VBS 2050 RX-3

Triple optical video receiver

USER MANUAL

1. General description

The VBS 2050 RX-3 plug-in module contains three identical optical video baseband receivers. Optical input to each of these separate analogue receivers is converted into the electrical video equivalent. Signal integrity is preserved with the aid of automatic gain control and video clamping, making installation and operation adjustment-free. The units receive at an optical wavelength of 1300 nm and may be connected to single-mode optical fiber.
Vital status information is provided by front panel LEDs and is also made available for remote supervision using a network management system.
The 7TE modules will slot into the backplanes of TKH Security's MC 10 or MC 11 power supply cabinets. For network facilities, the EB versions of these cabinets are needed.
VBS 2050 RX-3 receivers are suitable for use in combination with ADV transmitters/receivers, allowing inclusion of two independent streams of digital data and/or high quality audio in each video signal.

2. Indicators and connectors

Figure 1 shows the signal connection facilities and indicators on the front panel of a VBS 2050 RX-3 receiver module (see also table 1).

, 3x	video output (75 Ω BNC conn.)
, 3x	optical input (ST connector)
Status indicator LEDs	
* **DC**	DC power supply
* **NV**, 3x	no video at output

Table 1. Indications and connectors on the front panel of the VBS 2050 RX-3

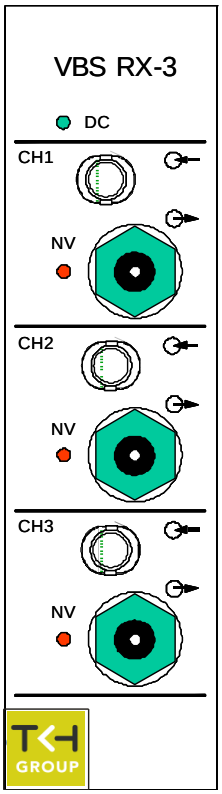

Figure 1. VBS 2050 RX-3 front panel layout

3. Installation instructions

1. VBS 2050 RX-3 units should always be used in combination with TKH Security power supply cabinets.
2. Plug the module into the power cabinet and connect suitable video and optical fiber equipment to the modules.
3. After switching on the cabinet, at least the green DC LED should glow.
4. Upon feeding an optical RX-3 input with a proper signal, the corresponding NV LED (red) should go out. *If this is not the case, check the optical link first.*

4. Care and maintenance

For 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

The technical specifications of the VBS 2050 RX-3 are given in table 2 below.

Optical		
Number of receivers	3	
Wavelength	1300	nm
Fiber type	9	µm
Minimum input level	-40	dBm
Power budget	12[1)]	dB
Distance, SM	24	km
Video		
Number of outputs	3	
Video format	PAL/SECAM/NTSC	
Output signal	1	Vpp
Output impedance	75	Ω
Differential gain	<5	%
Differential phase	<5	°
Bandwidth (-3dB)	10	MHz
SNR (weighted)	see figure 2	
Video management parameters		
Voltages		
Module temperature		
Alarm status		
Electrical		
Power consumption	6	W
Environmental		
Temperature range		
full performance	+5 to +45	°C
operating temperature	-40 to +74	°C
Relative humidity	≤95 (no cond.)	%
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 connectors	ST	
Video connectors	BNC 75Ω	
Dimensions	128 x 35 x 190	mm
Weight (approx.)	0.450	kg

1) With transmitters VBS 2050 TX, SM, SNR ≥45 dB

Table 2. Technical specifications of the VBS 2050 RX-3

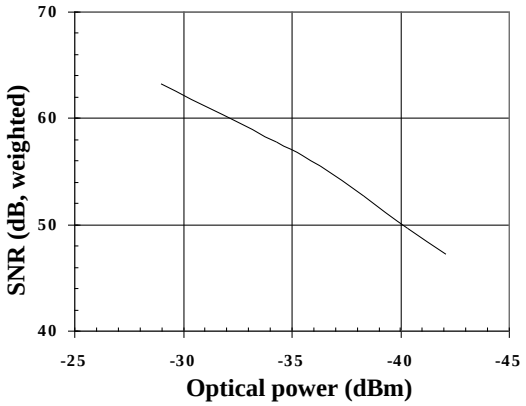

Figure 2.
VBS 2050 RX-3 signal to noise ratio as a function of optical power received (9 µm fiber).

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.

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.

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