

# VEA 3CG

**Ethernet adapter**

**Publication version: VVEA3CG/EN M/A002**

**User manual**

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# 1. General

- Installed to 35mm DIN- RAIL
- Steel plate case
- Powered from the VAMP relay via serial cable (from the LOCAL port of the relay)

## 1.1. Front panel

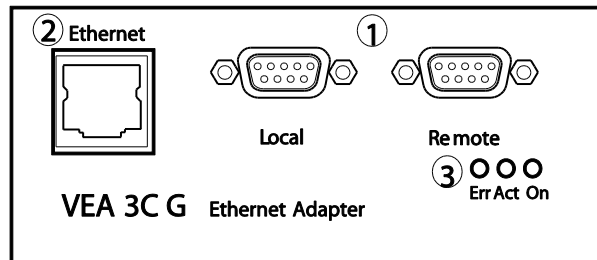


Figure 1.1-1 VEA 3CG front panel

1. 2 serial ports : connection to VAMP relay (Local + Remote)
2. Ethernet port : 10 Mb/s, RJ-45 connector
3. 3 LED indicators:
  - On: Powered by VAMP relay
  - Act: Communication active
  - Err: Internal error

## 1.2. Application

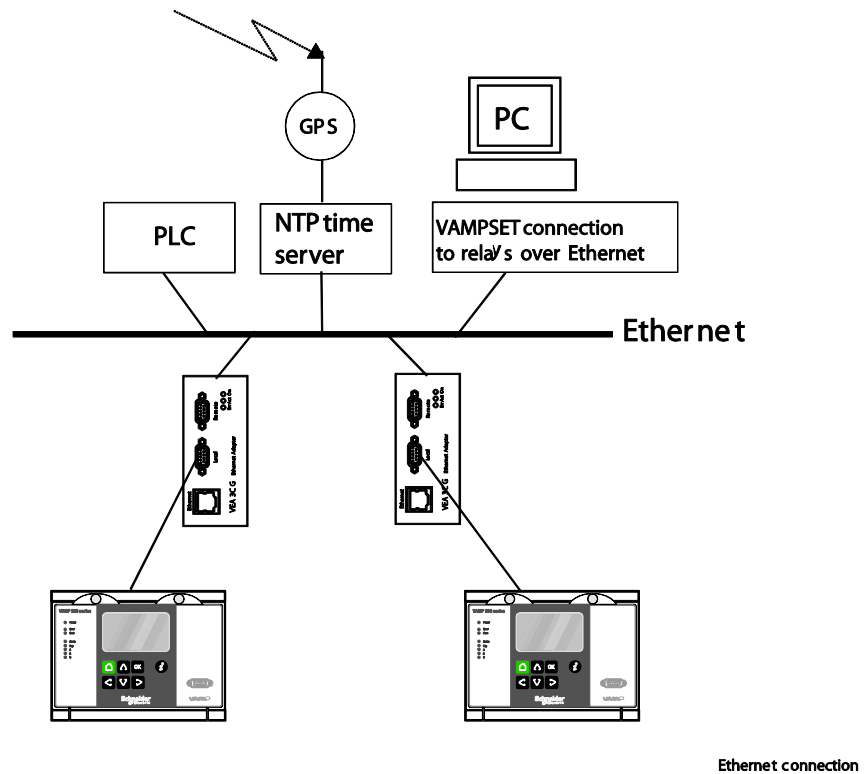


Figure 1.2-1 Application

### VAMPSET data over Ethernet

- Read / write of relay settings
- Upload of disturbance recordings

### Time synchronization of relays with NTP-server

- NTP time server connects to Ethernet
- NTP server gets its time from GPS or Internet
- VEA 3CG gets synchronized via the server, using SNTP
- The relay is synchronized to VEA 3CG via the Local interface

### Modbus TCP over Ethernet

- Read / write of relay data in Modbus registers
- The applicable Modbus register numbers for each VAMP relay type can be found from documents called "Modbus parameters".
- The same data which is available via serial Modbus RTU protocol is also available via Modbus TCP.

