

PICO

Miniature optical video transmitter

USER MANUAL

1. General Description

PICO, an optical video baseband transmitter, converts an electrical composite video signal into an optical, intensity modulated equivalent, by means of AM techniques. It uses an optical wavelength of 850 nm and needs a multimode optical fiber link.

The PICO stand-alone transmitter is designed for use in combination with matching TKH Security optical receiver modules from the VBS 2000 series – that is, the VBS 2010/2020 single and triple receivers, respectively.

The units may be powered with TKH Security's PSA 12 DC power supply; for applications in harsh environments, a PSR 12 DC is recommended.

Other technical specifications are listed in section 3.

2. Installation and maintenance

The unit is intended to be fitted inside a camera housing, either straight onto the camera's output connector, or connected thereto by means of a short cable (available as an optional accessory).

The stripped power supply wire tips (red = positive terminal) can be soldered or clamped. Use the correct power supply voltage (see section 3, Technical Specifications). The negative terminal is also connected to the metal parts extending from the PICO.

In order to maintain reliable operation of the module, observe the following precautions:

- Prevent dust from collecting on the unit
- Protect the module against moisture.

If the output from an optical connection fed by this module is too low, check the optical link first.

Safety and EMC information is found in the final section of this document.

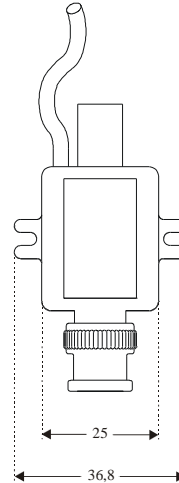


Figure 1a

PICO stand-alone transmitter with captive DC power supply cable. Note that the negative terminal is tied to external metal parts

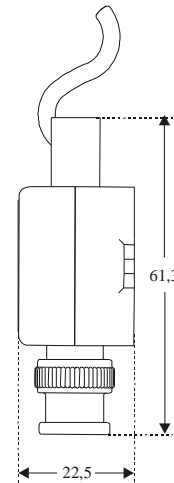


Figure 1b

PICO stand-alone transmitter (side view)

3. Technical specifications

Parameter	Value	
Optical		
Wavelength	850	nm
Source	LED	
Fiber type	MM (62.5 or 50 μm)	μm
Output level	>-21 ⁽²⁾	dBm
System link budget	13 ^(1,2)	dB
Video		
Video system	PAL/SECAM/NTSC	
Bandwidth (-3 dB)	10	MHz
Differential gain	<5	%
Differential phase	<5	°
SNR		
Short link	>60 ⁽¹⁾	dBw
Over opt. budget	>45 ⁽¹⁾	dBw
Input impedance	75	Ω
Input level	1 (±3 dB)	V _{pp}
Electrical		
Power supply voltage	11 to 25	Vdc
Power consumption	<1.5	W
Current	0.15	A
Environmental and Safety		
Operating temperature	-40 to +74	°C
Storage temperature	-55 to +85	°C
Relative humidity	<95 (no condensation)	%
MTBF	>100,000	hrs
Electrical safety	AL / IEC / EN 60950-1	
UL recognition file	E242498	
Laser safety	IEC 60825-1, IEC 60825-2	
EMC immunity	EN 55024, EN 50130-4, EN 61000-6-2	
EMC emission	EN 55022 (Class B) FCC 47 CFR 15 (Class B)	
Mechanical		
Dimensions (hwxwd)	23 x 26 x 60 (incl. conn.)	mm
Weight	50	g
Optical connector	ST	
Video connector	BNC 75 Ω	
Power supply wire Ø	0.2	mm
Power supply cable length	40	cm

¹ With matching VBS receivers

² For 50 μm fiber, subtract 4 dB

Table 1. Technical specifications of the PICO optical transmitter

4. 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.

Sigura 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. 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.

5. 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.

6. EU Declaration of Conformity

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

Accessory (not included):

- BNC coaxial extender cable, 10 cm