

Industrial Security Router Overview

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Gigabit Industrial Security Router

Secure data communication with integrated VPN technology

You want to be able to communicate with your machinery and systems securely, reliably, and from anywhere? Should only verified data gain access to your industrial network? Then the new Industrial Security Router from Weidmüller is just the right choice.

Due to the steady increase in networking data and information in office-based communication, a strong trend has evolved where the advantages of Ethernet communication are progressively being used in the area of industrial automation technology.

As well as the standardisation provided by Ethernet technology, vertical data integration from the field/production level across the office network to the Internet is an important driver for its rapid spread in industrial applications.

In addition to LAN switching technologies, we are seeing increased use of industrial routers for enhanced security and for efficient management of data traffic between LANs.

Routers with integrated VPN technologies are also ideally suited to secure remote access to components and systems in the LAN, via either a wired or wireless Internet connection.

Technical features of Weidmüller routers at a glance

Compact and robust industrial-grade metal housing (aluminium die casting)

Gigabit Ethernet interfaces (LAN/WAN) for high data throughput

Digital inputs/outputs (24 V DC) with functions for disconnecting WAN port, indicating alarm status, starting/stopping of pre-configured VPN connections and indicating active VPN tunnel

Supports all standard router functions such as static/dynamic routing, SNMP, DHCP server, Dynamic DNS, event logging or DSL connection (PPPoE) via external DSL modem

Flexibly configurable stateful inspection firewall with filter functions for both Layer 3 (IP layer) and Layer 2 (MAC address level)

Extensive configuration options for IP address mapping (1:1 NAT, virtual mapping/NAT masquerading/port-forwarding/IP address forwarding), e.g. for connecting multiple machine networks in the same IP address range into a primary production network



Integrated VPN functionality (OpenVPN and IPSec) for secure remote access over the Internet. The router can be used with both VPN technologies, either as a VPN client or a VPN server.

Variable bandwidth management by prioritising and limiting network traffic to IP and Ethernet protocol level

Variable user management through multiple user profiles with detailed assignment of rights

Integrated Modbus/TCP server for controlling and querying the status of the digital inputs and outputs and pre-configured VPN connections with Modbus/TCP-capable devices (e.g. PLC)

Client Monitoring for the monitoring of network devices

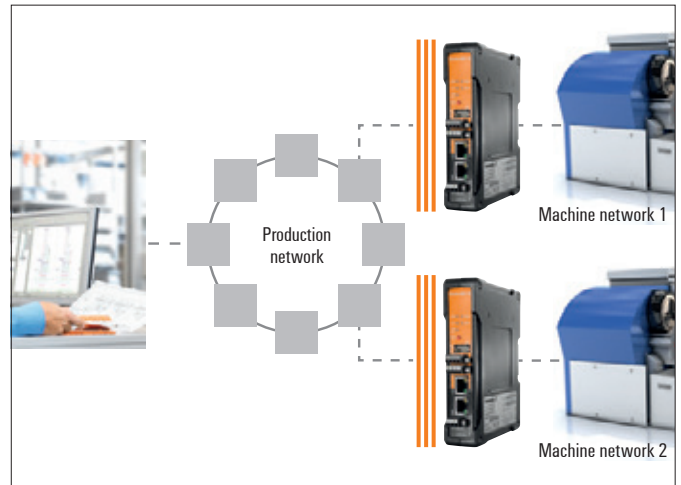
“Remote Capture” function for monitoring network traffic via Wireshark, (Network protocol analyser software)

IE-SR-2GT-UMTS/3G variant

Additional integrated UMTS/3G/HSPA + modem for Internet connection via mobile radio (max. downlink 21.2 Mbps, max. uplink 5.8 Mbps)