## 1.3. Operation

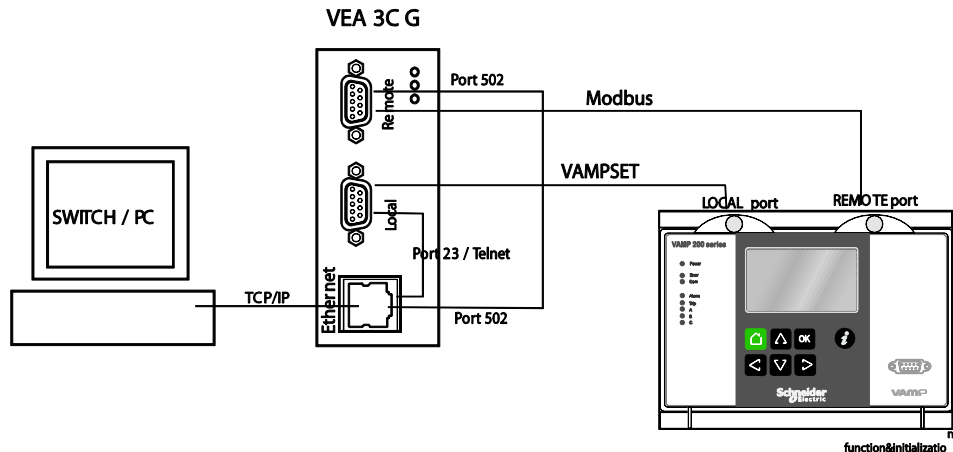


Figure 1.3-1 VEA 3CG operation principle

### Function

- Open the communication tunnel between Port 23 / Telnet and Local port, which enables the VAMPSET connection to VAMP relay.
- Open the communication tunnel between Port 502 and Remote port, which enables the use of Remote port protocols, e.g. Modbus TCP.

### Initialization

After resetting, the VEA 3CG performs the following the initialization sequence:

- 1 Opening the Local port and configuration to speed 38400 b/s.
- 2 Obtaining the necessary setting from the relay through the Local port.
- 3 IP setting in accordance with the information obtained from the relay.
- 4 Opening and configuring of the Remote port according to the information obtained from the relay.
- 5 Initialization of communication through Port 23 and 502.
- 6 Initialization of NTP query if IP address of the NTP server has been obtained from the relay.

# 2. Connection

## 2.1. Ethernet adapter

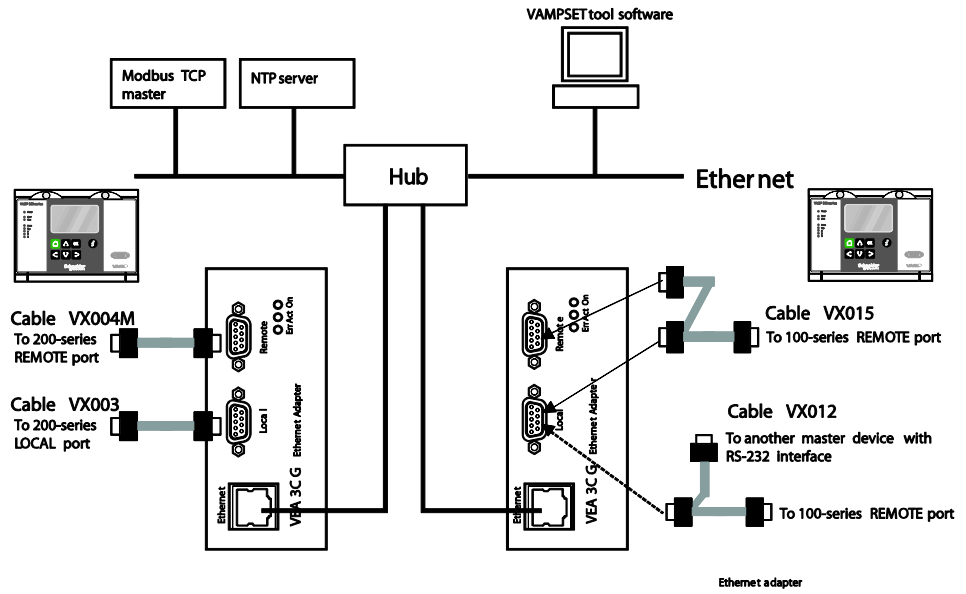


Figure 2.1-1 VEA 3CG connection cables

	100-series	200-series
VAMPSET communication	VX012	VX003
Modbus TCP and VAMPSET communication	VX015	VX004M and VX003

