

SynchroTeq® Communication Module

RWK000016 / RWK000016F (with 2 fiber optic ports)

Datasheet



RWK000016-SP-en

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1 System overview

The VIZIMAX SynchroTeq Communication Module (RWK000016 / RWK000016F) allows a master device to communicate with or operate SynchroTeq units using IEC 61850 Ed-1, Modbus or DNP3 protocols on an Ethernet LAN (or Modbus/RTU on a serial link). A master device can be (for example) a DNP3 master station, IEC 61850 client, a substation computer or a substation controller.

The SynchroTeq Communication Module is compatible with the following controlled switching platforms:

- **STP030000: SynchroTeq Plus** base unit – Available in rackmount or standalone versions. For more information, please refer to document SynchroTeq Plus datasheet, *STP030000-SP-en*.
- **STM0x0000: SynchroTeq MV** units. SynchroTeq Communication Module is available with all SynchroTeq MV units. For more information, please refer to SynchroTeq MV datasheet, *STM0x0000-SP-en*.
- **STU0x5000: Legacy SynchroTeq (STU)** base unit with communication module compatibility. For more information, please contact your Vizimax representative.

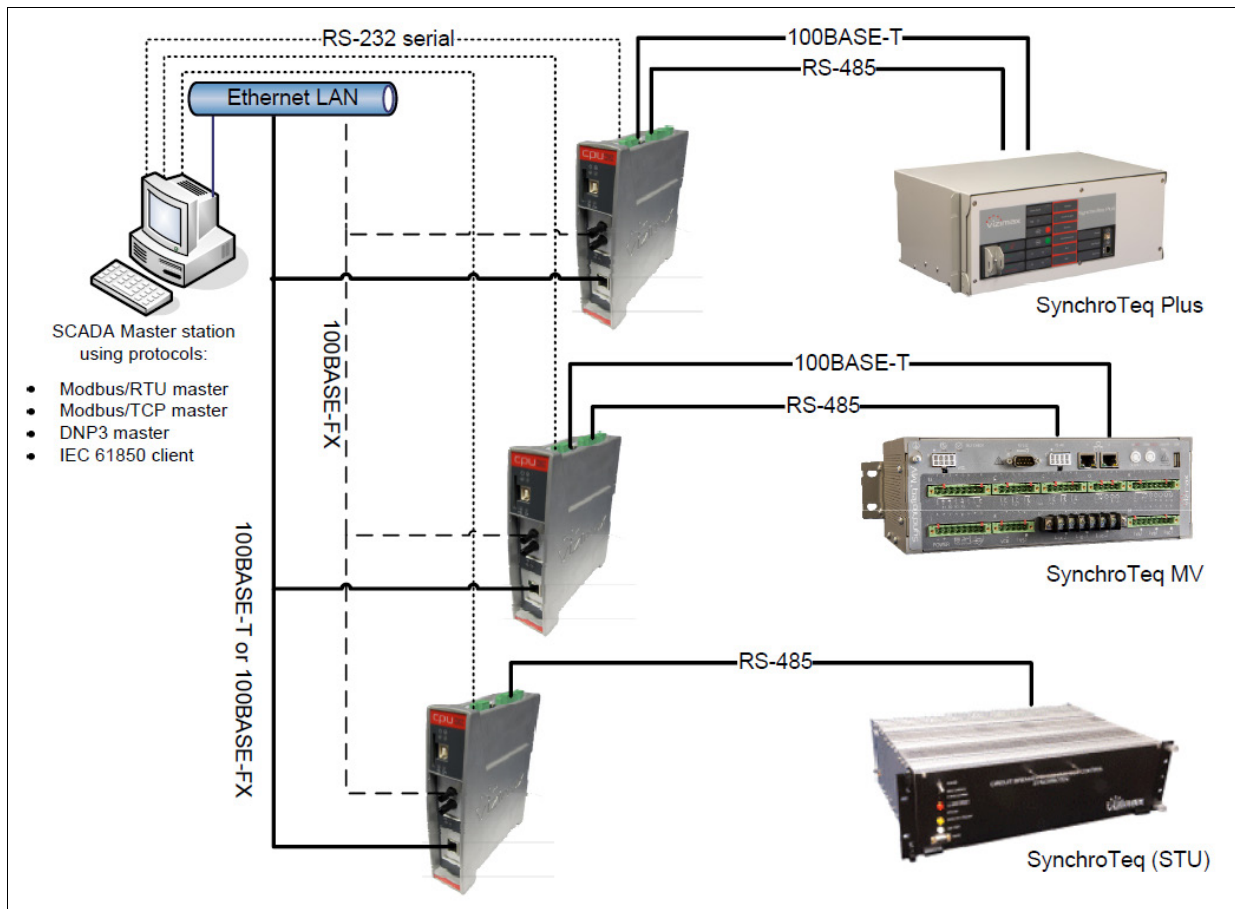


Figure 1 STCM System overview

1.1 Supported protocols

The following protocols are supported by SynchroTeq Communication Module:

- DNP3 Slave
- IEC 61850 Server (Edition 1)
- Modbus/TCP slave
- Modbus/RTU slave

1.2 Mounting

Table 1 STCM Dimensions

Specifications	Value
Width	44.5 mm (1.75")
Height	152 mm (6")
Depth	133 mm (5.25")
Weight	720g (1.6 lb.)
Enclosure	Aluminium
Mounting	DIN rail or panel mount with optional adapter (RWA AA0000)



Figure 2 STCM DIN rail mounting



Figure 3 STCM Panel mount with optional adapter (RWA AA0000)

2 Technical Specifications

2.1 Compliance



2.2 Conformity

Table 2 STCM conformity specifications

Specifications		Value	Standards
Temperature	Operating	-40°C to +75°C	
	Storage	-65°C to +90°C	
Maximum Relative humidity		95 % without condensation	IEC 60068-2-30
IP Rating		IP30	IEC 60529
