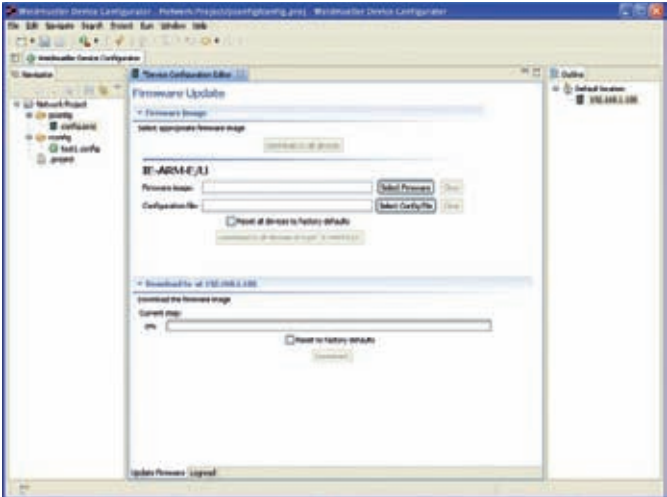
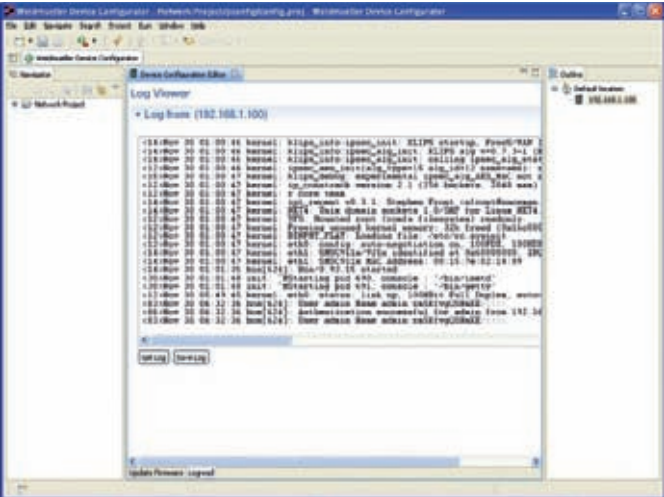
To briefly summarize, the Configurator enables:

- Firmware updates to a device or group of devices
- Readout of configurations
- Transmission of adjusted configurations back to the device
- The readout, display and saving of device log files
- The parameterization of devices based on SecIE security datasheets

The Configurator is available for Windows and Linux. It requires no installation. The software can simply be unpacked and started. The only system requirement is that you have Java Runtime, version 1.5 or later, installed.

The configurator organizes data into projects. A project can consist of multiple locations which can represent the structure of the current facility structure or differing workshops. The software also enables devices to be grouped together in logical groups.

You can represent these groups in a logical structure, with classifications such as „All border routers from manufacturing units“. The Configurator presents a shared „look and feel“ for the central management of firmware and configurations. It can be used for a large number of the industrial Ethernet products from Weidmüller. The administrator can then focus on the complete management of the network. He must no longer be worried about the particulars for each individual tool.



Refer to Chapter W for a description of the connection possibilities for redundant power supplies.



# Routers – gateways between Ethernet worlds

## We Bring Top-level Security to the Net

**Industrial networks and office networks run on the same Ethernet standards, and yet they are totally different: while large amounts of data and, as a result, a certain “inertia” of the network are totally acceptable in office networks, excessive response times may lead to stalling, errors, hence to the generation of considerable costs, in industrial networks.**

Communication networks used for office applications and for automation are converging. The advantages that result from this process are put into practice more and more frequently because they make procedures more transparent and facilitate data exchange substantially.

Weidmüller Industrial Routers ensure that different networks interoperate in unison and with top-level security.



**Customer's Network**

**Router Configurator: remote access from around the world to your router for maintenance and support**

To customize the routers in order to get the optimum out of them, you can choose to tailor them exactly to your needs via a web browser, via SNMP, or using Weidmüller's management software called “Configurator.”

The “Configurator” allows reliable remote maintenance of your systems around the world. Updating the software on a full set of routers, supporting and managing their performance is done conveniently and securely from your office.

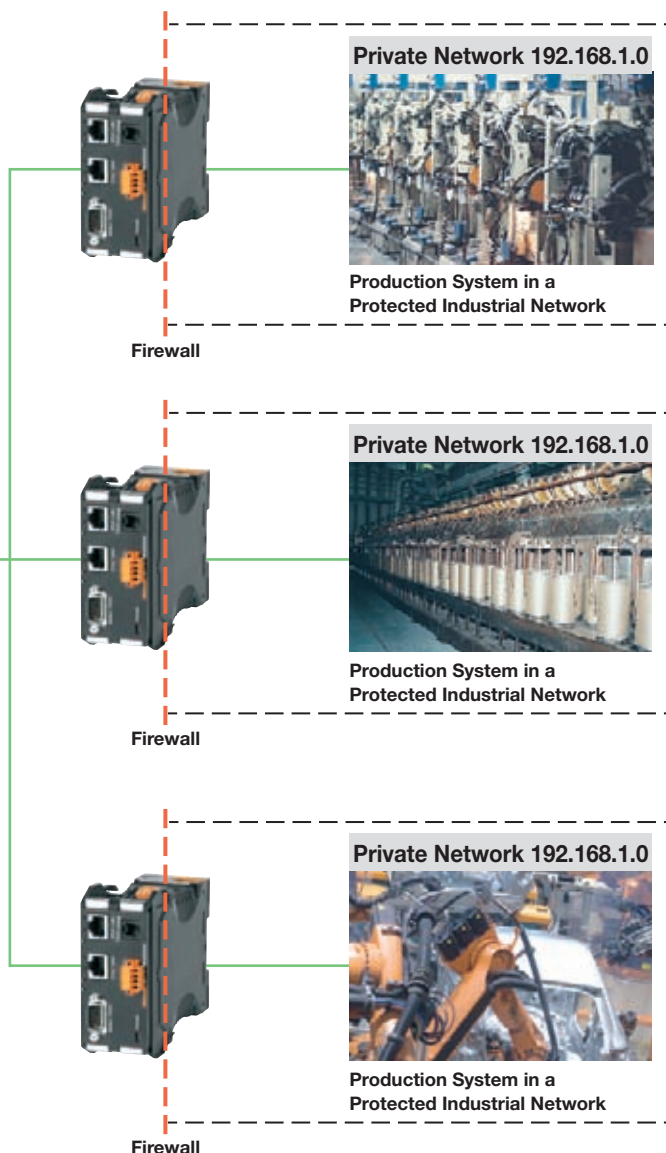
### The Security Datasheet

... assists you with the configuration. It describes the way the firewall has to behave to ensure that the connected systems can work normally. You no longer need to worry about technical

details, such as ports. The configuration software does this job for you. A few mouse clicks is all it takes to have your firewall ready for operation.

### Intelligent Firewall: Stateful Package Inspection

Our routers ship with firewalls that adapt automatically to the network traffic they see (Stateful Package Inspection). They recognize the messages that are stateful, i.e., legitimized, and let them pass. Unidentified packets are kept out of your industrial networks.





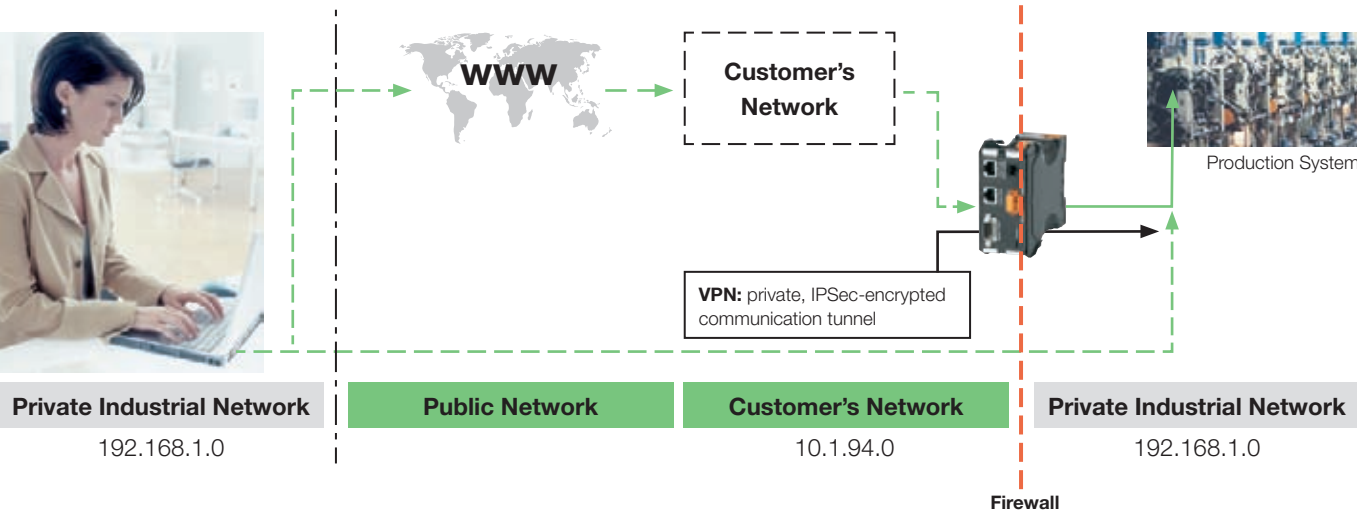
# Bodily Search at the Point of Entry: IPsec Encryption for Virtual Private Networks (VPN)

To frustrate eavesdroppers,  
the router transmits your data encrypted.

Weidmüller Routers for VPNs enable access to components from around the world with IPsec-encrypted procedures, thus ensuring top-level security with minimum effort.

Port forwarding, NAT, and masquerading

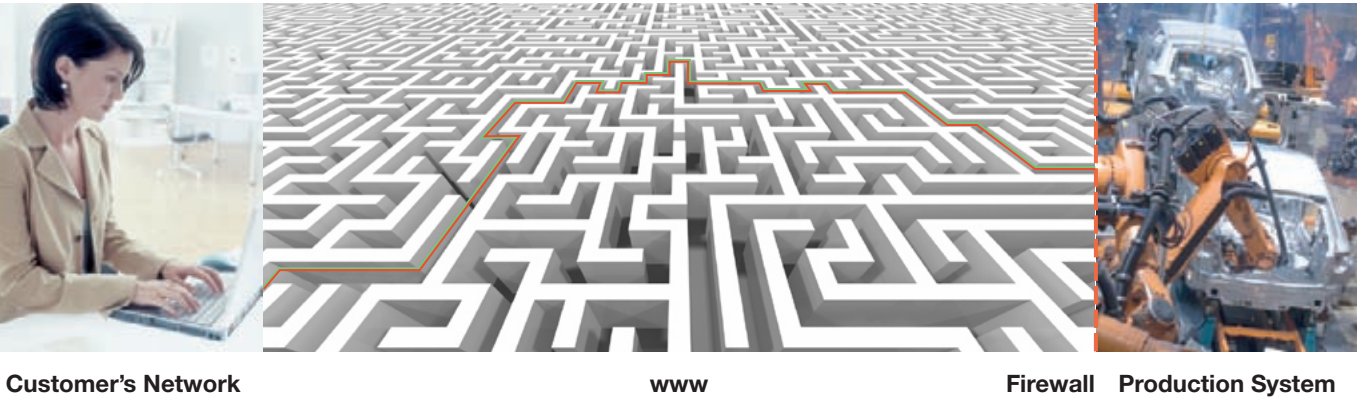
The router is capable of translating addresses between networks. That's how, for instance, all devices of one system can be masqueraded behind a single router. Someone attacking over the network (e.g., the internet) can see only the router, while all the devices behind it are hidden from the outside world to protect them.



## Pathfinder on the net: OSPF (Open Shortest Path First)

OSPF is the dynamic routing protocol within a system that describes the status of the gateways connecting to data networks. The salient feature of the protocol is its rapid and dynamic response to changes in the network structure.

Weidmüller's innovative router technologies are there to avoid that your data have "queue up." OSPF is the reliable and timesaving web guide that takes your data to their destination in the most efficient way at any moment.