## 2.1.1.

## Connection to 200-series relays

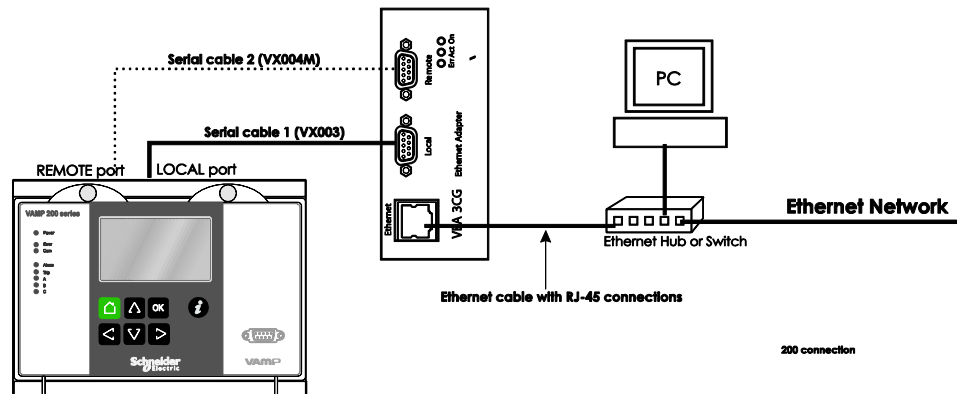


Figure 2.1.1-1 Connection to 200-series relay

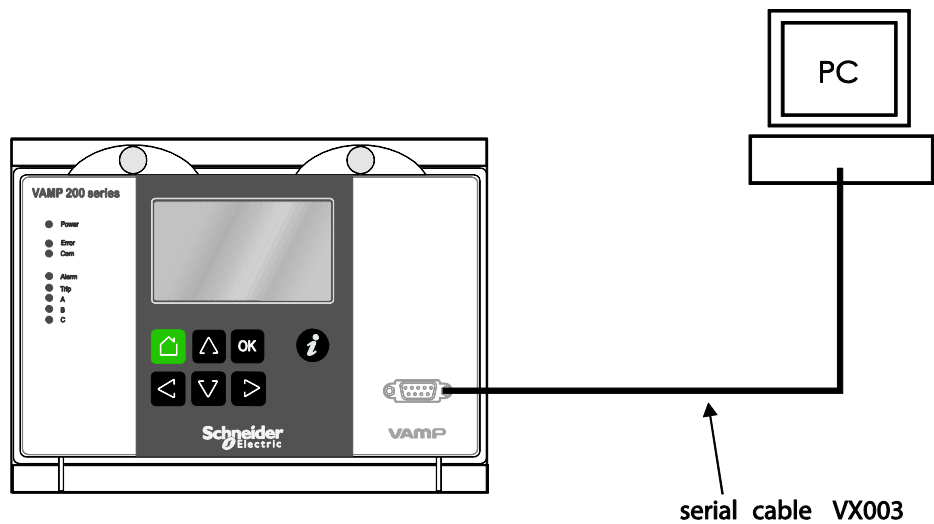
- Galvanically isolated
- Modbus and VAMPSET communication over TCP/IP.
- Powered by VAMP relay via VX003 cable.
- Serial cable 1 : RS-232 interface to LOCAL port
  - VAMPSET communication
  - Clock synchronization
- Serial cable 2 : RS-232 interface to REMOTE port
  - Modbus TCP communication

# 3. Configuration

## 3.1. The Ethernet settings of the relay

Connect cable VX003 to relay's front panel (see Figure 3.1-1). Find the Ethernet-menu of the relay with VAMPSET and give proper values to parameters " IP Address " and " NetMask". The other parameters can be left to their default values when testing the communication.

To learn about possible IP addresses you may have to talk with the system administrator responsible of the Ethernet network you are going to use for communications. A fixed IP address must be used because DHCP is not supported in VEA 3CG.



