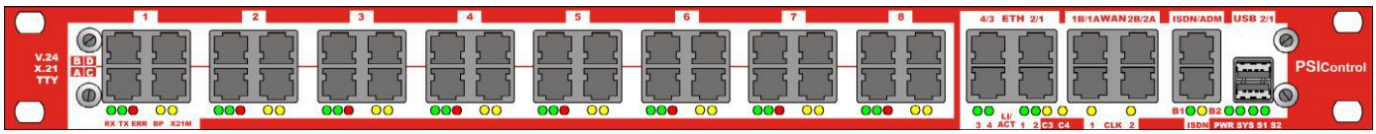
Data Sheet

TCG 3G-8, TCG 3G-4

Telecontrol Gateway for Redundant Networks



TCG 3G-8

TCG 3G-4

The **Telecontrol Gateway TCG 3G (TCG 3G)** is a compact device in a 19-inch rack mount chassis for connecting remote terminal units (RTUs) to the control center of the PSIcontrol system. The TCG 3G takes over the line tracing and data preprocessing of telecontrol telegrams to be transferred in IP networks.

RTUs are connected to the telecontrol interfaces (V24/TTY/X21). For migration, the V24 bypass function enables a parallel operation of different control systems.

With its interfaces, the bonding functionality and the redundant power supply, the TCG 3G ensures the high availability of the entire system. By using up to two slave devices to form a stack, the TCG 3G can be extended to a maximum of 24 telecontrol interfaces.

Main features

- Tracing of the telecontrol lines
- Preprocessing and packeting of telecontrol protocols
- Redundant connection of RTUs and control systems
- Automatic interface passivation in case of line failure
- Redundant power supply by using second DC connector (hot standby)
- Dynamic routing with RIPv2 und OSPF

Application areas

- Gateway between RTUs and control systems
- Functionally compatible successor model for
  - Telecontrol Gateway V24
  - Telecontrol Gateway V24-PC
  - Telecontrol Gateway NG

Configuration

A user-friendly web interface and the intuitive command line interface (CLI) ensure an easy configuration.

Security features

- Hardened system components
- Secure protocols (SSH/SSL, SFTP, HTTPS)
- Firewall configuration
- Deactivation of unused interfaces and services

Options

- IEC-60870-5-104 support
- PCM-UART-over-TCP for connection of RTUs via TCP connections
- Additional external power supply units for different voltage ranges and power class
- Central and redundant power supply for a stack (TCG CPS)

Technical data

Mechanics	
Model	19-inch rack mount chassis
Dimensions	446 × 44.45 × 286 mm^3 (w/h/d) conforming to DIN 41494, section 5
Packaging dimensions	54 × 15 × 37 cm^3 (w/h/d)
Weight/ gross weight	TCG 3G-8: 3.6 kg/4.6 kg TCG 3G-4: 3.5 kg/4.6 kg
Cooling	Convection cooling
Environment	
Operation	EN 60721-3-3: 1995/A2:1997 class 3K3, 0 °C bis +40 °C, 30 % bis 80 % rel. humidity (not condensing)
Transport	EN 60721-3-2: 1997 class 2K3, -20 °C bis +85 °C, 5 % bis 95 % rel. humidity (not condensing)
Storage (in packaging)	EN 60721-3-1: 1997 class 1K3, -20 °C to +85 °C, 5 % to 95 % rel. humidity (not condensing)

EMV	
Emission	EN 55022:2006+A1:2007 class A + EN 61000-3:2006+A1:2009+A2:2009 EN 61000-3-3:2008
Noise immunity	EN 55024:2010, EN 61850-3:2002 for telecontrol lines with expendet values for substations for IEC 1000-4-2:2008: 8 kV contact discharge, 15 kV air discharge IEC 1000-4-4:1995: 4 kV data lines IEC 1000-4-5:1995: 2 kV
Product Safety	
Electrical safety	IEC60950-1:2005; Am 1:2009EN, Low voltage directive (2006/95/EC)
Conformity	CE
Power supply	
Type	DC
Power consumption	15 W
Input voltage	12 ... 24 VDC ±10 %
Connector	3 pin plug conforming to IEC 60130-9 (IP 40) with screw locking
Redundancy	Second DC connector (hot standby)

External power supply unit	
Model	Wall-mount power adapter (made in Germany)
Primary voltage	100 ... 240 VAC/50 ... 60 Hz
Secondary voltag	15 VDC (controlled)
Output power	18 W, current limited, short-circuit proof
Primary connector	Exchangeable system EU, GB, US/J, AUS, IEC 320
Cable length	Approx. 2 m