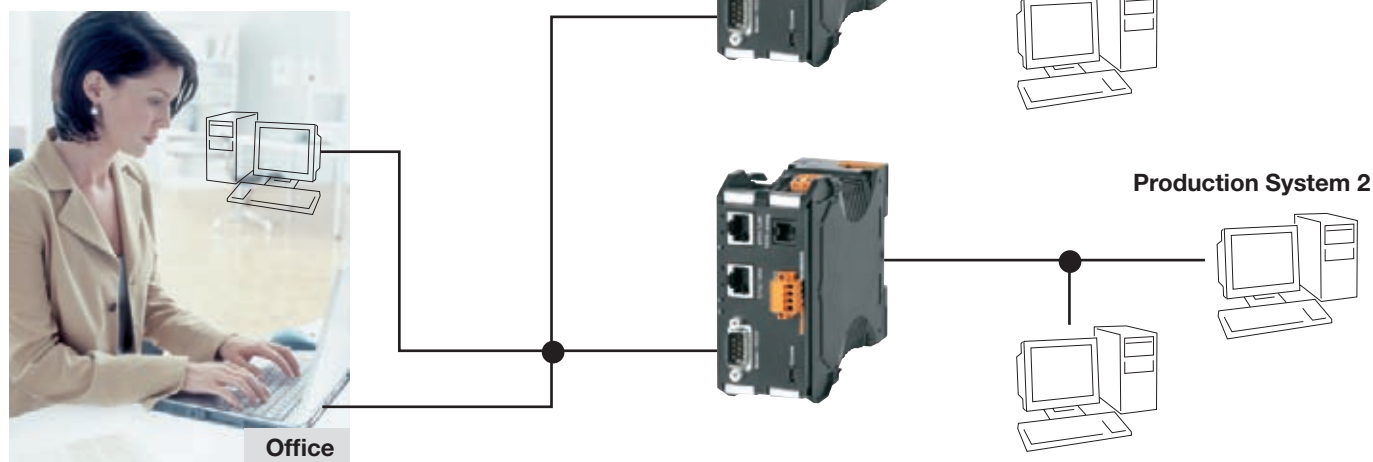
# Virtual Mapping with Weidmüller's Router

Virtual mapping—or, NAT—enables you to operate simultaneously several identically configured networks behind routers equipped with NAT capabilities. The system engineer can hide the system behind the router and needs not adjust its IP configuration. This

allows using the system with the same configuration over and over again. NAT is required as an alternative to port suffixes

## The advantage of virtual mapping:

Two or more machine networks with the same configuration can be connected to a superordinated network without any changes.



## Additional Features for Convenient Data Communications

### Modem

Weidmüller Routers support modem connections for dial up connections to the router. This feature is extremely valuable for remote maintenance in situations where a direct connection of the network to the internet is undesired. Different types with built-in Analog-, ISDN- or GSM-modem are available, alternatively an external modem can be connected.

### Highspeed Routing

Based on his high performance architecture the Router is able to forward data with nearly wire speed (100 Mbit/s). This is an important feature for high speed applications and applications with large data volumes.

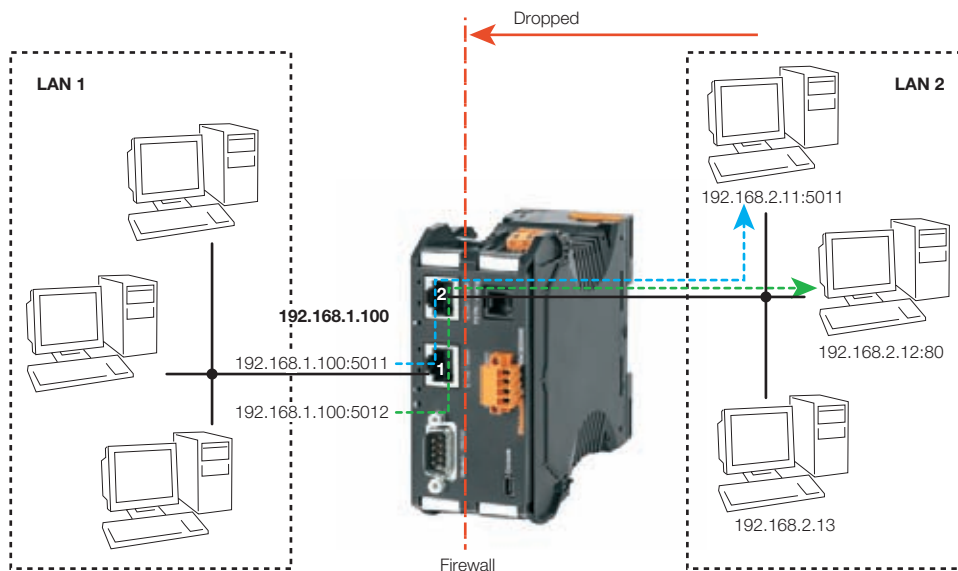
### Integrated Servers

The router provides additional network functionalities that normally require a separate computer, for example automatic addressing and automatic time serving and synchronization.

### Dial on Demand and Callback

When a router is used to connect a network to the internet over a modem, Dial on Demand comes in handy to cut costs. In this configuration the router establishes a connection only when a device in the network wants to download data from the internet. When it is done, the router disconnects automatically. Callback is often used for remote maintenance purposes. The router dials a preset phone number, e.g., that of the system manufacturer's service center. This means that the dial-up costs are borne by the customer.

Port forwarding enables the exchange of IP packets between target addresses and ports.



Target addresses and ports for the IP packets are exchanged  
IP addresses:

router ports on Ethernet 1

192.168.1.100

192.168.1.101:5011

192.168.1.102:5012

Assigned IP addresses:

ports in LAN 2

192.168.2.11:5011

192.168.2.12:80

### Port forwarding with Weidmüller's Router

- Combining the IP address of a router interface with any virtual port,
- Assigning an IP address / port combination to an actually-available IP address and port from the other network (connected via the router)
- Requests to the IP address and virtual ports of the router are then immediately forwarded to the assigned IP addresses.
- Answers to the requests are automatically delivered by the router to the requesting agent.

## Security Router

## Virtual Mapping – NAT

Type Network Address Translations (NAT), exact destination

NAT = DNAT target address of the IP packet is exchanged

IP addresses of the router on Ethernet Assigned IP address in LAN 2

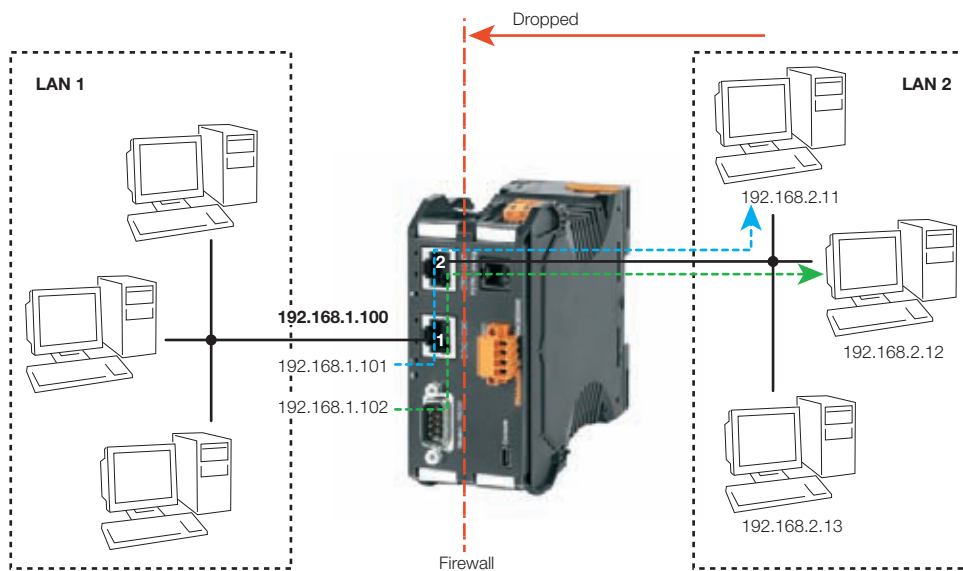
192.168.1.100

192.168.1.101

192.168.1.102

192.168.2.11

192.168.2.12



### Virtual mapping with the Weidmüller miniRouter

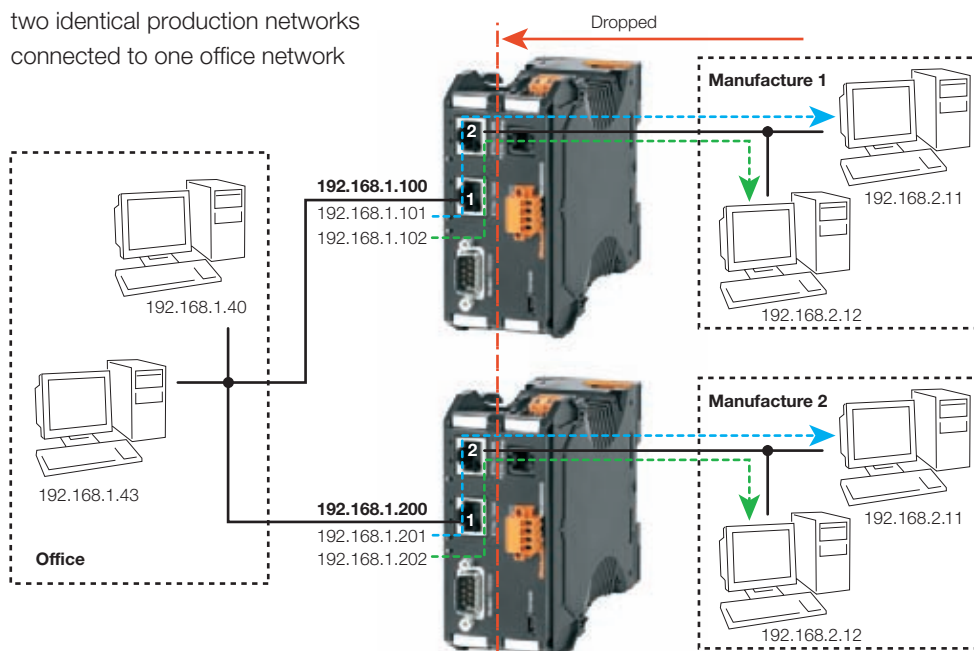
- Allocation of additional IP addresses to a network interface,
- IP addresses must all come from the same network as the actual router IP address on the selected network interface,
- Allocation of additional IP addresses to an actually-available IP address from another network (connected via the router)
  - Requests to the new additional IP addresses are then immediately forwarded to the assigned IP addresses
  - Answers to the requests are automatically delivered by the router to the requesting agent

### The advantages of virtual mapping:

- enables parallel operation of multiple identically-configured networks behind NAT-technology routers
  - Machine builders can hide machines behind a router without needing to change the IP configuration,
  - It is possible to always use the machines with the identical configuration
- NAT as an alternative to port forwarding; necessary for applications which can not form requests combining IP addresses with port numbers (for example, some PLC applications)

### Advantage of virtual mapping:

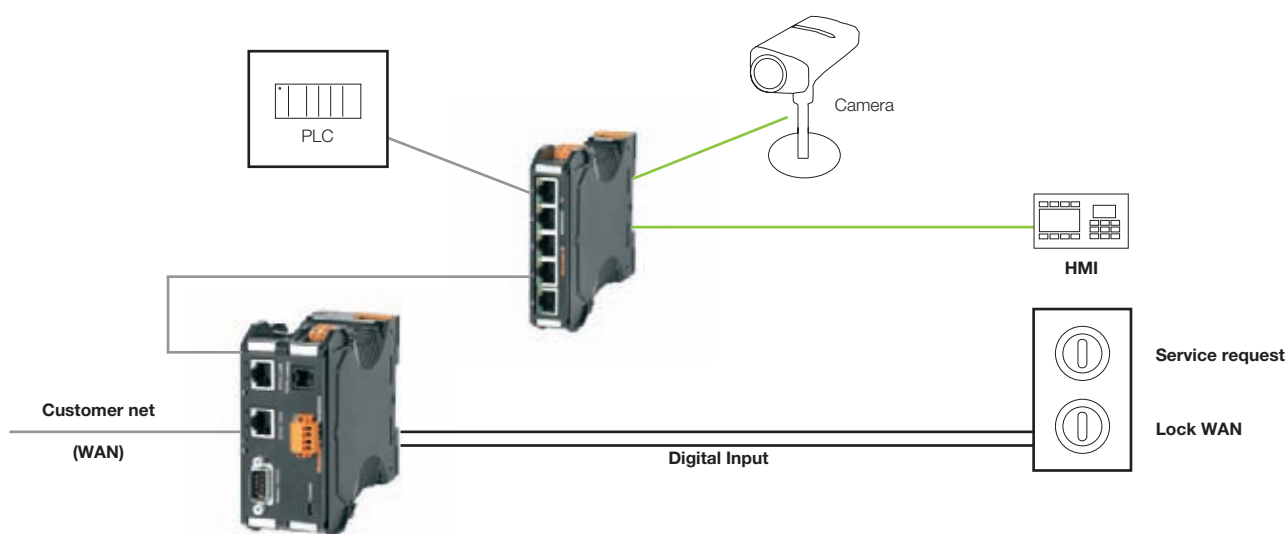
two identical production networks connected to one office network



## WaveLine router with digital IOs

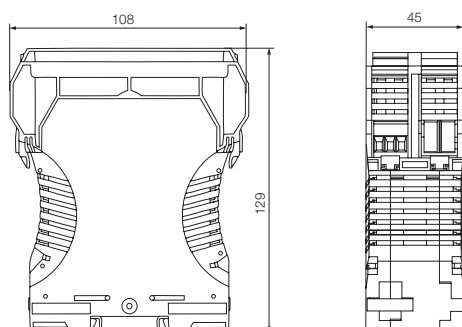
Our line of WaveLine routers are optionally available with digital IOs. By means of digital inputs direct on the router, a service request (for example) can be triggered directly by the machine operator. The user can now switch the digital IOs with the press of a button. The router can then dial up to the Internet if necessary to deliver the alert.

It is also possible to use the digital input to completely lock the WLAN port. With just the press of a button you can deactivate all traffic with networks located behind the router. The required parameters can be set using our Weidmüller Device Configurator or using the web interface to the router configuration.