200series with VX003

Figure 3.1-1 Connecting cable VX003 to the relay's front port for the Ethernet settings of the relay.

<pre> MODBUS MAIN CONFIGURATION MODBUS MASTER: MEASUREMENT MODBUS MASTER: DI AND OBJ MODBUS MASTER: OBJECT CON MODBUS MASTER: EVENTS MODBUS SLAVE: 402001-&gt; MODBUS SLAVE: 403001-&gt; MODBUS SLAVE: 403301-&gt; PROFIBUS MAIN CONFIGURATI PROFIBUS: CONTINUOUS MODE PROFIBUS: REQUEST MODE 1/ PROFIBUS: REQUEST MODE 2/ PROFIBUS: REQUEST MODE 3/ PROFIBUS: REQUEST MODE 4/ MODBUS &amp; PROFIBUS: SCALING IEC 60870-5-103 MAIN CONF IEC 60870-5-103: Data con DNP3 CONFIGURATION DNP3: DATA POINTS - BI DNP3: DATA POINTS - AI DNP3: DATA POINTS - CNTRS DNP3: DATA POINTS - BO ETHERNET </pre>	<table border="1"> <tr> <td>IP Address</td> <td>10.4.1.177</td> </tr> <tr> <td>NetMask</td> <td>255.255.255.0</td> </tr> <tr> <td>Gateway</td> <td>0.0.0.0</td> </tr> <tr> <td>NameServer</td> <td>0.0.0.0</td> </tr> <tr> <td>NTP server</td> <td>0.0.0.0</td> </tr> <tr> <td>Protocol port for IP</td> <td>502</td> </tr> </table>	IP Address	10.4.1.177	NetMask	255.255.255.0	Gateway	0.0.0.0	NameServer	0.0.0.0	NTP server	0.0.0.0	Protocol port for IP	502
IP Address	10.4.1.177												
NetMask	255.255.255.0												
Gateway	0.0.0.0												
NameServer	0.0.0.0												
NTP server	0.0.0.0												
Protocol port for IP	502												

Figure 3.1-2 Ethernet settings of the relay



## 3.2. VEA 3CG to the relay and Ethernet network

Connect VEA 3CG to a 200-series relay's LOCAL serial port with cable VX003 . Connect the VEA 3CG and the PC to an Ethernet Switch (see Figure 3.2-1 ). Connection to 100-series relays is done with VX015 cable and connection to VAMP 40 is done with VX030 cable.

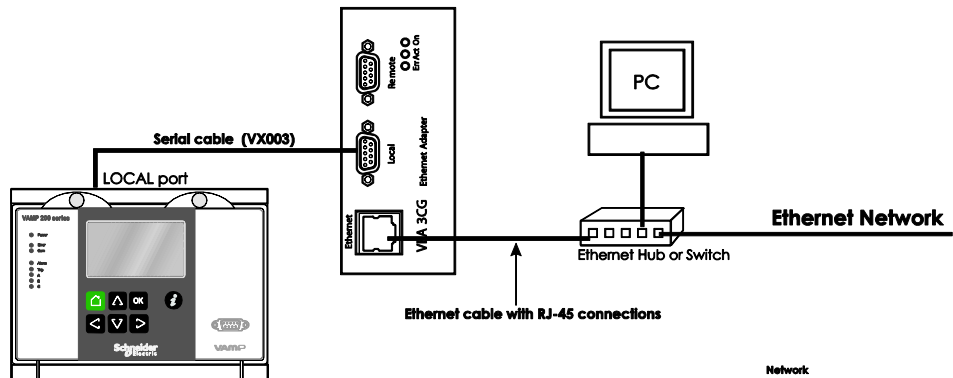


Figure 3.2-1 Connecting VEA 3CG to the VAMP relay and PC

### 3.3. VAMPSET communication over the Ethernet Network

Change the Communication settings of the VAMPSET software as shown in Figure 3.3-1. Set parameter Port = Network and set the Network Address = IP Address selected in the relay settings. Press “Apply” button and then activate Connection to the relay (see Figure 3.3-2).