Normal environmental conditions		No significant air pollution Pollution degree 2	IEC 60255-1 IEC 60947-1
Maximum altitude		2000 m	IEC 61010-1
Immunity			IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6

2.3 Communications

2.3.1 Serial Ports

SynchroTeq Communication module has double serial ports on the top, with the following characteristic:

Table 3 STCM serial port specifications

Specifications	Value
Number	2
Communication modes	Serial-1: RS-485 two-wire or RS-422 4-wire mode Serial-2: RS-232
Support	Full support of modem control signals with RS-485
Connector	screw type
Isolation	2 kV galvanic isolation

2.3.2 Ethernet ports – RWK000016 model

Table 4 RWK000016 Ethernet Top-1 specifications

Specifications	Value
Number	1
Location	Top-1 Ethernet port
Communication	Ethernet communications on twisted-pair copper (category 5)
Interface	Auto MDIX, 10 Mbps (10Base-T) and 100 Mbps (100Base-T)
Support	Multi-protocol support
Connector	RJ45
Isolation	1500 Vrms galvanic

Table 5 RWK000016 Ethernet Front-1 (upper front – fiber optic) specifications

Specifications	Value
Number	1
Location	Front-1 Ethernet port
Communication	Fiber optic
Interface	100 Mbps (100Base-FX version of IEEE 802.3u)
Support	Multi-protocol support
Connector	Duplex ST connector
Others	1300 nm product with optical performance compliant with the FDDI PMD standard (ISO/IEC 9314-3:1990 and ANSI X3.166 – 1990) Support of up to 2 km multimode fiber backbone

Table 6 RWK000016 Ethernet Front-2 (lower front – RJ45) specifications

Specifications	Value
Number	1
Location	Front-2 Ethernet port
Communication	Twisted-pair copper (category 5)
Interface	Auto MDIX, 10 Mbps (10Base-T) and 100 Mbps (100Base-T)
Support	Multi-protocol support
Connector	RJ45
Isolation	500 Vrms galvanic isolation

2.3.3 Ethernet ports – RWK000016F model

Table 7 RWK000016F Ethernet Top-1 specifications

Specifications	Value
Number	1
Location	Top-1 Ethernet port
Communication	Ethernet communications on twisted-pair copper (category 5)
Interface	Auto MDIX, 10 Mbps (10Base-T) and 100 Mbps (100Base-T)
Support	Multi-protocol support
Connector	RJ45
Isolation	1500 Vrms galvanic