**Wave 100T**

- Compact and powerful

**Wave 100T****Security:**

- SSH tunnel
- Virtual Private Network (VPN)
- Masquerading, routing without masquerading
- Virtual mapping (NAT)
- Port forwarding
- Special rules
- Port filter
- Stateful Packet Inspection firewall (SPI)
- Integrated Security Data Sheet (SDS)
- Secure Shell

**Dial-in-Dial-out:**

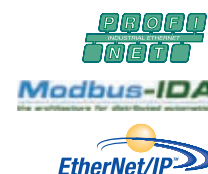
- Router variants with internal analogue, ISDN or GSM modem
- RS232 port for connection of external modem (e.g. for DSL)
- PPPoE (DSL)
- Dial on demand
- Call-back

**Configuration / management:**

- Easy access and configuration via web interface
- USB port can be used for direct configuration
- The Weidmüller Device Configurator (software package) can be used for configuring multiple routers within a network.
- Configurations can be inherited from other routers as needed.
- Simple Network Management Protocol (SNMP)

**Network Services:**

- Link Layer Discovery Protocol (LLDP)
- Stealth mode / bridge mode
- DHCP Server or Client
- DNS server
- DynDNS
- Open Shortest Path First (OSPF)

**Ordering data**

Number of ports
2x RJ45, 2x DI/DO, 1x USB, 1x RS232
2x RJ45, 2x DI/DO, 1x USB, 1x RS232
2x RJ45, 2x DI/DO, 1x USB, 1x RS232

Type	Order No.
IE-AR-100T-WAVE	8943830000
IE-AR-100T-AN-WAVE	8943850000
IE-AR-100T-ISDN-WAVE	8943840000

**Accessories**

Type	Order No.
RJ45 dust-protection plug	8813490000
markers	1609880000

**Note****Technical data**

Housing	plastic
Length / Width / Height	108 mm / 45 mm / 127.8 mm
AC input voltage, min.-max.	10-24 V AC
DC input voltage, min.-max.	10-35 V DC
Input power AC / DC	5 W
Input frequency	47 - 63 Hz
Operating temperature, min.-max.	-40 °C - 70 °C
Storage temperature, min.-max.	-40 °C - 85 °C
Installation	TS 35
Protection class	IP 20
Standard	IEEE 802.3; 802.3u; 802.3x; Class I, Division 2
Data rate	10 Base-T/100 Base-TX (copper)
Segment length	Copper 100 m
Flow control	half-duplex/full duplex
Status indication	Console, Power, Connection (Ethernet), Connection (modem)
Address memory	4 K MAC addresses per eight ports
Approvals	cULus, CE, EN55024, EN 55022, Gost R
Supported protocols	Profinet RT, Modbus TCP, TCP/IP, Ethernet/IP

**Note:**



## The GPRS alarm module

The IE-GPRS-I/O is a suitable choice for all those who wish to access facility or plant data from mobile devices or from the Internet. Some examples are:

- Do you want to be able to call up data about your plant or facility at any time, even when you are not on site? You can choose to receive an SMS, a fax or an e-mail
- Do you want your engineers to be notified when certain conditions arise in the plant, even when there is nobody on site? The IE GPRS I/O can automatically send, for example, an SMS, or call your engineers when critical situations occur
- Do you require not only information, but wish also to be able to control your plant from virtually anywhere in the world and at any time? Using its RS232 interface, the IE-GPRS-I/O allows you round-the-clock access to your plant
- Do you need to access data from a section of your plant that is unreachable by land-line or network? The IE-GPRS-I/O can be installed wherever GSM mobile radio network reception is guaranteed - even far away from your factory

The IE-GPRS-I/O also allows you to setup a dedicated line using an inexpensive M2M payment plan. Central data loggers, which are always accessible via a secure Internet link, are another possible option that would eliminate the need for an expensive on-site data logger. The innovative GSM/GPRS technology means that you can avoid the installation of a land-line phone link and the associated transmission costs.

In today's production facilities, it is often the case that only a few workers are in charge of operating and monitoring a large amount of machinery. GPRS transmission technology enables all of your devices to be online all the time. No matter where your personnel may be, the machine is reachable around the clock.

The IE-GPRS-I/O is also an attractive choice for manufacturers of machinery and plants. Mobile access to the facility or plant allows you to provide speedy and effective support to your customers. You are then less reliant on the qualifications and personnel of your customers. Often this can save you the necessity of having an on-site technician. This benefit alone will allow you to quickly amortize the IE-GPRS-I/O's cost. And that is not even taking into account the improved service and customer relations.

Just like most of our active communication devices, the IE-GPRS-I/O is enclosed in a sturdy metal housing. The housing offers additional protection against electromagnetic interference and emphasizes the professional appearance of your electrical cabinet.

A brief look at the features of the IE-GPRS-I/O:

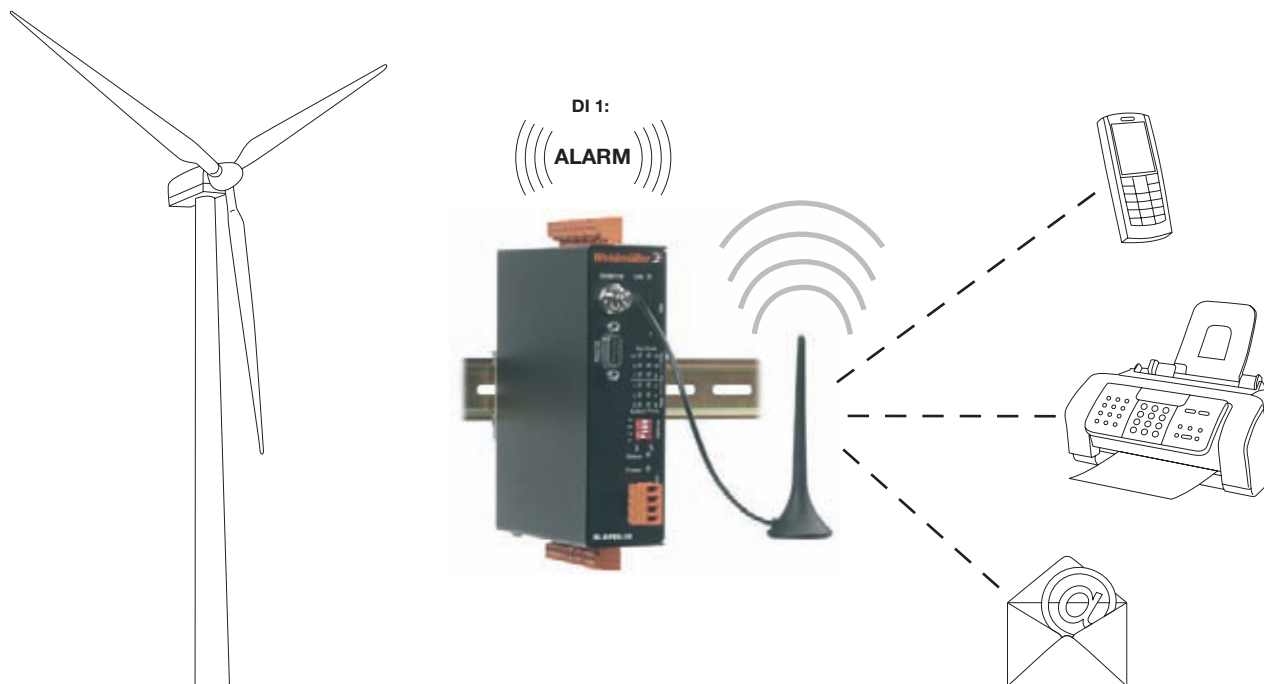
- Always online
- GSM/GPRS modem function
- Modem function with AT commands
- Web logger
- Web history
- Plug&Play telecontrol
- M2M rates
- GPRS routing
- Connection is established and maintained
- Alarm via fax, SMS, e-mail or voice call
- Direct data link

**Refer to Chapter W for a description of the connection possibilities for redundant power supplies.**

**Included in delivery:**

- RS232 programming cable
- GSM antenna
- Handbook on CD-ROM

### Alarm notification via SMS



At the core, the IE-GPRS-I/O is a flexible alarm module that can evaluate environmental stimulus and react accordingly in a variety of ways. It can process analogue (temperature, voltage, current strength) and digital input signals. It can also react to simple status changes, such as when values fall below or exceed the limit ranges, or when percentage changes occur to the measurements.

In reaction to signal measurements, the IE-GPRS-I/O can send alarms or status information to a maximum of eight targets per input port. Messages can be sent via:

- SMS,
- e-mail,
- FAX or
- voice mail.

Because of the excellent configurability of the alert chain within the IE-GPRS-I/O, the device can easily be adapted to the schedules of your service technicians.

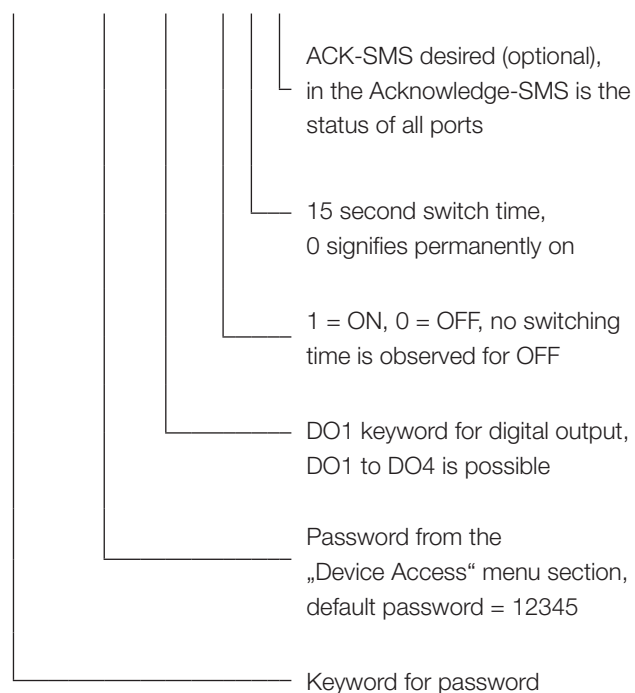
#### More outstanding features in the IE-GPRS-I/O alarm module include:

An SMS sent to the IE-GPRS-I/O can:

- switch a digital output port (DO),
- query the status information for all ports, and
- send any character string to the serial port.

Example: switch the digital output (DO) port 1 for 15 seconds. An acknowledgment SMS is needed with the status information for the IE-GPRS-I/O ports.

**PASS = 12345 DO1 = 1. 15 A**



## Intermediate Server (VServer)

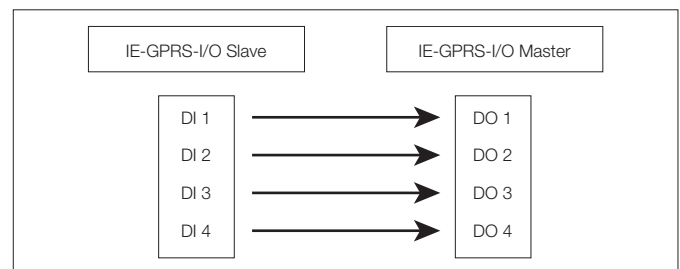
The Intermediate Server uses simple protocol functions and makes it possible for IE-GPRS-I/O modules to communicate with each other. The Intermediate Server enables IE-GPRS-I/Os to be structured within groups with master-slave relations. There are two methods for connection IE-GPRS-I/Os with each other. The first method involves forming a 1:1 master-slave relationship. The digital signals of the slave are then forwarded to the digital outputs on the master. The second method is suited for logging data. The IE-GPRS-I/O master together with the VServer can manage, theoretically, an unlimited number of slaves. We recommend, however, that the number of slaves not exceed 30 to ensure smooth operations.

