SIEMENS

Communication Accessories
SICAM I/O-Unit with 6 Binary In-/Outputs 7XV5673

Description

I/O Unit 7XV5673 is a digital input / output device and is used by utilities (energy supply companies) in sub-station environment. The device is also used for industrial sectors and in businesses with increased environmental requirements. The I/O Unit can be used as, for example:

- **I/O mirror:**
  point-to-point transfer of binary signals between 2 I/O Units via Ethernet or a serial connection.
- **I/O expansion:**
  device expansion by binary inputs and outputs connected to a substation controller using Modbus RTU or Modbus TCP
- **Contact multiplier:**
  multiplication of signals on one or several binary inputs via relay contacts

Binary Inputs, Relay Outputs

The device has 2 terminal blocks with 3 binary inputs and 3 relay outputs each, and an Ethernet connection with internal Ethernet switch and a serial interface. Depending on the device variant, the serial interface is designed as RS485 or FO interface (820 nm).
2 binary inputs have a joint root on each terminal block and one binary input is not connected to common potential (potential free).

The threshold voltage of the binary inputs can be set to DC 19 V, DC 88 V or DC 176 V.

Therefore an optimal adjustment to the station battery's voltage of the substation can be achieved and the pickup voltage can be adjusted in the case of increased interference level.

Each terminal block has 2 relay outputs NO (normally open) and one relay output CO (change over). The relays can switch voltages up to AC/DC 250 V and currents up to AC/DC 5 A.

Function

Via binary inputs, all kinds of binary signals of switch gear/protection scheme (for example tripping command, switch position signal, fault and status indications) are securely detected. This information can directly be distributed at this I/O Unit over relays, or be transmitted over communication ways to further equipment or systems.

The information is transmitted protected about the Ethernet and the serial interface in telegrams.

Communication

For communication with substation automation systems and other I/O Units for process automation, the Ethernet interface and the serial interface (RS485 or optical) are available.

The device parameterization, the transfer of indications and the time synchronization with NTP is supported via Ethernet.

The communication protocols are HTTP, Modbus TCP, Modbus UDP, and NTP. The client or server mode is used for the point to point binary signal transmission.

With the Ethernet switch that is integrated in the device, further network components can be cascaded via a Y-cable, and can therefore also be incorporated in an existing network with IEC 61850 or an other Ethernet protocol.

The serial interface supports the transfer of indications and time synchronization. Depending on parameterization, the Modbus RTU communication protocol is used for communication; and the client or server mode is used for the binary signal transmission.

Time Synchronization

In operation, the device registers the date and time for all time relevant processes. This ensures a uniform time basis and a time stamp for the communication with peripheral devices. The following types of time synchronization are performed according to parameterization:

- External time synchronization via Ethernet NTP.
- External time synchronization via fieldbus with Modbus RTU, Modbus TCP or Modbus UDP communication protocol.
- Internal time synchronization (if there is no external time synchronization).

Settings

The parameter setting is simply carried out with a standard Web browser at the PC which is connected by the Ethernet interface. A separate software is not required. The access to the settings of the device can be protected with passwords.

Transmission Time 11 ms

The transmission duration over a fiber optical link or over Ethernet for the I/O mirror application is typ. 11 ms. This time is measured from binary input pickup until contact closure between two devices.

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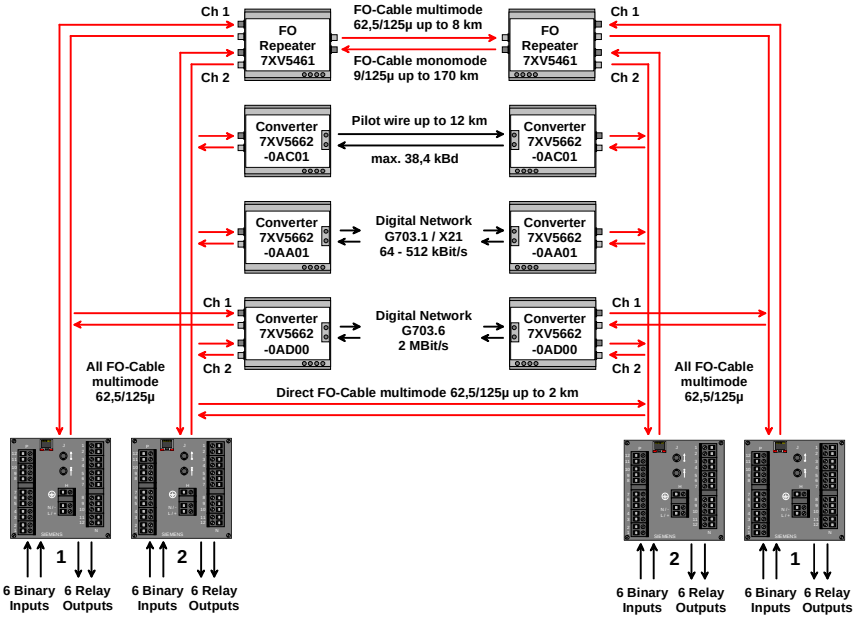
Function Overview