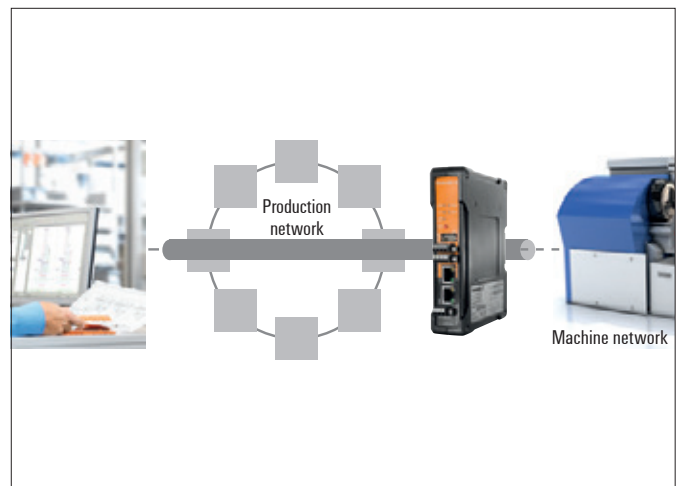
Securely integrate machines in a production network with Gigabit Ethernet

The router enables controlled and secure data exchange between “switched” Ethernet networks (IP routing). The various manifestations of the Network Address Translation function (1:1 NAT, masquerading, virtual mapping, port and IP forwarding) provide controlled access to both sub-networks as well as individual Ethernet devices. In addition, the 1:1 NAT function allows machine networks with the same IP address range to be easily integrated into a primary production network, as is typically the case in series machine manufacturing. The high-speed performance of the Gigabit interface means that the router will have no problems at all handling future increased data loads in the Ethernet network.



Remote access via secure VPN connections

Weidmüller Industrial Ethernet routers use encrypted VPN connections (OpenVPN and IPsec) to allow access to machines and systems. Diagnosis and error rectification are therefore possible from any location. This means that an onsite service technician can be dispensed with in many cases. The router supports the standard VPN technologies OpenVPN and IPsec, and can be operated either as a VPN client or a VPN server (with no limits on the number of simultaneously usable clients).



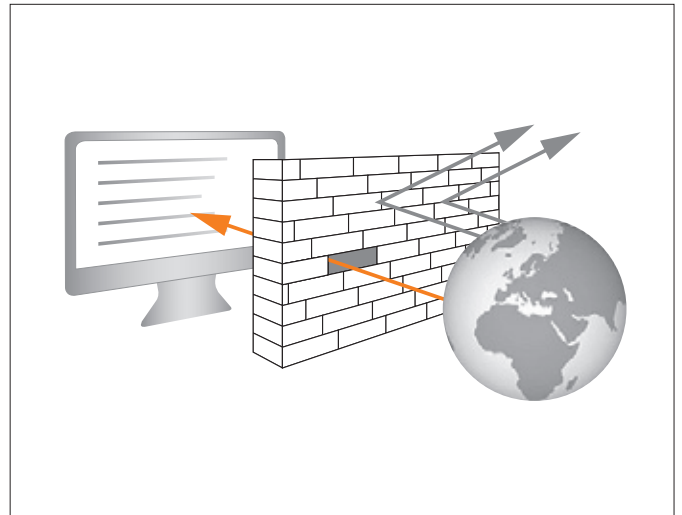
Control and monitoring via integrated digital inputs and outputs

The router is equipped with 2 digital inputs (“Cut” and “VPN initiate”) and 2 digital outputs (“Alarm” and “VPN active”). The 24 V input “Cut” allows the RJ45 WAN port to be temporarily disabled, e.g. to prevent unauthorised access by third parties to the WAN network during maintenance work on the LAN network. The 24 V input “VPN initiate” enables a pre-configured VPN instance to be started or stopped (client or server). Connections can be initiated, for example, by an external key switch or via the digital output of a controller (PLC). Once a VPN tunnel is successfully established and activated it is indicated by the digital output “VPN active”. The 24 V output “Alarm” can be used to display the router’s configurable alarm conditions externally. An alarm can be triggered by a firewall rule or when a network device is no longer accessible (client monitoring).