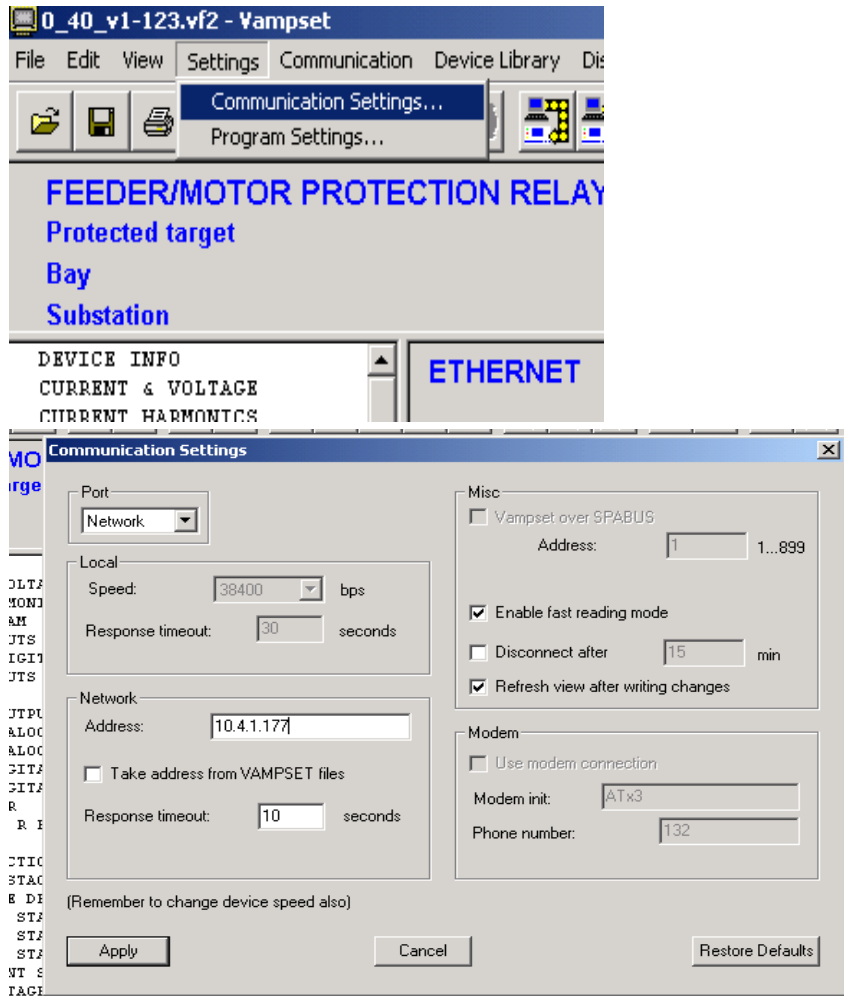


Figure 3.3-1 Changing the communication settings of the VAMPSET software

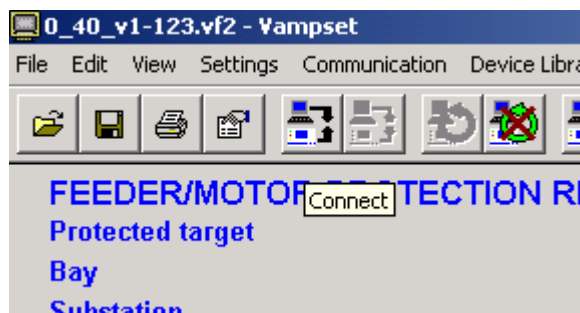


Figure 3.3-2 Button for activating connection to the relay

After activating the connection to the relay the normal connection opening window as shown in Figure 3.3-3 should pop up.