Table 8 RWK000016F Ethernet Front-1 (upper front – fiber optic) specifications

Specifications	Value
Number	1
Location	Front-1 Ethernet port
Communication	Fiber optic
Interface	100 Mbps (100Base-FX version of IEEE 802.3u)
Support	Multi-protocol support
Connector	Duplex ST connector
Others	1300 nm product with optical performance compliant with the FDDI PMD standard (ISO/IEC 9314-3:1990 and ANSI X3.166 – 1990) Support of up to 2 km multimode fiber backbone

Table 9 RWK000016F Ethernet Front-2 (lower front – RJ45) specifications

Specifications	Value
Number	1
Location	Front-2 Ethernet port
Communication	Fiber optic
Interface	100 Mbps (100Base-FX version of IEEE 802.3u)
Support	Multi-protocol support
Connector	Duplex ST connector
Others	1300 nm product with optical performance compliant with the FDDI PMD standard (ISO/IEC 9314-3:1990 and ANSI X3.166 – 1990) Support of up to 2 km multimode fiber backbone

2.4 Digital Output

Table 10 STCM Digital output specifications

Specifications	Value
Number	1
Rated voltage	250 V dc, 250 V ac maximum; 0.5 A maximum
Isolation	2 kV galvanic
Others	Used as a watchdog timer output ("System OK" application) or as a general purpose output

2.5 Power Supply

Table 11 STCM Power supply output specifications

Specifications	Value
Operating range	8 to 30 VDC $\pm$ 10% (7.2 to 33 VDC)
Power requirements	3W nominal
AC/DC power supply recommendation:	Lambda DPP30-24 (85-260 VAC, 90-375 VDC, 15W))

3 Installation and configuration

The SynchroTeq Communication Module comprises the following products:

- A RightWON Satellite CPU.



Refer to *RWU010000-SP-en, RightWON Satellite CPU - Datasheet*.

- A 100Base-FX Ethernet plug-in on the unit's Front-1 slot (and Front-2 slot for RWK000016F model).



Refer to *RWC0D0000-SP-en, 100Base-FX Ethernet Plug-in - Datasheet*.

- A 100Base-T Ethernet plug-in on the unit's Front-2 slot for RWK000016 model



Refer to *RWC0C0000-SP-en, 100Base-T Ethernet Plug-in - Datasheet*.

- A 100Base-T isolated combo plug-in, one RS-485-422, one RS-232, one DO on the unit's Top-1 slot.



Refer to *RWC0T0000-SP-en, Isolated Combo Plug-In - 100Base-T, 1xRS485-422, 1xRS232, 1DO - Datasheet*.

For the installation and configuration of the SynchroTeq Communication Module, please refer to the 'SynchroTeq Communication Module User Guide' (*RWK000016-UG-en*) and to the datasheet of each sub-assembly module.

4 Ordering Information

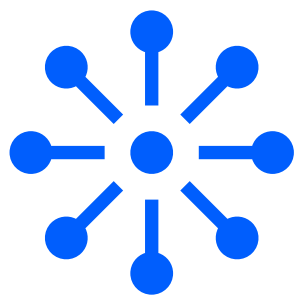
4.1 Base models

RWK000016: SynchroTeq Communication Module includes: 2 x Ethernet 100BASE-T + 1 x Ethernet 100BASE-FX multimode + 2 x serial ports) – Protocols DNP3 slave + IEC 61850 server (Edition 1) + Modbus TCP/RTU slave- Temperature: -40° C to +75° C (-40° F to +165° F).

RWK000016F: SynchroTeq Communication Module includes: 1 x Ethernet 100BASE-T + 2 x Ethernet 100BASE-FX multimode + 2 x serial ports) – Protocols DNP3 slave + IEC 61850 server (Edition 1) + Modbus TCP/RTU slave- Temperature: -40° C to +75° C (-40° F to +165° F).

4.2 Frequently ordered options

RWS020000: SynchroTeq Communication Software, with integrated SCL editor and activation key (Dongle). (See *RightWON Configuration Suite - Manual*.)



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