UTF 42xx /Bilinx Series

Optical Video/Data Transmitters/Receivers

USER MANUAL

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures. Please read section 6 of this Manual

1. General description

This user manual is valid for the following models:

Model	Description		Housing
UTF 4200 TX-MSA /Bilinx	Transmitter	2 x mm	Stand-alone
UTF 4200 RX /Bilinx	Receiver	2 x mm	Rack-mount
UTF 4200 RX-2 /Bilinx	Receiver	2 x mm	Rack-mount
UTF 4210 TX-MSA /Bilinx	Transmitter	1 x mm	Stand-alone
UTF 4210 RX /Bilinx	Receiver	1 x mm	Rack-mount
UTF 4210 RX-2 /Bilinx	Receiver	1 x mm	Rack-mount
UTF 4250 TX-MSA /Bilinx	Transmitter	1 x sm	Stand-alone
UTF 4250 RX /Bilinx	Receiver	1 x sm	Rack-mount
UTF 4250 RX-2 /Bilinx	Receiver	1 x sm	Rack-mount
UTF 42xx /Bilinx /SA			Stand-alone

Table 1. Models described in this user manual
mm = multimode fiber   sm = single-mode fiber

A UTF (Up the Fiber™) transmitter (TX) converts a composite video signal into a high-quality, 9-bit digitised optical equivalent and transmits this over single-mode or multimode optical fiber. All UTF Bilinx units support the Bilinx protocol. The data signal is to be put on the coax cable, using suitable equipment. The bidirectional data link enables camera control over the same, extended distances as can be bridged with standard UTF 42xx equipment. Additionally, the transmitter provides an independent, voltage-free alarm contact (normally open) for door contacts and anti-tamper contacts, for example.

Complementary UTF receivers (RX) receive and convert the optical signal to video/contact closure.

UTF 4200 models use one transmission wavelength (1300 nm), whereas UTF 4210 and 4250 models use two (1310 nm and 1550 nm). RX-2 models are dual units, each subunit capable of communicating with a separate transmitter.

A wide range of operating temperatures makes the stand-alone transmit ter suitable for use within outdoor camera housings and camera connection boxes (see datasheet).

The TX MSA miniature, stand-alone transmitter can be powered by the camera power supply (12-24 Vdc or 24 Vac) or by a PSA/PSR 12 DC.

If 24 V$_{AC}$ is used, read section 3 first.
For operation under extreme environmental conditions, the PSR 12 DC is recommended.

The UTF receivers (RX, RX-2) are designed for use in a TKH Security MC power supply rack. The UTF 42xx/SA are the stand-alone versions of the rack-mounted models. UTF 42xx systems are SNM compatible.

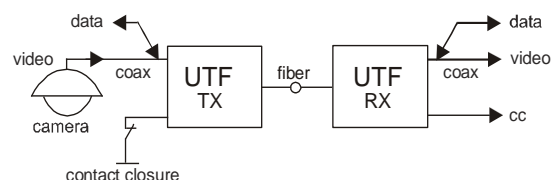The general connection layout is given in figure 1.

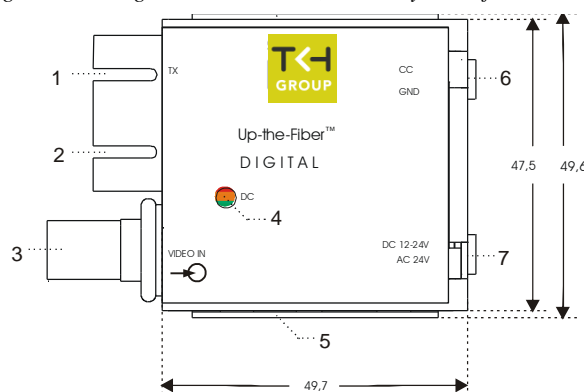*Figure 1. UTF general connection; data may come from camera*

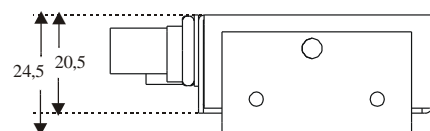*Figure 2a. Indicators and connectors on the miniature UTF transmitter (TX-MSA). Sizes in millimetres.*

Figure 2b. Miniature UTF transmitter (TX-MSA), side view. Sizes in millimetres.