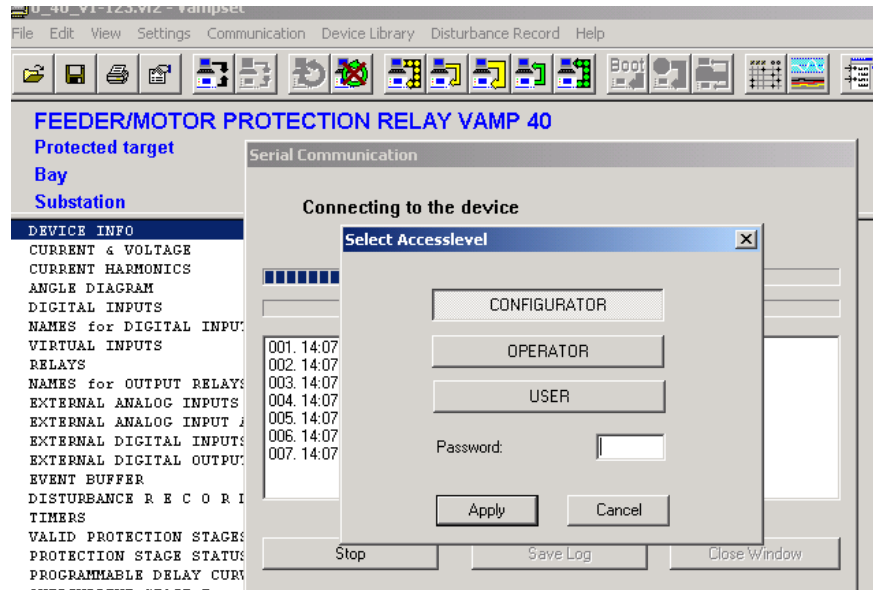


Figure 3.3-3 VAMPSET connection opening window

The communication with the VEA 3CG can also be tested using “ping” command via the DOS-window of the Windows operating system (see Figure 3.3-4 ).

```

C:\WINNT\system32\cmd.exe
C:\Documents and Settings\vahamaki.ELECTRONICS>ping 10.4.1.177

Pinging 10.4.1.177 with 32 bytes of data:

Reply from 10.4.1.177: bytes=32 time=9ms TTL=64
Reply from 10.4.1.177: bytes=32 time=8ms TTL=64
Reply from 10.4.1.177: bytes=32 time=7ms TTL=64
Reply from 10.4.1.177: bytes=32 time=5ms TTL=64

Ping statistics for 10.4.1.177:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 5ms, Maximum = 9ms, Average = 7ms

C:\Documents and Settings\vahamaki.ELECTRONICS>

```

Figure 3.3-4 Testing connection to the VEA 3CG with the " ping" command.

## 4. Dimensional drawing

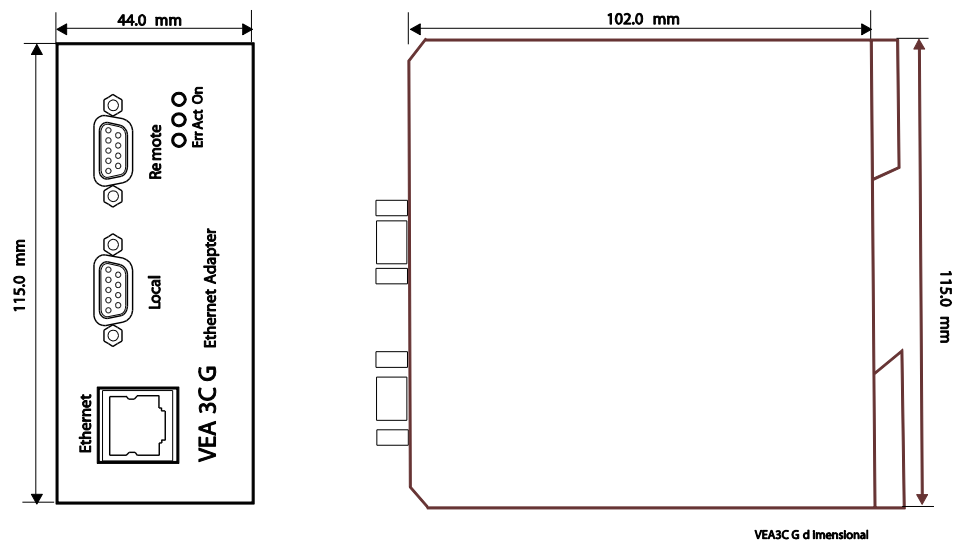


Figure. 4-1 Ethernet adapter VEA 3CG dimensions





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