

ETHERNET
Club

Automation and Network Solutions



**The first-ever industrial security system
for your company network:**

The EAGLE system

- Firewall and VPN for industrial use
- Scalable security functionality
- Transparent and router modes
- Secure communications within the LAN



HIRSCHMANN

Call the shots on what gets into your company network – and what stays out.

The EAGLE system – the best protection against unauthorized or accidental access.

Requirements and Solutions

An ETHERNET network with “always on” links into office and factory systems that works directly with PLC and sensors is more than just a major informational leap forward – it also poses new challenges to traditional security methods. The greatest danger isn't limited to hackers, it may not even be intentional. As boundaries between office networks and production networks are dismantled, it becomes open season for viruses, worms and Trojan horses. Machines and production cells are often unprotected against intentional or unintentional attacks from the production or office network. All that is about to change – immediately.

EAGLE, the industrial firewall and Virtual Private Network system, jealously guards the safety of these production critical networks, even beyond company boundaries. Existing networks are easily incorporated utilising either twisted pair or fibre optic connections for secure and non-secure ports. The scalable security features offer customized protection along with the conventional functionality of firewalls and VPNs. Remote, out-of-band access is catered for utilising the built in V.24 port, whilst redundancy is managed using Hirschmann's rapid redundant ring coupling as well as traditional dual homing.



Security: Competence Centre



Hirschmann's Competence Centre focuses on Consulting, Training and Support of all Hirschmann products and installations. Security solutions are worked out in close collaboration with clients. This process starts in the Consulting department with an analysis of the current state of the network, involving traffic pattern analysis, safety concepts and auditing to BSI standards. Clients are then invited to participate in a rigorous training schedule which includes security theory fundamentals, threat scenarios, firewalls and encryption. The product training phase utilises intensive workshops to teach typical scenarios, configuration, features and security management. You can count on our support through all phases of ownership, from commissioning support, the generation and administration of security certificates, through to regular analysis of log files.

* BSI: Federal IT Security Office

The safety factor in your company network: The EAGLE system

Scalable security functionality:

- Pure firewall
- Firewall with VPN functionality

Simple integration into existing networks without changing IP addresses:

- Single Client Transparent Mode
- Multi Client Transparent Mode

Separation of subnets:

- Router mode

Support of Hirschmann redundancy scenarios:

- Redundant ring coupling
- Dual homing

Easy start-up:

- Support of auto-configuration adapter
- HiDiscovery support



Industrial graded design:

- Redundant 24 V power supply
- DIN Rail mountable
- IP 20, fanless

Diagnosis:

- Web-based management
- Status LEDs
- Signaling contact
- Logging on SysLog server
- Integration into HiVision

Migration into existing networks:

- Twisted pair and optical connections for
- Trusted port
- Untrusted port

Remote access to the network:

- Dial-in access via V.24

Product Features

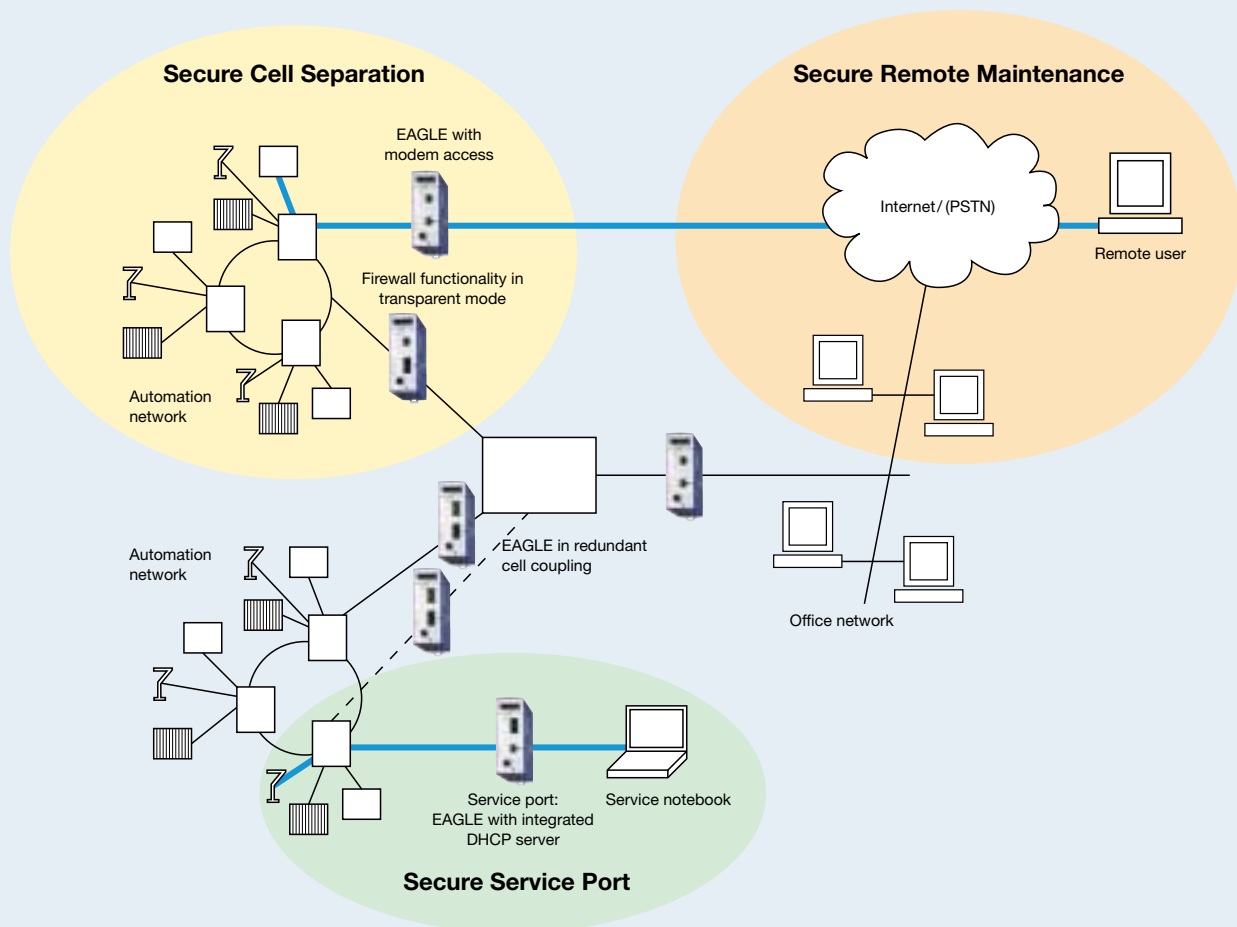
A state-of-the-art security system ensures the authentication, protection and confidentiality of communication in production networks. Utilising the EAGLE's firewall, VPNs and scalable security functionality, industrial production cells are afforded the greatest possible protection against unknown

and unchecked data packets. Thanks to its Single Client or Multi Client Transparent Mode, the EAGLE can be integrated without reconfiguration of IP address subnets whilst allowing the separation of those IP subnets when in router mode.

Applications

One area that requires special security measures against internal and external influences is in places where process and manufacturing data is transferred to SCADA or data warehousing systems, or where systems line up with each other within the automation network. The EAGLE system can easily and securely promote the segmentation of production installations

or remote maintenance access for production installations. This is the first industrial use security solution available on the market, which not only monitors existing data and programs in manufacturing cells but also ensures the competitiveness of your company through the faultless running of your installations.



The EAGLE system protects your industrial network against malicious or accidental data manipulation wherever manufacturing data are transferred to superimposed systems at the supra-sector/area level, thereby ensuring that everything runs on track.



