



The **Telecontrol Gateway VM (TCG VM)** has been designed for the process connection of IP based telecontrol channels (IEC 60870-5-104, DNP3) to PSIcontrol systems. Due to its embedded virtualisation technologie, the TCG VM can be extended from 128 to up to 1024 telecontrol channels by means of licences. Therefore, one TCG VM can replace up to eight conventional TCP/IP Gateways (TIG).

The high-performance hardware offers sufficient reserves to efficiently support a high number of communication-intensive process connections. The robust device with its fanless design and an extended operating temperature range allows its installation in rough environments.

By using a 19-inch installation kit, the TCG VM can be mounted into 19-inch racks. In addition, the installation kit enables a redundant power supply of the TCG VM.

Main features

- Basic device: virtual gateway with 128 telecontrol channels
- Up to 8 virtual gateways with a total of 1024 telecontrol channels (additional licences needed)
- Termination of serial TCP channels (additional licences needed)
- Redundant connections to the control center
- Support of dynamic LAN-Routing with RIPv2 and OSPF

Security

- Hardened system components
- Secure protocols: SSH/SSL, SFTP, HTTPS
- Integrated firewall
- Deactivation of unused interfaces

Interfaces

- 6 Ethernet interfaces (10/100/1000 Mb/s)
- 1 RS-232 interface (Systemmanagement)
- 6 USB-Host interfaces

Configuration

The TCG VM can be easily configured via a user-friendly web interface and the intuitive command line interface (CLI).

Technical Data

Mechanics	
Dimensions	450 × 450 × 90 mm ³ (w/d/h) 19-inch
Packaging dimensions	650 × 600 × 370 mm ³ (w/d/h)
Weight	7.8 kg
Cooling	Convection cooling
Environment	
Operation	-25 °C to +70 °C, 10% to 95% rel. humidity (non-condensing)
Transport	-40 °C to +85 °C, 10% to 95% rel. humidity (non-condensing)
Storage (in packaging)	-40 °C to +85 °C, 10% to 95% rel. humidity (non-condensing)

EMV	
Emission	<ul style="list-style-type: none"> – EN 55032:2016+A1:2017 – EN 61000-3-2:2006 +A1:2009+A2:2009 – EN 61000-3-3:2008
Noise immunity	EN 55024:1998 + A1:2001+A2:2003
Conformity	CE
Power supply	
Power consumption	< 60 W
Input voltage	12 ... 24 VDC ±10 %
Connector	Power supply units: 2 × Mini-DIN or 3-pin clamp strip PC: 1 × 3-pin clamp strip

Electronics	
Main processor	3rd Generation Intel® Core™ i5
Program memory	8 GB (SSD card)
Main memory	4 GB (DDR3-SDRAM)

LAN interfaces (6)	
Type	10/100/1000 Mbits Twisted-pair interface
Purpose	2-n × Uplinks to the control center, up to 6 links to RTUs
Electrical values	Conforming to IEEE 802.3 clause 14 and 25 impedance: 100 Ω (symmetrical)
Connector	8-pin RJ45 plug (ISO 8877)

RS-232 interface (1)	
Purpose	Configuration and maintenance access
Electrical values	38,400 Baud conforming to RS-232 DCE
Connector	8-pin RJ45 plug (ISO 8877)

USB host interfaces (6)	
Purpose	Extensions
Electrical values	4 × USB 3.0 host, 2 × USB 2.0 host
Connector	USB host interface

Function indicators	
System	LEDs for access to SSD-card (HDD) and power supply (PWR)
LAN interface	LEDs for link/activity and speed
Fault indication „DC in“	LED/input (red: voltage lower than 9 V)

Software	
Operation system	NENUX (Linux Kernel 3.18)
Basic features	<ul style="list-style-type: none"> – Controlling of up to 1024 telecontrol lines – Logical controlling of telecontrol lines by integrated PSI software
Management	Configuration via the command line Interface (CLI), via a web interface or via the PSI KETEL protocol from the control system
Statistics and diagnosis	<ul style="list-style-type: none"> – Statistic commands – Diagnosis via integrated trace system (driver, decoding/encoding, packeting) and UNIX commands – Data/packet trace functions via the PSI KETEL protocol

Order information	Product code
TCG VM basic device including a virtual container, mounted on the 19-inch EPS TCG VM carrier, which has a controlled redundant power supply connection EPS for the TCG VM, including two desk power supply units	101716
TCG NVC SW licence for more virtual containers	102707
SW licence for 128 TCP channels	102709

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