Electronics	
Main processor	32 Bit RISC processor
Program memory	128 MB
Main memory	128 MB, max. 256 MB (SDRAM)

Interfaces	TCG 3G-8	TCG 3G-4
Telecontrol interfaces	8	4
Ethernet interface	4	2
RS-232 interface	1	1
USB host interfaces	2	2

Telecontrol interface V24	
Type	V.24 (RS-232)
Purpose	Level adjustment and galvanical isolation
Signal transmission	TXD, RXD, RTS, CTS, DTR, DCD, CLK
Baudrate	600 to 19200 baud
Electrical values	Conforming to V.28

Telecontrol interface V24	
I/O voltage	Input voltag: max. 30 V Output voltage: max. 22 V
Input resistance	Corresponds to a burden of 1.5 kOhm
Isolation	1kV eff
Bus capability	Sender can be switched to a high impedance (party line).
Connector	8 pin RJ45 connector (ISO 8877), additional 8 pin RJ45 connector for bypass-/monitoring mode

Telecontrol interface TTY	
Type	TTY
Purpose	Level adjustment and galvanical isolation
Signal transmission	TX+, TX-, RX+, RX-
Baudrate	50 to 9600 baud
Electrical values	Bipolar current ± 20 mA
I/O voltage	Input voltage: max. 30 V Output voltage: max. 22 V
Input resistance	Corresponds to a burden of 1.5 kOhm
Configuration	Sender active, receiver passive
Isolation	1kV eff
Bus capability	Sender can be switched to a high impedance (party line).
Connector	8 pin RJ45 connector (ISO 8877), additional 8 pin RJ45 connector for bypass-/monitoring mode

Telecontrol interface X21	
Type	X.21
Purpose	Level adjustment and galvanical isolation
Signal transmission	T+, T-, R+, R-, S+, S-, C+, C-, I+, I-, X+, X-
Baudrate	600 to 64000 baud, asynchronous (V11) und synchronous (X21-64Kbit/s)
Electrical values	Conforming to V.11 (RS422)
Isolation	1kV eff
Bus capability	Sender can be switched to a high impedance (party line).
Connector	2 × 8 pin RJ45 connector (ISO 8877)
LAN interface	
Type	10/100 MBit/s twisted-pair interface (TP)
Purpose	2 × uplinks to the control center 2 × connector of von slaves (only TCG-3G-8)
Electrical values	Conforming to IEEE 802.3 Clause 14 and 25, Impedanz: 100 (symmetrical)
Connector	8 pin RJ45 connector (ISO 8877)

RS-232 interfaces	
Type	Configuration and maintenance access
Electrical values	38.400 baud conforming to V.24
Connector	8 pin RJ45 connector (ISO 8877)
USB host interfaces	
Purpose	Extensions
Function	USB 2.0 host, hi-speed
connector	USB host interface

Function indicators	
System	LEDs for system messages (SYS) and power supply (PWR); two programmable LEDs (S1, S2)
LAN interfaces	LEDs for activity and TP connection status (LI/ACT) and for the connection to the slaves (CON)
Telecontrol interfaces	LEDs for link activity (RX, TX), error (ERR), clock pulse generation (X.21M) und bypass operation (BP)
Signaling contact	Potential-free alert contact with max. capacity of 230 VAC/60 VDC/1 A

Software	
Operation system	NENUX (Linux-Kernel 3.18)
Software version	Fernwirk-Gateway Software 6.08
Basic functions	Controlling of up to 24 telecontrol lines, packeting of telecontrol protocols
Supported telecontrol protocols	Mostly free configurable – Transparent-Modus, IEC-870-5-101, IEC-870-5-102, IEC-870-5-103 – Siemens SINAUT-8FW, Siemens FW537, Siemens FW535, Siemens FW517, AEG Geatrans GT-2100 – AEG F202, AEG SEAB, AEG Geadat 81-1GT – ABB Indactic 21, ABB RP570/571
IP routing	Between LAN and WAN interfaces, routing protocols: RIPv2, OSPF
Management	Configuration via Command Line Interface (CLI), via web interface or via PSI-KETEL-Protocol
Statistic + diagnossis	Statistic commands, diagnossis via integrated trace-system (driver, decording/encording, packeting) and UNIX commands, data/packet trace functions via PSI-KETEL protocol

Order information	Product code
TCG 3G-8	101663
TCG 3G-4	101714

PSI Nentec GmbH
Greschbachstraße 12
76229 Karlsruhe
Deutschland
Telefon: +49 721 94249-0
Telefax: +49 721 94249-10
www.psinentec.de
info@nentec.de