Facts and figures

Product description EAGLE Family	
Description	Firewall/VPN system
Port type and quantity	see table
Mode	Router, Single Client Transparent (SCT) and Multi Client Transparent (MCT), PPPoE, PPTP
More interfaces	
Power supply/signaling contact	1 plug-in terminal block, 6-pin
V.24 interface	1* RJ11 socket
Power requirements	
Operating voltage	redundant 24 V DC (-25 % to +30 %)
Service	
Management	serial interface, HTTPS, SSH, SNMP V1/V2/V3, HiVision
Diagnostics	LEDs (power, link status, data, error, ACA), HiDiscovery, signaling contact (24 V DC/1A)
Configuration	Terminal-SW, DHCP, auto-configuration adapter (ACA11), HiDiscovery, storage of configuration profiles
Other services	DHCP server, DHCP client, DynDNS, dial-in access via V.24, NTP
Ambient conditions	
Operating temperature	0°C to +55°C
Storage/transport temperature	-40°C to +80°C
Relative humidity (non condensing)	10% to 95%
Mechanical construction	
Dimension (W x H x T)	47 mm x 131 mm x 111 mm
Mounting	DIN Rail 35 mm
Protection class	IP20
Mechanical stability	
IEC 60068-2-27 shock	15g, 11 ms duration, 18 shocks
IEC 60068-2-6 vibration	1 mm, 2-13.2 Hz, 90 min.; 0.7g, 13.2-100 Hz, 90 min.; 3.5 mm, 3-9 Hz, 10 cycles, 1 octave/min.; 1g, 9-150 Hz, 10 cycles, 1 octave/min
EMC interference immunity	
EN 61000-4-2 electrostatic discharge (ESD)	6 kV contact discharge, 8 kV air discharge
EN 61000-4-3 electromagnetic field	10 V/m (80-2000 MHz)
EN 61000-4-4 fast transients (burst)	2 kV power line, 1 kV data line
EN 61000-4-5 surge voltage	power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line
EN 61000-4-6 conducted immunity	3 V (10-150 kHz), 10 V (150 kHz-80 MHz)
EMC emitted immunity	
FCC CFR47 Part 15	FCC CFR47 Part 15 Class A
EN 55022	EN 55022 Class A
Approvals	
Safety of industrial control equipment	cUL 508 in preparation
Hazardous locations	cUL 1604 Class1 Div 2 in preparation
Germanischer Lloyd	Germanischer Lloyd in preparation
Scope of delivery and accessories	
Scope of delivery	device, terminal block, operating instructions, CD manual
Accessories to order separately	rail power supply RPS 30, RPS 60 or RPS 120, terminal cable, HiVision network management, auto-configuration adapter (ACA 11), 19 installation frame"

Security Features

EAGLE Firewall: EAGLE FW	EAGLE Firewall with VPN: EAGLE
<ul style="list-style-type: none"> • Stateful Inspection Firewall • IP Spoofing Protection • Network Address Translation (IP Masquerading) • 1-to-1 NAT • ARP limiter • Configurable separate firewall rules for <ul style="list-style-type: none"> - Incoming/outgoing data traffic - Modem access - External management access 	<ul style="list-style-type: none"> • Stateful Inspection Firewall • IP Spoofing Protection • Network Address Translation (IP Masquerading) • 1-to-1 NAT, NAT-T • ARP limiter • Configurable separate firewall rules for <ul style="list-style-type: none"> - Incoming/outgoing data traffic - Modem access - External management access - Every VPN connection • Multipoint VPN (Router and Single Client Transparent Mode) • VPN protocols <ul style="list-style-type: none"> - IPSec - L2TP • Encryption algorithms <ul style="list-style-type: none"> - DES-56 - 3DES-168 - AES-128, AES-192, AES-256 • Authentication <ul style="list-style-type: none"> - Pre-Shared-Key (PSK) - X.509v3 certificate • Hashing algorithms <ul style="list-style-type: none"> - MD5 - SHA-1



Here is a typical area of application for the EAGLE system: in gear manufacturing, the security router closely monitors access to data or programs and ensures problem-free operation of the installation.