2. Indicators and connectors

Transmitters
The miniature stand-alone UTF transmitter has the following parts, indications, and connectors (figure 2a):

1: TX: Primary optical fiber connection
2: RX (unmarked): Secondary optical fiber connection (not used in 4210 and 4250 models)
3: BNC 75 Ω connector: Composite video input
4: DC: shows SYNC: This indicator can show:
   - Green: Operational link
   - Red: Local synchronisation error
   - Yellow: Remote synchronisation error.
5: Mounting bracket
6: CC/GND: 2-Pin Combicon connector for alarm contacts
7: DC 12-24 V / AC 24 V: 2-Pin power supply connector (Combicon)

Receivers

The UTF Bilinx receivers (figures 3 and 4) have the following indications and connectors:
1. SYNC: This LED can show:
   - Green: Operational link
   - Orange: Remote synchronisation error
   - Red: Local synchronisation error
2. NV: This LED can show:
   - Red: No video on in- or output
   - Off: Video signal present
3. Connector for potential-free alarm contacts:
   - RX model   : 2-pin connector (channel CC1)
   - RX-2 model : 4-pin connector (channel CC1 and channel CC2)
4. BNC 75 Ω connector: Composite video output
5. TX: Connection for optical fiber
6. RX : Connection for optical fiber

In one-fiber units only TX is used.

3. Configuration and installation

! *Note on powering of a UTF TX-MSA with 24 Vac from the camera* **!**

The miniature stand-alone transmitter can convert 24 Vac power through an internal full rectifier bridge; the "-" of its internal DC voltage is connected to the metal housing. If the camera uses the same Vac power supply in parallel, but with a single-sided rectifier circuit, the UTF power supply diodes may suffer, since there always will be a connection between the housings through the coax cable shielding. To prevent the occurrence of such problems, proper measures must be taken to separate the two loads of the 24 Vac supply; this might be preferable in any case, as a precaution.

If in doubt, please contact your distributor.

Mounting

Before mounting the miniature transmitter, the mounting bracket has to be installed in a suitable place. After securing the bracket, the transmitter can be clicked into it. Make sure the transmitter is positioned and fixed correctly.
A stand-alone receiver can be easily installed; prevent undue bending of cabling. In case more than one receiver is needed, use TKH Security MC 10 or MC 11 cabinets.

Powering up a system

When powering up an appropriately connected system, the "DC" indicator on the transmitter (if suitably powered) should show green and the "SYNC" indicator on the receiver should also light up green. If no video signal is present, the corresponding "NV" indicator shows red. DC and SYNC indicators on systems not connected will light red.
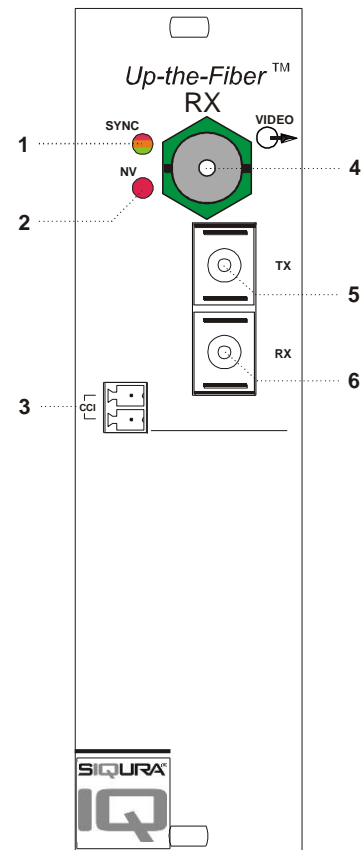

Figure 3. Indications and connectors on a UTF Bilinx RX receiver
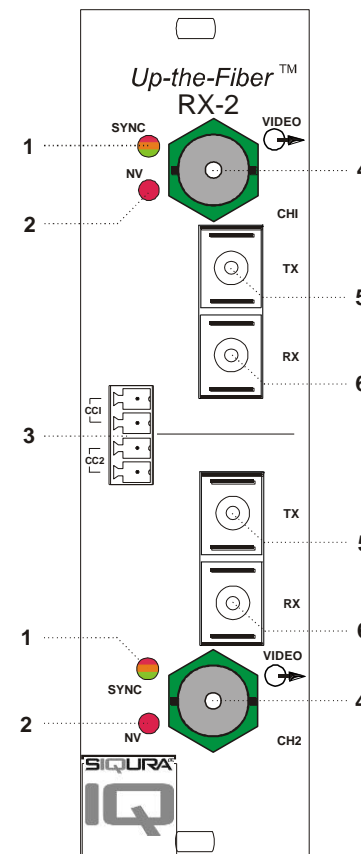

Figure 4. Indications and connectors on a UTF Bilinx RX-2 receiver

4. Care and maintenance

The modules are designed to be maintenance free. To guarantee reliable operation of the units, take the following precautions:

- prevent dust from collecting on or in the equipment;
- protect the equipment against moisture;
- maintain cooling space around the equipment.