- **Binary Inputs**
  2 Inputs potential free
  4 Inputs (2 with a joint root)
  Input Voltage 24-250 V DC
  Threshold voltage individually
  Contact on 2 Terminal Blocks
- **6 Relay Outputs**
  4 NO (normally open)
  2 CO (change over)
  All relays freely parameterizable
  Connection with Terminal Blocks
- **Short Transmission Time**
  FO and LAN directly typ. 11 ms
- **4 Status LED**
  4 LED for different reports parameterizable
- **Wide Range Power Supply**
  Auxiliary voltage
  24-250 V DC +/- 20 % and
  100-230 V AC 45-65 Hz
  Insulation 3,5 kV
  Safety class III
  Connection with Terminal Blocks
- **Ethernet Interface RJ45**
  Integrated Switch with
  Accessory Y-Cable
  7KE6000-8GD00-0BA2
- **Optical Interface (optional)**
  ST-Plug, 820 nm for
  multi mode fibre 62,5 µm.
  Typ. Distance 2 km (62,5 µm)
- **RS485 Interface (optional)**
  Sub-D Plug, 9-pol. female
  Insulation 500 V
- **Parameter setting**
  Integrated web server for parameter setting over PC or notebook with Web browser.
  Simple operation with password protection.
  Time synchronization over NTP protocol or PC.
- **Protocols Communication**
  HTTP, Modbus TCP, Modbus UDP and NTP.
  For the binary signal transmission as client and server.
- **Housing**
  Plastic housing IP20 for DIN rail mounted device.
  Dimensions 96x96x100 mm.
  Battery changeable without opening the housing.
- **Safety class und EMC:**
  Safety class III and EMC strength increased.
  In accordance with the SIPROTEC protection devices.

Applications

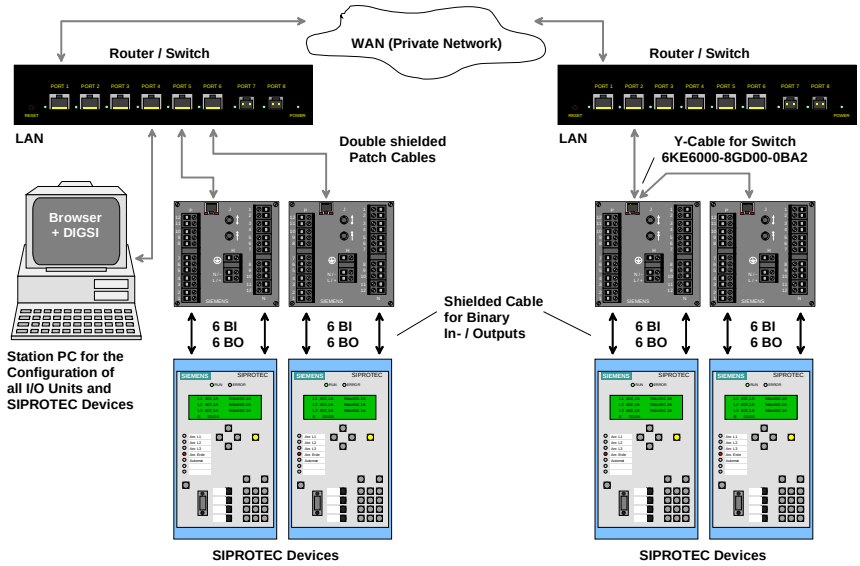
Up to 12 binary signals can be transferred bidirectionally with optical repeaters or opto-electrical converters about large distances (Picture. 1).



Picture 1: Serial transmission of the binary signals

Many binary signals can be transferred with the corresponding number I/O Units about the Ethernet.

Two I/O Units correspond, and exchange reports (binary signals or commands, Picture 2).



Picture 2: Transmission of the binary signals over a Ethernet network

Order Information

I/O-Unit with Ethernet Interface and
RS485-Interface: 7XV5673-0JJ**1**0-1AA1
optical Interface: 7XV5673-0JJ**2**0-1AA1

Technical support
Klaus-D. Müller, E D EA PRO LM2
Siemens AG, Nürnberg
Internet: www.siprotec.com