### Features of the Intermediate Server (VServer):

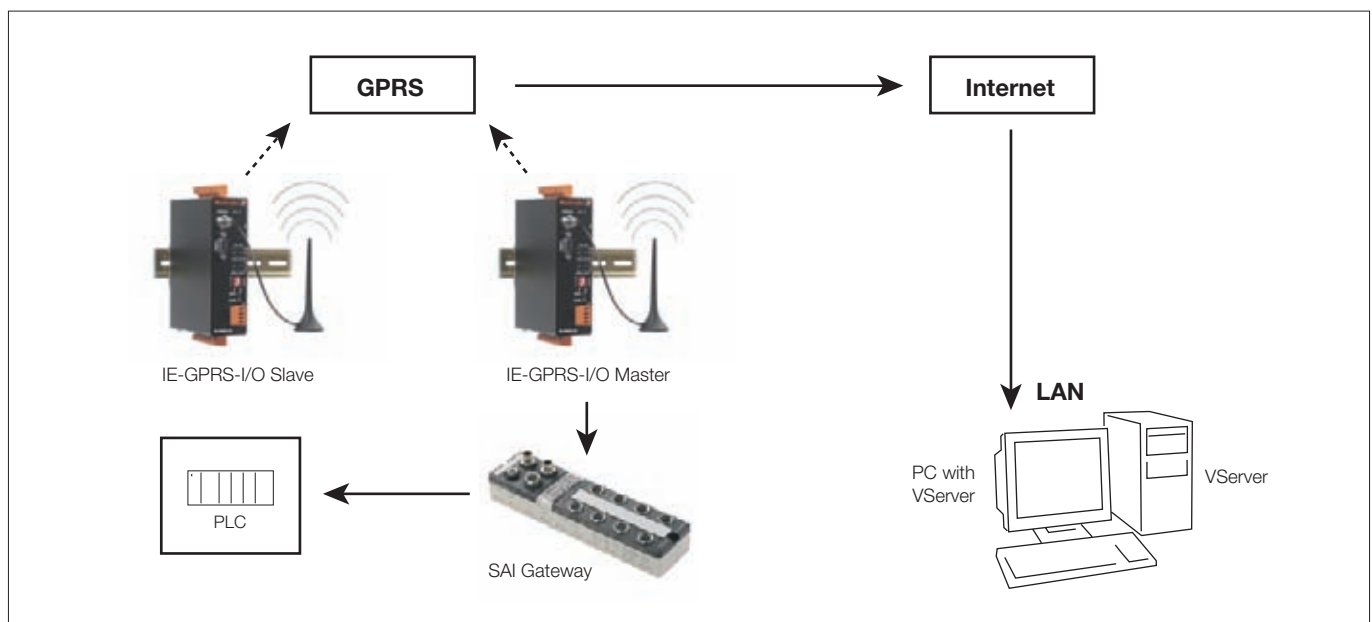
- Logs information from digital input and outputs, and analogue module inputs
- Stores information in a CSV-formatted file for later use in statistical analysis
- Forwards signal from the slave's digital inputs to the master's digital outputs
- Logs all VServer activities to a text file
- Secure IE-GPRS-I/O registration with VServer using a username and password
- VServer is simple to install and use

An Intermediate Server (VServer) that is located on a private LAN acts as a communication interface between the IE-GPRS-I/O modules. The IE-GPRS-I/O modules register with the VServer using their usernames and passwords. The VServer then sets up the communication between the modules.

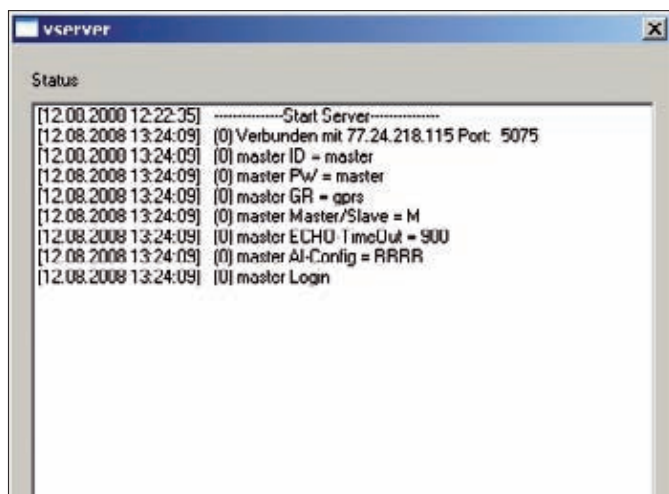
After registering, the digital inputs of the IE-GPRS-I/O slave can be forwarded to the digital outputs of the IE-GPRS-I/O master. The first four of the slave's digital inputs can be forwarded to the digital outputs on the master. An SAI Gateway IO can be connected to the master's digital outputs. The signals can then be forwarded to a PLC. Incoming signals can also be read in from a PLC. Our SAI products are listed in Catalogue 8.



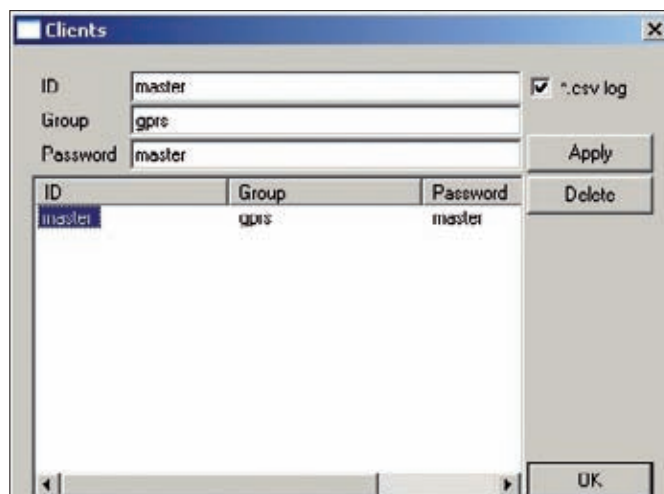
DI-to-DO function



Master-slave configuration and an SAI gateway



VServer status window, with logged-in IE-GPRS-I/O



Client window with one registered IE-GPRS-I/O

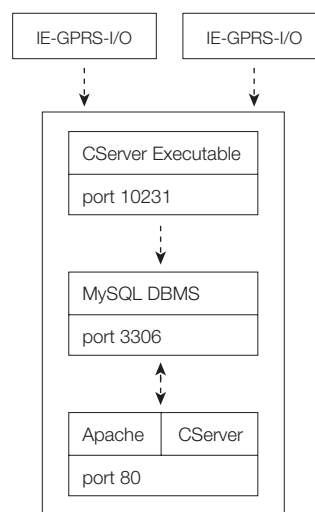
## Communication Server (CServer)

The Communication Server is a web-based application which gathers statistical data and displays the information graphically. The CServer uses open-source applications, including the Apache web server, the MySQL database, and the PHP programming language. Because open-source applications are used, customers are allowed to customize the CServer so that it fits their individual needs.

Communication Server features include:

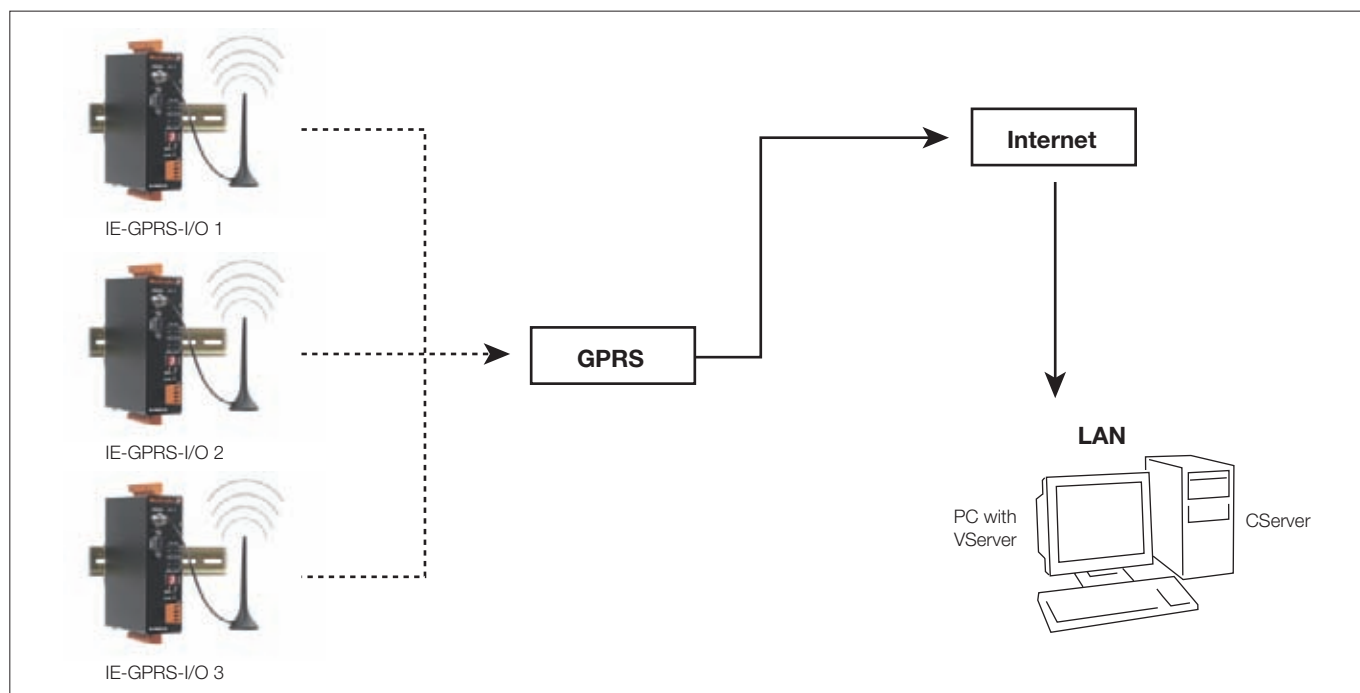
- Built on open-source applications: Apache web server, MySQL database and PHP programming language (the XAMPP distribution)
- Configuration and control using the web interface
- All port information saved to a database
- Graphic illustration of collected information
- Export of data as CSV-formatted file is possible
- In-house applications can be created which access the database
- CServer can be tailored to the customer's needs
- Secure registration, with IE-GPRS-I/O username and password used for CServer authentication

The Communication Server has the following structure:



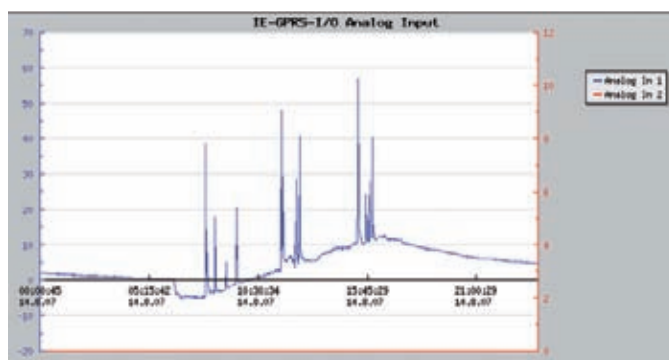
The skeleton of the CServer is the Apache web server. Apache interprets and presents the web interface. All of the collected data is stored in the MySQL database. The database can be accessed or analysed by other programs. The Windows-executable version of the CServer connects the individual IE-GPRS-I/Os with the application. It also ensures that the data is stored in the database.

## Industrial Wireless

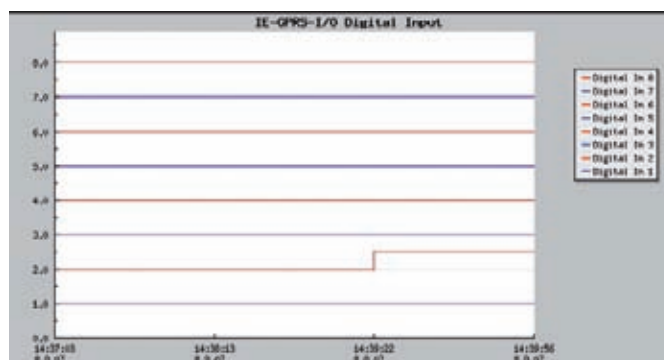


## Communication Server

Similarly to the Intermediate Server, all IE-GPRS-I/Os connect to the Communication Server over the GPRS network and authenticate with their usernames and passwords. They then transfer data from the inputs and outputs to the CServer. The Communication Server collects the data in a database. Direct access to the database is possible, for example, if you develop in-house applications for data analysis.

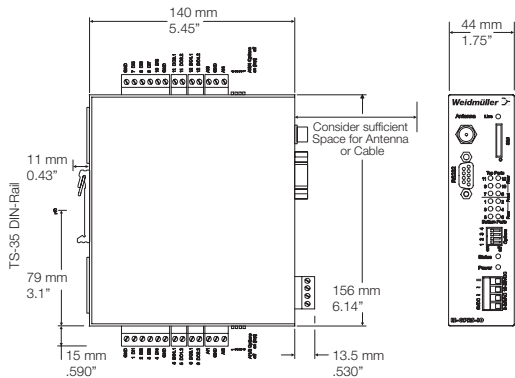


Analogue input diagram



Digital input diagram

GPRS module



GPRS module

Weidmüller's IE-GPRS-I/O-QUAD GPRS alarm module is used for monitoring facilities and can signal deviations either automatically or upon request. The alarm module can send out an alarm via SMS, fax or e-mail. It can also initiate a voice telephone call to eight contact persons.