Variants and port types

EAGLE variants and port types

Description (product description, see left page)	Order No.	Trusted port	Untrusted port
EAGLE TX/TX	943 011-001		
EAGLE TX/TX FW	943 011-011	Twisted pair	Twisted pair
EAGLE TX/MM SC	943 011-002		
EAGLE TX/MM SC FW	943 011-012	Twisted pair	Multimode, SC
EAGLE TX/SM SC	943 011-003		
EAGLE TX/SM SC FW	943 011-013	Twisted pair	Single mode, SC
EAGLE TX/LH SC	943 011-004		
EAGLE TX/LH SC FW	943 011-014	Twisted pair	Long haul, SC
EAGLE MM SC/TX	943 011-005		
EAGLE MM SC/TX FW	943 011-015	Multimode, SC	Twisted pair
EAGLE MM SC/MM SC	943 011-006		
EAGLE MM SC/MM SC FW	943 011-016	Multimode, SC	Multimode, SC
EAGLE MM SC/SM SC	943 011-007		
EAGLE MM SC/SM SC FW	943 011-017	Multimode, SC	Single mode, SC
EAGLE MM SC/LH SC	943 011-008		
EAGLE MM SC/LH SC FW	943 011-018	Multimode, SC	Long haul, SC
Network size – length of cable			
Twisted pair (TP)	0–100 m		
Multimode fiber (MM) 50/125 µm	0–5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz*km		
Multimode fiber (MM) 62.5/125 µm	0–4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB Reserve, B = 500 MHz*km		
Single mode fiber (SM) 9/125 µm	0–32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm*km)		
Single mode fiber (LH) 9/125 µm (long haul)	24–86.6 km, 7–29 dB link budget at 1550 nm, A = 0.3 dB/km, 3 dB reserve, D = 19 ps/(nm*km)		



Automation and Network Solutions

Germany

Hirschmann Electronics GmbH & Co. KG
Automation and Network Solutions
Stuttgarter Straße 45-51
D-72654 Neckartenzlingen
Postfach 1649
D-72606 Nürtingen
Tel. +49-71 27-14-14 80
Fax +49-71 27-14-14 95/-14 96
E-mail: ans-hi-line@hirschmann.de
<http://www.hirschmann.com>

China

Hirschmann Electronics
Pte Ltd Shanghai Office
Room 828, Summit Center
1088 West Yan An Road
Shanghai 200052
P.R. China
Tel. +86-21-62 07-66 37
Fax +86-21-62 07-68 37
E-mail: info@hirschmann.sh.cn

Switzerland

Hirschmann Electronics GmbH & Co. KG,
Neckartenzlingen
Zweigniederlassung Uster
Seestrasse 16
CH-8610 Uster
Tel. +41-44-9 05 82 82
Fax +41-44-9 05 82 89
E-mail: ans_ch@hirschmann.ch

France

Hirschmann Electronics S.A.S.
2, rue des Charpentiers
F-95330 Domont
Tel. +33-1-39 35 01 00
Fax +33-1-39 35 01 02
E-mail: ans@hirschmann.fr

UK

Hirschmann Electronics Ltd.
4303 Waterside Centre
Solihull Parkway
Birmingham Business Park
Birmingham
West Midlands
B37 7YN
Tel. +44-121-3 29-50 00
Fax +44-121-3 29-50 01
E-mail: enquiry@hirschmann.co.uk

Netherlands

Hirschmann Electronics B.V.
Pampuslaan 170
1382 JS WEESP
Postbus 92
NL-1380 AB Weesp
Tel. +31-2 94-4 62-5 91
Fax +31-2 94-4 62-5 54
E-mail: ans@hirschmann.nl

Spain

Hirschmann Electronics S.A.
Calle Trespaderne, 29
Edificio Barajas I, 2a Planta
E-28042 Madrid
Tel. +34-91-7 46 17 30
Fax +34-91-7 46 17 35
E-mail: hes@hirschmann.es

Hungary

Hirschmann Electronics Kft.
Rokolya u. 1-13
H-1131 Budapest
Tel. +36-1-3 49 41 99
Fax +36-1-3 29 84 53
E-mail: info@hirschmann.hu

USA

Hirschmann Electronics Inc.
20440 Century Boulevard, Suite 150
Germantown, MD 20874
Tel. +1-240 6 86 23 00
Fax +1-240 6 86 35 89
E-mail: ans@hirschmann-usa.com

Singapore

Hirschmann Electronics Pte. Ltd.
2 International Business Park #11-02/03
The Strategy Singapore 609930
Tel. +65-63 16 77 97
Fax +65-63 16 79 77
E-mail: hirschmann.svi@pacific.net.sg

For all other countries please dial Tel. +49-7127-14-16 20
Contact address see Hirschmann Germany.

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