5. Technical specifications

For technical specifications, please refer to the data sheet of the relevant model.

6. Safety, EMC, ESD

General

The safety information contained in this section, and on other pages of this manual, must be observed whenever this unit is operated, serviced, or repaired. Failure to comply with any precaution, warning, or instruction noted in the manual is in violation of the standards of design, manufacture, and intended use of the unit.

Installation, adjustment, maintenance and repair of this equipment are to be performed by trained personnel aware of the hazards involved. For correct and safe use of the equipment and in order to keep the equipment in a safe condition, it is essential that both operating and servicing personnel follow standard safety procedures in addition to the safety precautions and warnings specified in this manual, and that this unit be installed in locations accessible to trained service personnel only.

Siqura assumes no liability for the customer's failure to comply with any of these safety requirements.

UL/IEC/EN 60950-1: General safety requirements
The equipment described in this manual has been designed and tested according to the UL/IEC/EN 60950-1 safety requirements.

If there is any doubt regarding the safety of the equipment, do not put it into operation. This might be the case when the equipment shows physical damage or is stressed beyond tolerable limits (e.g. during storage and transportation).

Before opening the equipment, disconnect it from all power sources. The equipment must be powered by a SELV[*] power supply.

When this unit is operated in extremely elevated temperature conditions, it is possible for internal and external metal surfaces to become extremely hot.

Optical safety
This optical equipment contains Class 1M lasers or LEDs and has been designed and tested to meet IEC 60825-1:1993+A1+A2 and IEC 60825-2:2004 safety class 1M requirements.

Optical equipment presents potential hazards to testing and servicing personnel owing to high levels of optical radiation. When using magnifying optical instruments, avoid looking directly into the output of an operating transmitter or into the end of a fiber connected to an operating transmitter, or there will be a risk of permanent eye damage. Precautions should be taken to prevent exposure to optical radiation when the unit is removed from its enclosure or when the fiber is disconnected from the unit. The optical radiation is invisible to the eye.

Use of controls or adjustments or procedures other than those specified herein may result in hazardous radiation exposure.

The installer is responsible for ensuring that the label depicted below (background: yellow; border and text: black) is present in the restricted locations where this equipment is installed.
The locations of all optical connections are listed in the Indications and Connectors section of this manual.

Hazard Level 1M

Optical outputs and wavelengths are listed in the Technical Specifications section of this manual.

EMC

Warning: Operation of this equipment in a residential environment could cause radio interference.

This device has been tested and found to meet the CE regulations relating to EMC and complies with the limits for a Class A device, pursuant to Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. These limits are designed to provide reasonable protection against interference to radio communications in any installation. The equipment generates, uses, and can radiate radio frequency energy; improper use or special circumstances may cause interference to other equipment or a performance decrease due to interference radiated by other equipment. In such cases, the user will have to take appropriate measures to reduce such interactions between this and other equipment.

Note that the warning above does not apply to TKH Security products which comply with the limits for a Class B device. For product-specific details, refer to the EU Declaration of Conformity.

Any interruption of the shielding inside or outside the equipment could make the equipment more prone to fail EMC requirements.

To ensure EMC compliance of the equipment, use shielded cables for all signal cables including Ethernet, such as CAT5E SF/UTP or better, as defined in ISO IEC 11801. For power cables, unshielded three wire cable (2p + PE) is acceptable Ensure that *all* electrically connected components are carefully earthed and protected against surges (high voltage transients caused by switching or lightning).

ESD
Electrostatic discharge (ESD) can damage or destroy electronic components. Proper precautions should be taken against ESD when opening the equipment.

[*] SELV: conforming to IEC 60950-1, <60 Vdc output, output voltage galvanically isolated from mains. All power supplies or power supply cabinets available from Siqura comply with these SELV requirements.

7. Product disposal

Recycling

The unit contains valuable materials which qualify for recycling. In the interest of protecting the natural environment, properly recycling the unit at the end of its service life is imperative.

8. EU Declaration of Conformity
The EU Declaration of Conformity for this product is available at http://www.tkhsecurity.com/support-files.