Weidmüller's GPRS-I/O is convincing, with its 45-mm, thin aluminium housing and the following configurable features:

- Notification and remote-control systems capable of automation
- Quad band GSM/GPRS modem (GSM 900/1800MHz, 850/1900MHz)
- Always online
- Inexpensive M2M tariffs
- Eight digital and four analogue input ports, four digital output ports
- Immediate alarm notification when limit-values are exceed at the input ports, via SMS, FAX, e-mail or voice
- Alarms can also be triggered via RS232
- Very flexible configuration, eight-level receiver list
- Integration of the corresponding port status into the notification text
- Integrated cost control
- Available data logger (LAN and Internet)

Ordering data

Quad Dual band GSM/GPRS modem	Type	Order No.
900/1800 MHz - 850/1900 MHz	IE-GPRS-IO-QUAD	8963930000
	Standard antenna with 2.5m cable included in delivery	

Accessories

Note

Technical data

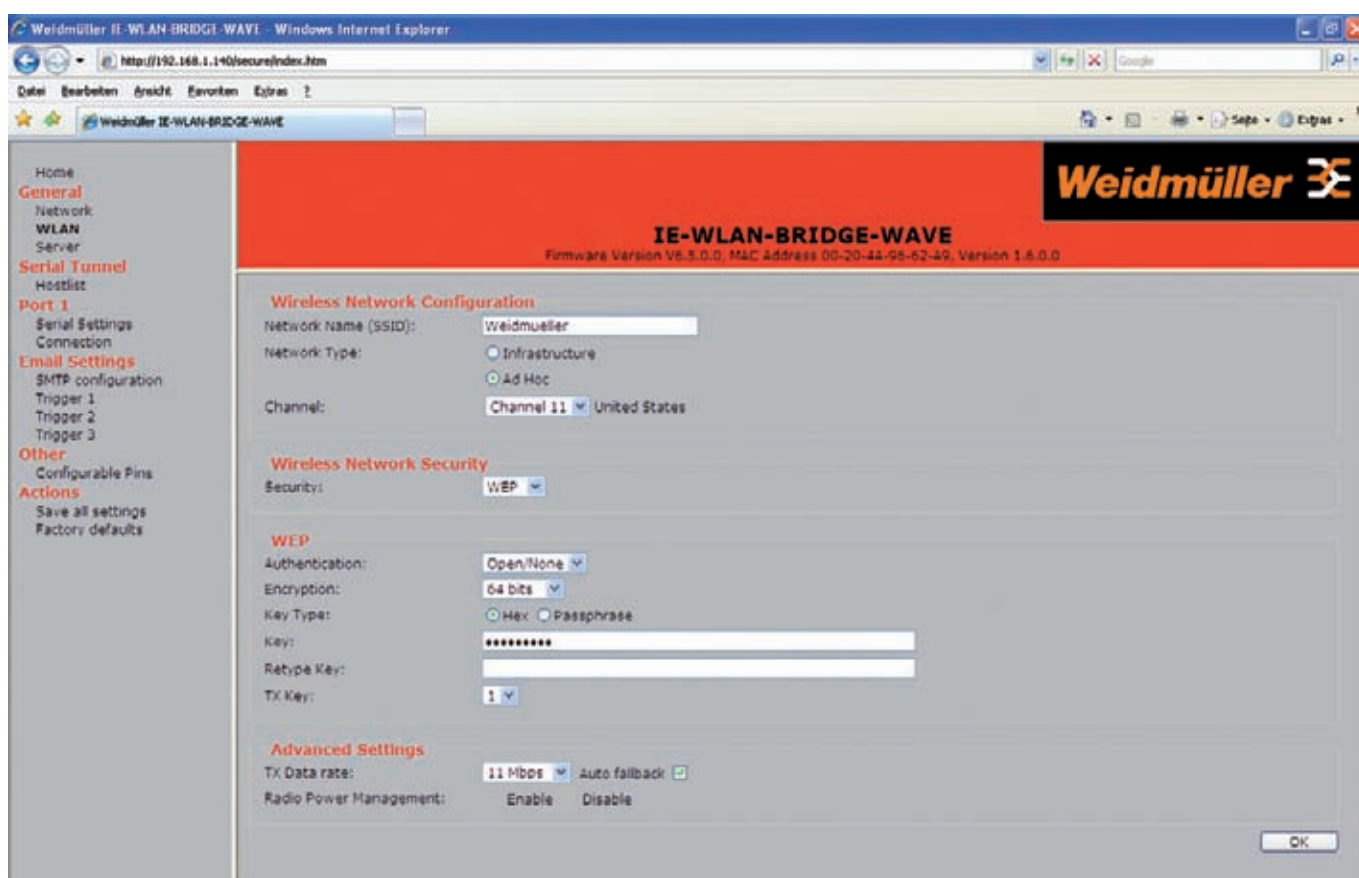
Housing	Aluminium
Length / Width / Height	137 mm / 45 mm / 155 mm
Ports	8 digital inputs; 4 digital outputs; 4 analogue inputs; 1 x RS 232 interface
AC input voltage, min.-max.	8-24 V AC
DC input voltage, min.-max.	10-36 V DC
Input power AC / DC	max. 5 VA AC / max. 5 Watt DC
Input frequency	47 - 63 Hz
Operating temperature, min.-max.	-10 °C-55 °C
Storage temperature, min.-max.	-10 °C-70 °C
Installation	TS 35;wall
Protection class	IP 20
Data rate	max. 53.6 kb/s
Functionality	SMTP; POP3; FTP; DNS; IP TCP; UDP Sockets
Status indication	Power, Status, Connection/Activity
Approvals	cULus, CE, EN55024, EN 55022, Gost R
Transmission rate	GPRS-dependent

Note:

# WLAN bridge

Weidmüller's WaveLine products can also link or extend your industrial network with WLAN. Currently, wireless LAN can be used for industrial manufacturing facilities; it is ideal for use anywhere where traditional cabling is not suitable or where a wireless connection is required. The WaveLine WLAN bridge is ideal for gaining a foothold in Industrial Ethernet. It can be used wherever end terminal devices have to be connected to your Ethernet in the simplest way possible. The industry-standard WLAN-BRIDGE-WAVE (with IP20 protection) features a compact plastic housing (108 mm x 22.5 mm x 127.8 mm L/W/H) and VO-class flammability. It can be used in temperatures ranging from 0°C to 60°C. The module supports WLAN IEEE 802.11b/g standards and can function interference-free in a production facility. In addition, it features a 10 Base-T/100 Base-TX (copper) network interface.

As delivered from the factory, the WLAN bridge comes with: an RS232 interface (not electrically isolated), an RJ45 interface, and an antenna. The WLAN is capable of auto-negotiation and auto-crossing (RJ45) and has a redundant power supply. The WLAN bridge comes with a wide range built-in security: optional end-to-end 128, 192 or 256-bit AES encryption, WPA-PSK/TKIP\*, and alternative 64/128-bit WEP/WPA2 encryption\*\*. The bridge is configured with a user-friendly, password-protected interface which is accessible via the serial port or a web-based interface. In addition, the thin WLAN bridge module can be fastened to a mounting rail and comes with its own internal web server. The module supports the following protocols: ARP, UDP, TCP, Telnet, ICMP, SNMP, DHCP, BOOTP, Auto IP, HTTP, SMTP, TFTP. Three LEDs display the operational status: data rate, power, and connection/activity.



\* WPA authentication (Wi-Fi Protected Access) with pre-shared key (PSK - Preshared Key) and with TKIP encryption (Temporal Key Integrity Protocol) - also known as WPA-PSK/TKIP.

\*\* WEP/WPA2 encryption (Wired Equivalent Privacy)/Wi-Fi Protected Access 2. WPA2 is an implementation of the principle functions described in the IEEE 802.11i security standard.



### The integration of serial or Ethernet-compliant end devices into an existing wireless LAN

Our WLAN bridge can be integrated into an existing wireless LAN. The bridge is set to infrastructure mode and registers itself in the corporate network at the access point.

The WLAN bridge then becomes a client. It can integrate machinery (for example, a forklift) into the network.

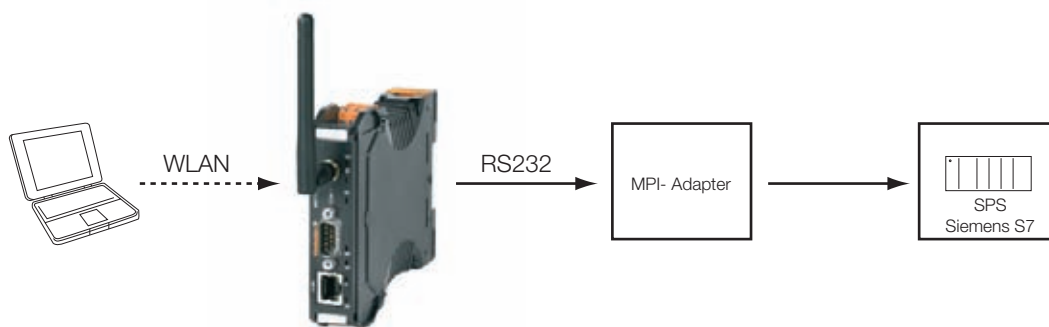
B



### Mobile remote maintenance enabled by the WLAN bridge

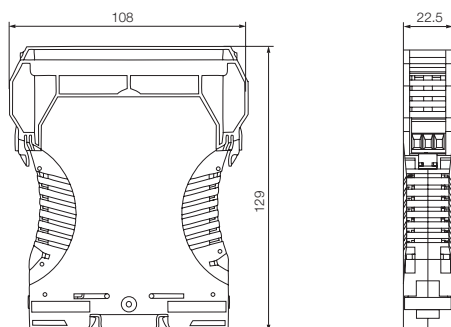
Our WLAN bridge makes it possible for technicians to carry out remote maintenance and configuration on devices such as the Siemens S7 PLC. The technician does not need to connect his

PC to the electrical cabinet or directly to the PLC to perform the maintenance. Instead, he takes advantage of the WLAN bridge to build a wireless connection to the PLC and carries out the configuration remotely.



## Industrial wireless

## WLAN-Bridge

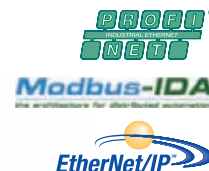


## WLAN bridge

WaveLine products can also link or extend your industrial network with WLAN. Wireless LANs are used any place where cabling is not practical or where a mobile connection is needed.

Our WaveLine wireless bridges have an operating temperature from 0°C to 60°C and a compact plastic housing featuring flammability class V0. They are suited for entry in to industrial Ethernet wherever end devices must be connected to the network in the simplest way.

- Support for WLAN 802.11b/g
- Disturbance-free operation at production facilities
- Optional end-to-end 128, 192 and 256 Bit AES encryption
- WPA PSK TKIP security
- 128 bit WEP encryption
- Simple configuration via web interface
- Integrated web server
- Password-protected configuration front-end



## Ordering data

Number of ports
1 x RJ45, 1 x RS232, 1 x antenna

Type	Order No.
IE-WLAN-BRIDGE-WAVE	8927140000

## Accessories

markers

Type	Order No.
WS 15/5 MC NEUTRAL	1609880000

## Note

## Technical data

Housing	Plastic
Length / Width / Height	108 mm / 22.5 mm / 127.8 mm
Ports	1x RJ45; 1x RS-232; 1x antenna
AC input voltage, min.-max.	10-24 V AC
DC input voltage, min.-max.	10-35 V DC
Input power AC / DC	6 VA AC/4 Watt DC
Operating temperature, min.-max.	0 °C-60 °C
Storage temperature, min.-max.	-40 °C-85 °C
Standard	IEEE 802.3; 802.3u; 802.3x
Data rate	1, 2, 5.5, 11 Mbps (802.11b) and 6, 9, 12, 18, 24, 36, 48, 54 Mbps (802.11g)
Functionality	Autonegotiation and Autocrossing (RJ45), redundant voltage supply
Status indication	Data rate, Power, Connection/Activity
Approvals	cULus, CE, EN55024, EN 55022
Supported protocols	ARP, UDP, TCP, Telnet, ICMP, SNMP, DHCP, BOOTP, Auto IP, HTTP, SMTP, TFT
Network Interface	Wireless 802.11b, 802.11g and 10 Base-T/100 Base-TX (copper)
Management	Internal web server, SNMP (read only), software, serial and telnet login
Security	WEP 64/128, WPA-PSK, TKIP, AES end-to-end encryption