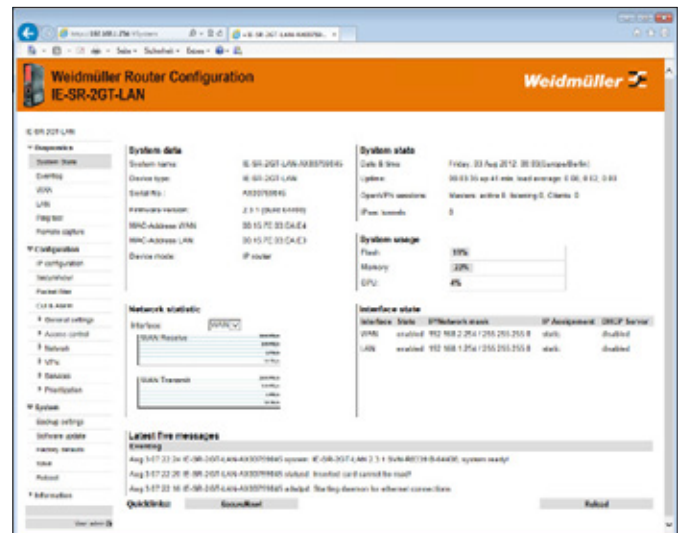
Intelligent Firewall: Stateful Packet Inspection

The integrated stateful inspection firewall is used to control incoming and outgoing traffic on all router interfaces (LAN, WAN, UMTS, VPN tunnels) on both Layer 2 (Ethernet frames) and Layer 3 (IP-based). An “auto-learning” function (“SecureNow!”) is also incorporated; this performs an automatic analysis of network traffic and generates a set of rules, which the user can then apply or modify as needed.



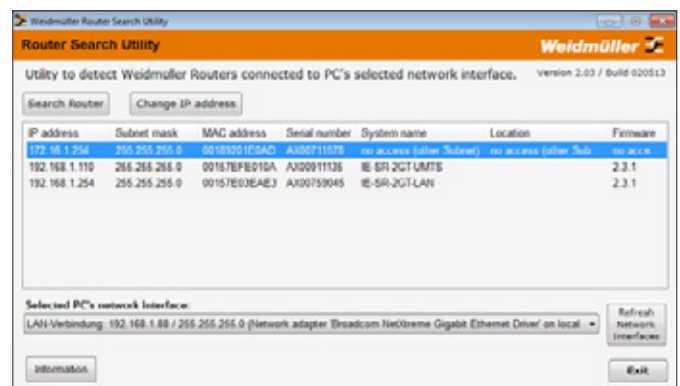
User-friendly configuration via web interface

The router can be configured using any standard browser. The clear menu structure provides easy-to-learn and intuitive user guidance. The user interface can be switched between German and English. Configuration support for users is provided by integrated online help (tool tips) with detailed instructions about the various settings. Profiles for different user groups (administrators, restricted users, etc.) can be created with detailed assignment of rights.



Router Search Utility – search for routers on the network

The freely available **Weidmüller Router Search Utility** software tool allows Weidmüller routers to be detected on the local network in the case of unrecognised IP addresses. For all devices found, the most important basic data such as network parameters, serial number, device name, etc. are displayed for device identification. In addition, the IP address of a router can be modified or the web interface of a selected router opened directly.



Industrial Security Router

Gigabit Industrial Security Router

- High data throughput through Gigabit Ethernet interfaces
- Integrated stateful packet inspection firewall with flexible 2-way packet filtering
- NAT masquerading, 1:1 network mapping and port forwarding
- Remote access via VPN (OpenVPN, IPsec, L2TP)
- Key switch function for activation/deactivation of WAN/VPN connection
- Variant with integrated 3G/UMTS modem for high-speed, Internet-based mobile communications access (1345250000, IE-SR-2GT-UMTS/3G)
- Variant without VPN function for NAT and security applications (1489940000, IE-SR-2GT-LAN-FN)
- Back-up and recovery of device configuration using SIM card



