

VBS 2010 RX and VBS 2040 RX

Optical video baseband receivers

USER MANUAL

1. General description

The VBS 2010 RX and VBS 2040 RX optical video baseband receivers take video input in optical form from one optical fiber and convert this signal into the electrical equivalent. Stable operation is maintained with the aid of automatic gain control (AGC) and a video clamp circuit (DC restore). No adjustments are required for installation.

The VBS 2010 RX (compatible with 2010/2020 models) works with an optical wavelength of 850 nm and needs multimode optical cabling. The VBS 2040 RX (compatible with 2040/2050 models) receives at 1300 nm and may be connected to multimode or single-mode fiber. In the former case, a link attenuation of at least 10 dB is required.

Vital status information is provided by front panel LEDs. The VBS 2040 RX is also suited for remote supervision using a network management system.

These 7TE modules will slot into the backplanes of TKH Security MC 10 or MC 11 power cabinets, or can be supplied as stand-alone units (/SA option).

2. Indicators and connectors

Figure 1 shows the signal connection facilities and indicators on the front panel of VBS 2010/2040 RX single-channel receivers (see also table 1).

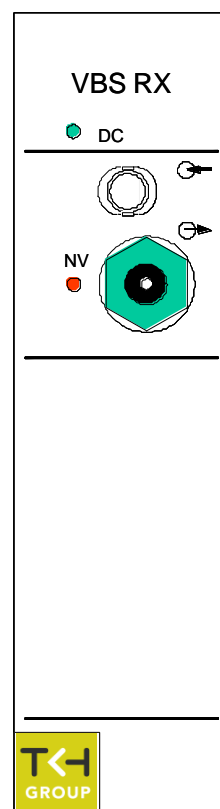


Figure 1.
Front panel of VBS 2010 and 2040 RX receivers



 (75 Ω BNC conn.)	video output
 (ST connector)	optical input
Status indicator LEDs	
* DC (green)	DC power supply
* NV (red)	no video at output

Table 1. Indications and connectors on the front panel of the VBS 2010/2040 RX

3. Installation instructions

1. Plug the modules into the power cabinet or connect the adapter to an appropriate power supply.
2. Connect optical fiber equipment and video equipment to the modules: optical cabling to the input and video cable to the output (see also figure 1 and table 1).
3. After switching on the cabinet, at least the green DC LED should glow.
4. Upon feeding the unit with a proper video signal through the optical link, the NV LED should go out.

4. Care and maintenance

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

- prevent dust from collecting on the equipment
- protect the equipment against moisture
- maintain sufficient free space around the equipment for cooling.

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

5. Technical specifications

	VBS 2010 RX	VBS 2040 RX	
Optical			
Wavelength	850	1300	nm
Fiber type	62.5 or 50	62.5 ⁽¹⁾ , 50 ⁽¹⁾ , 9	μm
Input range	-14 to -34	-22 to -41	dBm
Video			
Video format	PAL/SECAM/NTSC		
Output level (AGC)	1 ± 0.1		Vpp
Output impedance	75		Ω
Differential gain	<5		%
Differential phase	<5		°
SNR (weighted)	see figure 2		dB
Network management variables			
Voltages	n.a.	yes	
Module temperature	n.a.	yes	
Alarms	n.a.	yes	
Electrical			
Power consumption	1.7	1.9	W
Environmental			
Ambient temperature			
full performance	+5 to +45		°C
operating	-40 to +74		°C
Relative humidity	<95 (no condensation)		%
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			
Optical connector	ST		
Video connector	BNC		
Outer dimensions	128 x 35 x 190		mm
Weight (approx.)	450		g

⁽¹⁾ Certain restrictions apply, see section 1.

Table 2. Technical specifications of VBS 2010 & 2040RX

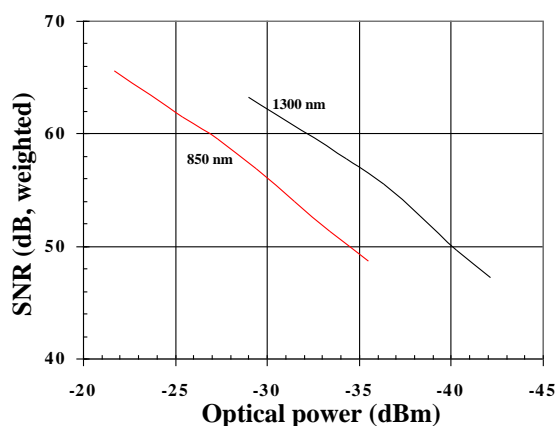


Figure 2. Typical signal to noise ratio as a function of optical power in VBS 2010/2020/2040 systems: with 850 nm/50 μm fiber and 1300 nm/9 μm fiber.

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.

Siquira 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, <60Vdc 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>