## Note:

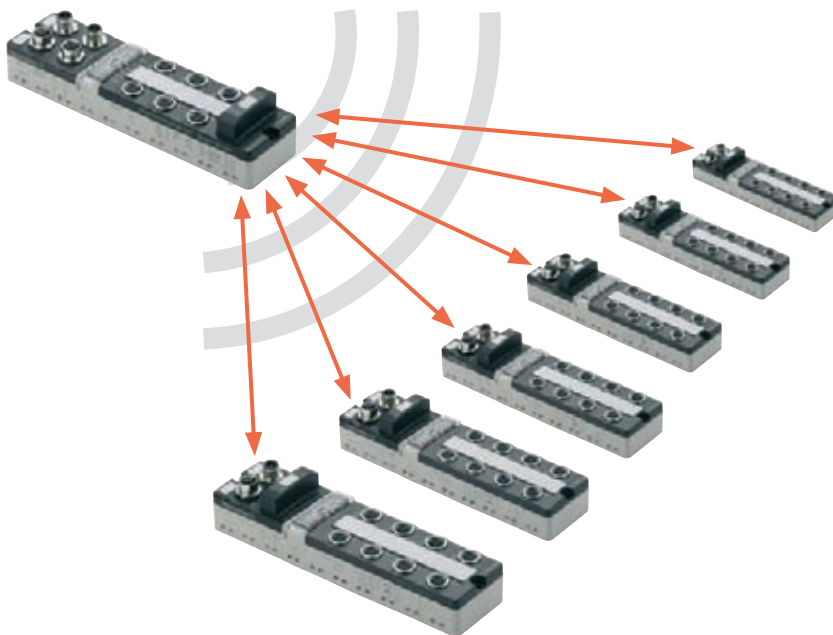


# SAI-Bluetooth

## The Concept

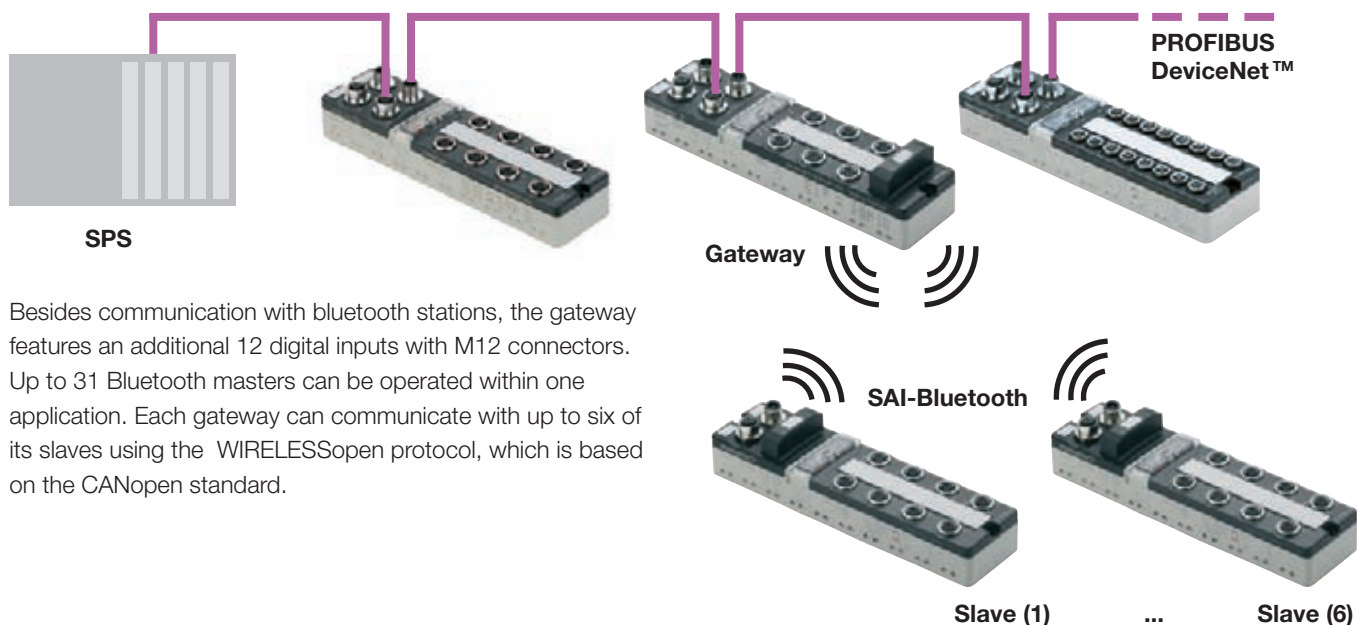
B

A Bluetooth master can perform wireless communication with up to six slave stations. All stations function as field devices with IP67 protection. The connection from the sensor or actuator utilizes a M12 connector.



## The Implementation

The Bluetooth gateway (master) functions as a slave in a PROFIBUS-DP network or a DeviceNet™ network. Together with the slaves, it is configured via GSD or EDS files.

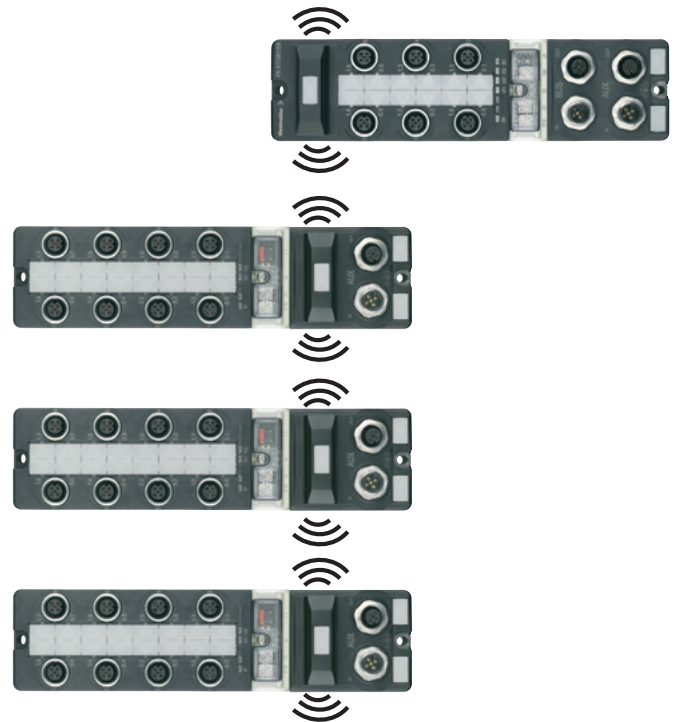


Besides communication with bluetooth stations, the gateway features an additional 12 digital inputs with M12 connectors. Up to 31 Bluetooth masters can be operated within one application. Each gateway can communicate with up to six of its slaves using the WIRELESSopen protocol, which is based on the CANopen standard.

## The Products

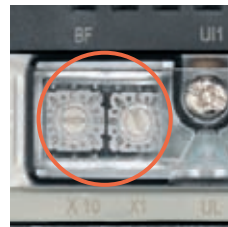
- Profibus or DeviceNet™ slave with 12 digital inputs and Bluetooth gateway function (master) for 6 Bluetooth slaves
- Bluetooth slave with 16 digital inputs
- Bluetooth slave with 8 digital inputs and 8 digital inputs or outputs (configurable)
- Bluetooth slave with 4 digital and 4 analogue inputs and 2 digital and 2 analogue outputs

All I/O signals on M12 connectors



## Advantages

- Interference-resistant data communication without cable, e.g., for mobile sections of the facility.
- Classic distributor with the standard installation procedure
- Configuration as standard PROFIBUS-DP components
- Full network transparency also for wireless stations
- Convenient address settings, in illuminated address space
- Comprehensive diagnosis and status display on each module, for operating voltages and communication
- Generous surface for identification marking, with background lighting and arrow-shaped status display. Additional colour display change in event of I/O error



## Industrial wireless

## Gateway

## SAI-AU

## M12



## Ordering data

IO variants	
	12 digital inputs
	12 digital inputs
Information	

Type	Qty.	Order No.
SAI-AU M12 GW PB/BT 12I	1	1006980000
SAI-AU M12 GW DN/BT 12I	1	1060020000

Type	Qty.	Order No.

## Technical data bus system

Bus sharing unit	Slave
Profibus transmission rate	Max. 12 Mbaud
DeviceNet™ transmission rate	Max. 500 kBaud
Diagnostic display	red
Fieldbus interface	RS 485
Electrical isolation available	yes
Station addresses	Rotary switch 1-125
bps rate	automatic
Information	

## Technical data

General data	
Insulation material of housing	PBT
Flammability class UL 94	V-0
Operation temperature	0 °C ... 55 °C
Storage temperature	-25 °C ... 70 °C
Ingress protection class	IP 67
Electrical data electronics-module	
Operating voltage	24,0 V DC (18...30 V)
Digital inputs	TYPE1 to EN61131-2
UL certification in preparation	

## Accessories

Plug	
Metal plug, Male M12, B-coded, straight	
Metal plug, Socket M12, B-coded, straight	
Connecting plug in M12 Plug	
Terminating resistor in M12 plug	
Metal plug, Male M12, 5-pole, shield A-coded	
Metal plug, Socket M12, 5-pole, shield A-coded	
Miscellaneous accessories	
Marker, transparent	
M12 protective cap	
Information	

Type	Qty.	Order No.
SAISM 5/8S M12 5P B-COD	1	1784790000
SAIBM 5/8S M12 5P B-COD	1	1784780000
SAIEND PB M12 5P B-COD	1	1784770000
SAIEND CAN-M12 5P A-COD	1	1784760000
SAIS-M-5/8S M12 5P A-COD	1	1784740000
SAIB-M-5/8S M12 5P A-COD	1	1784750000
ESG 8/13.5/43.3 SAI AU	5	1912130000
SAI-SK-M12-UNI	20	2330260000

Slaves

SAI-AU

M12



Ordering data

IO variants
16 digital inputs
16 digital inputs / 8 digital outputs
4 analogue inputs / 2 analogue outputs / 4 digital inputs
Information

Type	Qty.	Order No.
SAI-AU M12 BT 16DI	1	1006940000
SAI-AU M12 BT 16DI/8DO	1	1006930000
SAI-AU M12 BT4AI2AO2DIO	1	1006920000

Type	Qty.	Order No.

Technical data

General data	
Insulation material of housing	PBT
Flammability class UL 94	V-0
Operation temperature	0 °C ... 55 °C
Storage temperature	-25 °C ... 70 °C
Ingress protection class	IP 67
Electrical data electronics-module	
Operating voltage	24,0 V DC (18...30 V)
Max. current carrying capacity per output signal	0,5, 2,0 A
Output levels	Short-circuit-protected
Total current. max.	8 A
Digital inputs	TYPE1 to EN61131-2
Analogue outputs	-10...+10 V, 0...+10 V, 0...20 mA, 4...20 mA
Analogue inputs	-10...+10 V, 0...+10 V, 0...20 mA, 4...20 mA
Resolution	12 Bit
Accuracy	< 0,2 %
Information	

Accessories

Miscellaneous accessories
Marker, transparent
M12 protective cap
Information

Type	Qty.	Order No.
ESG 8/13.5/43.3 SAI AU	5	1912130000
SAI-SK-M12-UNI	20	2330260000

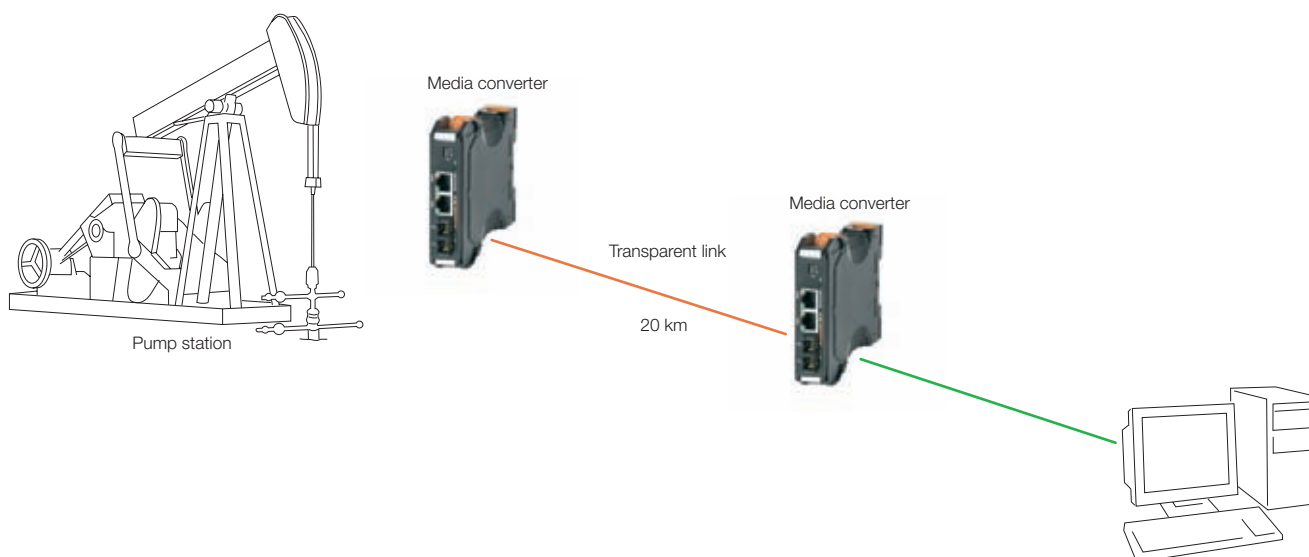


# Introduction Media converters

The use of fibre optics is advisable when reliability demands are high or there are long distances to cover. One simple and inexpensive solution is the Weidmüller media converter, which can convert an RJ45 port to an optical port with an SC or ST glass fibre connection. The supply voltage can be designed as a redundant system and therefore provides users with high fail-safe security. The conversion of RJ45 copper ports to SC or ST fibre optic ports can be set transparently.