Technical data

Operation modes	
IP Router	Static or dynamic routing, supporting RIPv2 / OSPF
Transparent Bridge	2-port switch with additional layer-2 filter
Network Services	
	<ul style="list-style-type: none"> • DHCP server / DHCP relay • DNS relay • NTP client • DynDNS (DHCP client by RFC 2136)
Firewall	
	<ul style="list-style-type: none"> • IPv4 Stateful inspection Firewall (incoming/outgoing) • NAT-Masquerading, 1:1 NAT, Portforwarding • Layer-2/3-Filter (VLAN ID, VLAN, QoS tag, MAC address, Ethertype frame) • "Auto learning" feature to create packet filter rules (analysis of network traffic) • Layer 2/3-based packet prioritization (Ethernet frame, IP header, VLAN tag)
VPN functionality*	
OpenVPN	<ul style="list-style-type: none"> • Configurable as OpenVPN server or client (Layer 2 and Layer 3) • Authentication with X.509 Certificates • Tunnel support via HTTP proxy • Maximum of 10 different client or server configurations • Unlimited number of client connections in server mode
IPsec	<ul style="list-style-type: none"> • Can be configured as an IPsec server or client • PSK authentication (user ID, password) or X.509 certificates • Hardware-based encryption for faster data throughput • A maximum of 64 simultaneous connections (subnet to subnet or as an IPsec server) • Encryption algorithms DES-56, 3DES-168, AES 128, AES 192, AES-256
Management	
	<ul style="list-style-type: none"> • Configuration via WEB interface (HTTP / HTTPS) • Web interface in German or English • Configuration support through detailed help information (tooltip) • Configurable multi-user access with definable rights mask • Support of SNMP v1/v2/v3, event log / syslog
Miscellaneous	
Modbus/TCP	Integrated Modbus TCP Server for status queries, and software-based activation / de-activation of VPN connections
Diagnosis	"Remote Capture" feature for network diagnostics via a connected PC (Wireshark)
Monitoring	Client Monitoring (via ICMP) with alarm function in case of error
DSL and UMTS/HSPA	
DSL	Connection to the DSL modem via LAN or WAN port Free configuration of the PPPoE login
DynDNS	Support automatic registration
UMTS/3G	<ul style="list-style-type: none"> • Built-in quad-band UMTS / HSPA+ modem (only variant IE-SR-2GT-UMTS/3G) • Peak Downlink 21.1 Mbps, Peak Uplink 5.76 Mbps • GSM/GPRS/EDGE: 850 Mhz, 900 Mhz, 1800 Mhz, 1900 Mhz • UMTS/WCDMA/HSDPA/HSUPA: 850 Mhz, 900 Mhz, 1900 Mhz, 2100 Mhz • FCC, CE, IC, NCC, PTCRB, Bell, AT&T

* is not supported by the model IE-SR-2GT-LAN-FN

Interfaces		
RJ45 ports	2x10/100/1000BaseT(X)	
USB port	Option for future expansion	
SCM card reader	Save and restore of the configuration using a smart card (memory chip)	
LED indicators	Signaling states for power, status, cut, alert, active VPN connection and an active UMTS connection	
Digital outputs	<ul style="list-style-type: none"> • "Alarm" -> Indicates a configurable network status or error (24 V out) • "VPN-active" -> Indicates an active VPN connection (24 V out)* 	
Digital inputs	<ul style="list-style-type: none"> • „Cut“ -> Disconnects physically (link down) the WAN port (24 V) • "VPN-initiate" -> Enables a pre-configured VPN connection (24 V)* 	
Reset button	Restoring the factory default	
Power Requirements		
Input Voltage	1x 24 V DC (7 to 36 volts)	
Current consumption	max. 600 mA @ 24 V DC	
Technical data (housing)		
Housing	Metal, IP 20 protection	
Dimensions (W x H x D)	35 x 159 x 134 mm (without antenna) 35 x 255 x 134 mm (with UMTS antenna)	
Installation	TS 35	
Environmental Limits		
Operating temperature	-20 °C to +70 °C	
Storage Temperature	-20 °C to +85 °C	
Ambient humidity	6 to 90 % not condensing	
Approvals		
Security	UL 508	
EMC	EN301 489-1/7/24, FCC Part 15 Class A, EN 55022 Class A, EN61000-4-2 (ESD), EN61000-4-3 (RS) EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS)	
Shock	DIN EN 60068-2-27	
Vibration	DIN EN 60068-2-6	
Warranty		
Warranty Period	3 years	
Ordering data		
Version	Type	Order No.
Security/NAT/VPN Router	IE-SR-2GT-LAN	1345270000
Security/NAT Router	IE-SR-2GT-LAN-FN	1489940000
Security/NAT/VPN Router with integrated UMTS/3G modem	IE-SR-2GT-UMTS/3G	1345250000

Mobile radio antennas and connection cables, see page F.6 f.