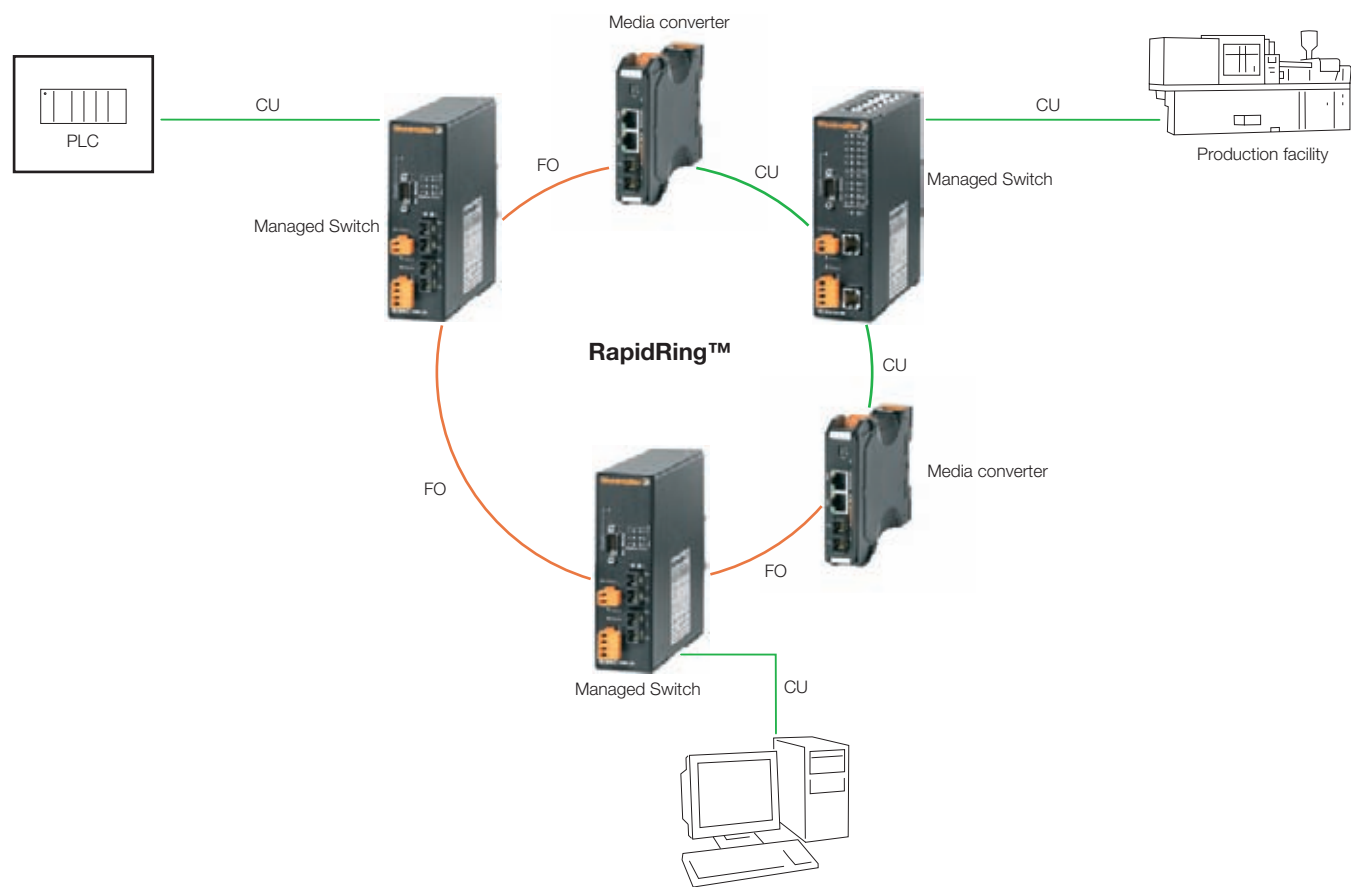
Weidmüller Industrial Ethernet media converters provide a solution for industrial applications that require a highly reliable, robust data exchange between copper and glass fibre media. Media converters are cost-effective devices and give users the option of integrating fibre optics into their networks. The Weidmüller media converters are real-time-compatible and remain transparent in the network.

## Single-mode long-distance cabling



Long-distance cabling of up to 60 km is possible in single-mode with our media converters. Our standard converter features a max. 2-km transmission path in multi-mode and a max. 20-km transmission path in single-mode. The required connection cables can be found in Chapter D.

Media converter in RapidRing™, with transparent link



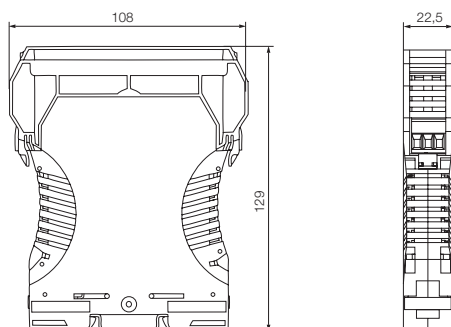
Because of their transparent network links, our media converters are well suited for use within a redundant connection in a ring topology.

B

## Optical media converter

### WaveLine Media Converter

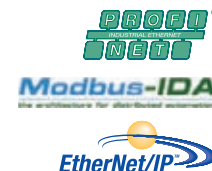
- Transparent in network
- Multimode or singlemode



### WaveLine Media Converter

Weidmüller's media converters can be switched between half duplex and full duplex by means of a small switch. This means they can be used in demanding real-time applications. Thus RapidRing™ transparency is no problem!

The multi-mode version can transmit with no interference for up to 2 km. The single-mode version can transmit up to 20/60 km. Longer transmission capabilities are available on request.



### Ordering data

Number of ports
1 x RJ45 MDI/MDI-X, 1 x SC multi-mode
1 x RJ45 MDI/MDI-X, 1 x SC single-mode
1 x RJ45 MDI/MDI-X, 1 x SC single-mode 60
1 x RJ45 MDI/MDI-X, 1 x ST multi-mode
1 x RJ45 MDI/MDI-X, 1x ST-Singlemode

Type	Order No.
IE-MC-SC-WAVE	8916300000
IE-MC-SC-SM-WAVE	8916290000
IE-MC-SC-SM60-WAVE	8963430000
IE-MC-ST-WAVE	8916310000
IE-MC-ST-SM-WAVE	8958520000
Singlemode design up to 120 km on request	

### Accessories

RJ45 dust-protection plug
markers
<b>Note</b>

Type	Order No.
IE-DPC	8813490000
WS 15/5 MC NEUTRAL	1609880000
Cables and connection elements are found starting at Chapter C.	

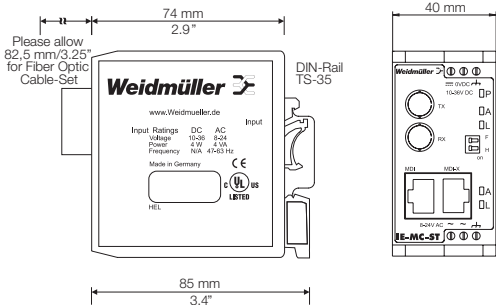
### Technical data

Housing	Plastic V0
Length / Width / Height	108 mm / 22.5 mm / 127.8 mm
AC input voltage, min.-max.	10-24 V AC
DC input voltage, min.-max.	10-35 V DC
AC input power / DC	4 VA AC / 4 Watt DC
Input frequency	47 - 63 Hz
Operating temperature, min.-max.	0 °C-60 °C
Storage temperature, min.-max.	-40 °C-85 °C
Installation	TS 35
Protection class	IP 20
Standard	IEEE 802.3; 802.3u; 802.3x; Class I, Division 2
Data rate	RJ45/100m: 100BASE-TX Fibre-optic connection: 100BASE-FX (1310 nm) Multi-mode to 2 km Single-mode to 20/60 km Transparent
Segment length	Copper 100 m; fibre (multi-mode) 2 km; fibre (single-mode) 20/60 km
Status indication	Power/data rate, Connection/Activity
Approvals	cULus, CE, EN55024, EN 55022, Gost R
Optical budget	8 dB for 62.5/125 µm multimode cable 4 dB for 50/125 µm multimode cable 13 dB for 9/125 µm singlemode cable
Supported protocols	Profinet RT, Modbus TCP, TCP/IP, EtherNet/IP

**Note:**

Media converter

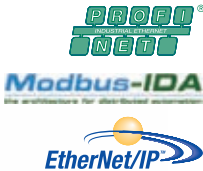
- Transparent in network
- For mounting on TS32 and TS35
- Transmission distances up to 20 km
- Multimode or singlemode



Media converter

Weidmüller's media converters can be switched between half duplex and full duplex by means of a small switch. This means they can be used in demanding real-time applications. Thus RapidRing™ transparency is no problem!

The multi-mode version can transmit with no interference for up to 2 km. The single-mode version can transmit up to 20/60 km. Longer transmission capabilities are available on request.



Ordering data

Number of ports
1 x RJ45 MDI/MDI-X, 1 x SC multi-mode
1 x RJ45 MDI/MDI-X, 1 x SC single-mode
1 x RJ45 MDI/MDI-X, 1 x ST multi-mode

Type	Order No.
IE-MC-SC	8808220000
IE-MC-SC-SM	8848840000
IE-MC-ST	8808190000
Singlemode design up to 120 km on request	

Accessories

RJ45 dust-protection plug
Note

Type	Order No.
IE-DPC	8813490000
Cables and connection elements are found starting at Chapter C.	

Technical data

Housing	Plastic
Length / Width / Height	85 mm / 40 mm / 79 mm
AC input voltage, min.-max.	8-24 V AC
DC input voltage, min.-max.	10-36 V DC
AC input power / DC	4 VA AC / 4 Watt DC
Input frequency	DC; 47 - 63 Hz AC
Operating temperature, min.-max.	0 °C-60 °C
Storage temperature, min.-max.	-40 °C-85 °C
Installation	TS 32/35
Protection class	IP 20
Standard	IEEE 802.3; 802.3u; 802.3x; Class I, Division 2
Data rate	RJ45/100m: 100BASE-TX Fibre-optic connection: 100BASE-FX (1310 nm) Multi-mode to 2 km Single-mode to 20 km Transparent
Segment length	Copper 100 m; fibre (multi-mode) 2 km; fibre (single-mode) 20/60 km
Status indication	Power/data rate, Connection/Activity
Approvals	cULus, CE, EN55024, EN 55022, Gost R, GL
Optical budget	8 dB for 62.5/125 µm multimode cable 4 dB for 50/125 µm multimode cable 13 dB for 9/125 µm singlemode cable
Supported protocols	Profinet RT, Modbus TCP, TCP/IP, Ethernet/IP

Note:

# COMServer

The WaveLine ComServer connects your serial interfaces to your existing network infrastructure in the simplest way possible. An Internet browser is used for the installation of serial and network parameters. Similarly carried out over the Ethernet interface, the configuration is simple and user-friendly. The COMServer can be configured directly via the RS232 interface or via the network. With web-based management, a remote configuration is also possible. The IE-CS-1SERIAL-WAVE WaveLine ComServer is available with an RS232 port (not electrically isolated). The IE-CS-2SERIAL-WAVE WaveLine ComServer comes with two RS232 ports (RS232 and RS-232/422/485 – electrically isolated).

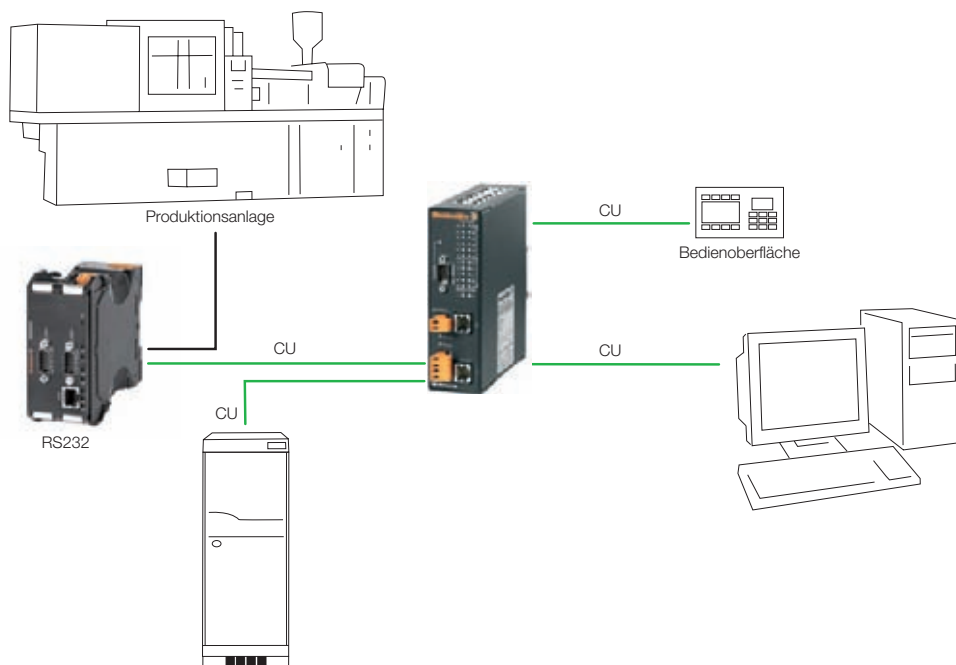
Both types of WaveLine ComServers feature auto-negotiation and auto-crossing (RJ45) functions as well as redundant power

supplies. The ComServer supports the following protocols: TCP/IP, UDP/IP, DHCP, BOOTP, HTTP and AutoIP.

The Weidmüller WaveLine ComServer comes optionally with the following ports: IE-CS-1SERIAL-WAVE with one RJ45, one RS-232 and IE-CS-2SERIAL-WAVE with one RJ45, one RS-232, one RS-232/485/422. The operational status of the power, link activity and connection are displayed.

Both ComServer types (IP20 protection) have a compact build (length: 108 mm, height: 127.8 mm, width: 22.5 mm or 45 mm). The devices are enclosed in sturdy plastic housings and can be simply snapped on to a TS35 mounting rail. They can operate in temperatures ranging from 0 °C to 60 °C.

## Integrate your serial end devices into the industrial Ethernet, using our COMServers



Our COMServer enables you to integrate production facilities (where, for example, only an RS232 interface is available) into the corporate network. The Configurator and the configuration software for the production facility can be installed on a remote PC. The Configurator and the Com port redirector driver allow you to configure the COMServer conveniently from a remote

location. You can also setup communications with production facilities remotely. This makes it possible to operate the plant in your own network and to carry out maintenance on machinery parts.

## The integration of serial end devices into your industrial Ethernet



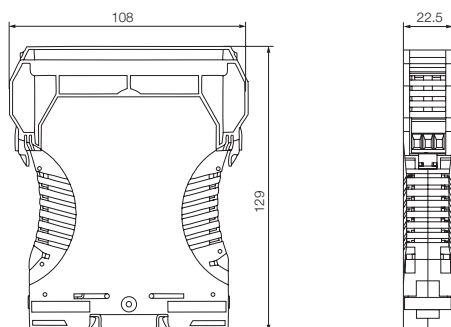
It is possible to use our COMServer as an interface converter. This enables the data from an RS232 device to be forwarded to a computer on the corporate network. The illustration shows an example application of this interface. For example, a scale located in the warehouse only has a RS232 connection.

The goal is to integrate it into the corporate network and allow it to access new software. For this, the COMServer can be put to use as a data-exchange interface between the scale's RS232 port and the Ethernet.

## Serial media converter

## COMServer

- compact plastic housing

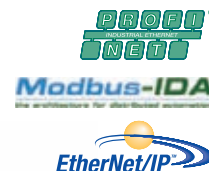


## COMServer

Our WaveLine COMServer is designed to connect your serial end devices to your existing network infrastructure in the simplest way possible. The web front-end allows for user-friendly operation.

The COMServer can be configured directly via the RS-232 interface or via the network.

- 8925640000 IE-CS-1SERIAL-WAVE with a RS-232 interface, not electrically isolated



## Ordering data

Number of ports
1 x RJ45, 1 x RS232

Type	Order No.
IE-CS-1SERIAL-WAVE	8925640000

## Accessories

markers
<b>Note</b>

Type	Order No.
WS 15/5 MC NEUTRAL	1609880000
Cables and connection elements are found starting at Chapter C.	

## Technical data

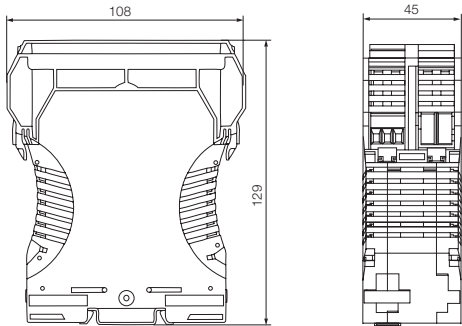
Housing	Plastic V0
Length / Width / Height	108 mm / 22.5 mm / 127.8 mm
Ports	1x RJ45; 1x RS-232
AC input voltage, min.-max.	10-24 V AC
DC input voltage, min.-max.	10-35 V DC
Input power AC / DC	6 VA AC/4 Watt DC
Input frequency	47 - 63 Hz
Operating temperature, min.-max.	0 °C-60 °C
Storage temperature, min.-max.	-40 °C-85 °C
Installation	TS 35
Protection class	IP 20
Data rate	10 Base-T/100Base-TX (copper); of 300 to 921.600 Bit/s (RS-232)
Functionality	Autonegotiation and Autocrossing (RJ45), redundant voltage supply
Status indication	Data rate, Power, Connection/Activity
Transmission rate	300 up to 921600 Bit/s
Approvals	cULus, CE, EN55024, EN 55022
Supported protocols	TCP/IP, UDP/IP, DHCP, BOOTP, HTTP, AutolP

**Note:**



COMServer

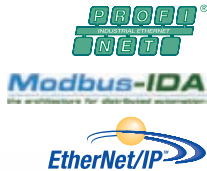
- compact plastic housing



COMServer

Our WaveLine COMServer is designed to connect your serial end devices to your existing network infrastructure in the simplest way possible. The web front-end allows for user-friendly operation. The COMServer can be configured directly via the RS-232 interface or via the network.

- 8925650000 IE-CS-2SERIAL-WAVE with two RS-232 interfaces, RS-232 and RS-422/485 electrically isolated



Ordering data

Number of ports
1 x RJ45, 1 x RS232, 1 x RS232/485/422

Type	Order No.
IE-CS-2SERIAL-WAVE	8925650000

Accessories

markers
Note

Type	Order No.
WS 15/5 MC NEUTRAL	1609880000
Cables and connection elements are found starting at Chapter C.	

Technical data

Housing	Plastic V0
Length / Width / Height	108 mm / 45 mm / 127.8 mm
Ports	1x RJ45; 1x RS-232; 1x RS-232/485/422
AC input voltage, min.-max.	10-24 V AC
DC input voltage, min.-max.	10-35 V DC
Input power AC / DC	6 VA AC/5 Watt DC
Input frequency	47 - 63 Hz
Operating temperature, min.-max.	0 °C-60 °C
Storage temperature, min.-max.	-40 °C-85 °C
Installation	TS 35
Protection class	IP 20
Data rate	10 Base-T/100Base-TX (copper); of 300 to 921.600 Bit/s (RS-232)
Functionality	Autonegotiation and Autocrossing (RJ45), redundant voltage supply
Status indication	Data rate, Power, Connection/Activity
Transmission rate	300 up to 921600 Bit/s
Approvals	cULus, CE, EN55024, EN 55022
Supported protocols	TCP/IP, UDP/IP, DHCP, BOOTP, HTTP, AutolP

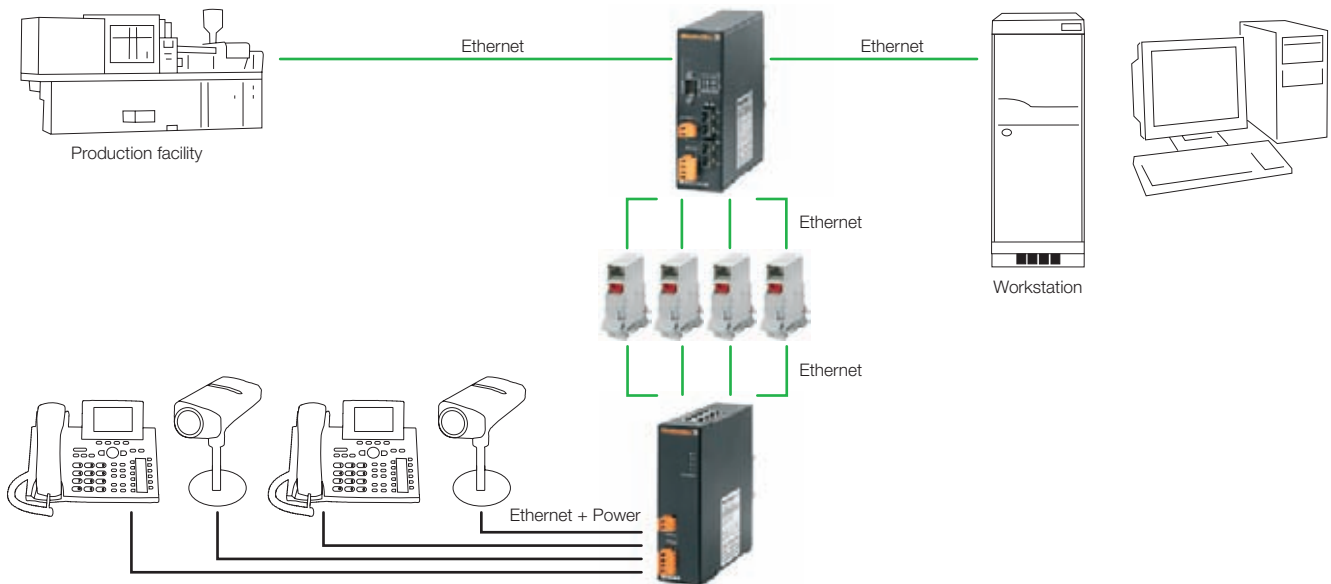
Note:

# Power-over-Ethernet injector

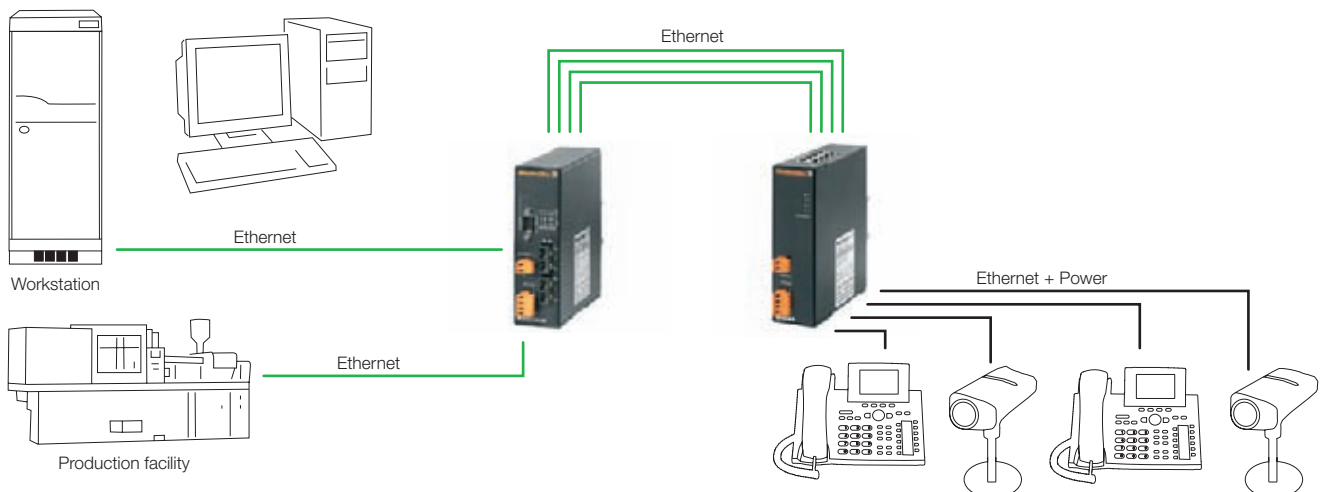
Thanks to its high component density, Weidmüller's new Power-over-Ethernet injector can supply up to four Ethernet end devices with power in compliance with the PoE standard. The power supply can be located anywhere on the network, regardless of whether an Ethernet switch is present. Power-over-Ethernet makes it easy to retro-fit and expand your existing Ethernet networks. A separate 48-V power source is not required for Weidmüller's quadruple Power-over-Ethernet injector. The PoE supply voltage is generated directly from the existing 24-V supply in the electrical cabinet.

- No separate 48-V power source is required
- Flexible use of PoE
- Quadruple injector solution means high component density
- Not bound to the switch
- Perfect for the retro-fitting of existing facilities

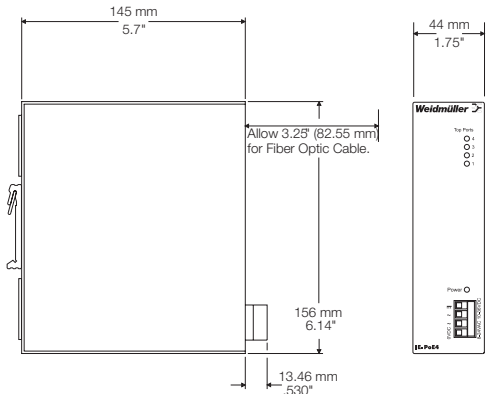
## The integration of PoE in existing networks



## Network expansion with PoE



Industrial Ethernet PoE injector, Advanced Line



Industrial Ethernet PoE injector, Advanced Line

The PoE4 PoE injector allows you to connect up to four power-over-Ethernet components. This allows you to easily implement plug-and-play power supplies for your existing Ethernet networks. The main advantage of power-over-Ethernet is that you can avoid using additional power supply cables. This reduces the installation costs and decreases the downtime risk for the end device.

With a sturdy aluminium housing, the AdvancedLine features a width of only 45 mm for use in your Industrial Ethernet network. With IP20 protection and a operating temperature range from -40°C to 75°C, this product line is perfect for industrial applications.



Ordering data

Number of ports
4x RJ45 input, 4 x RJ45 output

Type	Order No.
IE-POE4	1066840000

Accessories

RJ45 dust-protection plug
Note

Type	Order No.
IE-DPC	8813490000

Technical data

Housing	Aluminium
Length / Width / Height	140 mm / 45 mm / 155 mm
Ports	4 x RJ45 input; 4 x RJ45 output
AC input voltage, min.-max.	8-24 V AC
DC input voltage, min.-max.	10-36 V DC
Input power AC / DC	Max. 75 W
Input frequency	47 - 63 Hz
Operating temperature, min.-max.	-40 °C-75 °C
Storage temperature, min.-max.	-40 °C-85 °C
Installation	TS 35;wall
Protection class	IP 20
Data rate	10BASE-T/100BASE-TX
Functionality	Transparent
Segment length	100 m
Status indication	Data rate, Power, Connection/Activity
Approvals	cULus, CE, EN55024, EN 55022
Supported protocols	Profinet RT, Modbus TCP, TCP/IP, Ethernet/IP
Injector Power	48 W; 15 Watt per port

Note:

