



1U SHELF TYPE VDM-1

**AVDM TYPE MODULE INTENDED TO
CONVERT SERIAL INTO E1**



PRELIMINARY DESCRIPTION

Rev. 0.3 - January 2018

ZIV
Antonio Machado,78-80
08840 Viladecans, Barcelona-Spain

Tel.: +34 933 490 700
Fax: +34 933 492 258
Mail to: ziv@zivautomation.com

www.zivautomation.com



TABLE OF CONTENTS

	Page
1 DESCRIPTION	3
1.1 PRODUCT OVERVIEW	3
1.2 CONSTITUTION OF THE EQUIPMENT	3
1.3 TECHNICAL CHARACTERISTICS	5
1.3.1 Line interface	5
1.3.2 V.24 data interface	6
1.3.3 Other characteristics	7
1.3.4 Operating and storage conditions	9
1.3.5 Mechanical characteristics	10
1.3.6 Management System	10

1 DESCRIPTION

1.1 PRODUCT OVERVIEW

The VDM-1 shelf made up of an AVDM module is a converter intended for the transmission of a V.24 telecontrol channel (from 50 up to 19200 bit/s) through an SDH channel (2 Mbit/s codirectional G.703 interface).

The VDM-1 is equipped with test devices for a rapid operational check. These devices make it possible to carry out loops and to generate test signals, which allow an ETD to be emulated.

VDM-1 terminals can be fully programmed, monitored and managed from a PC running a standard Web browser, without requiring any additional software. The PC is connected to the VDM-1 equipment via 10/100Base-Tx interface.

The AVDM module can be inserted in a MDD-3 shelf that is six standard units (s.u.) in height and 19" in width, allowing up to 14 AVDM modules to be installed.

1.2 CONSTITUTION OF THE EQUIPMENT

The VDM-1 consists of a shelf that is one standard unit (s.u.) in height and 19" in width, prepared for rack mounting.

The AVDM module, incorporated in the shelf, is formed by a single-printed circuit board including the power-supply circuit and all the elements necessary to convert a V.24 port into a 2 Mbit/s G.703 output. The AVDM module has also a web server that integrates all the HTML pages necessary to carry out the equipment management.

The elements for external connection are located at the rear of the shelf. These elements are internally connected to the AVDM module by means of the WVDM back plane.

In order to simplify the commissioning, the front plate of the VDM-1 includes the following features:

- the optical indication of activity in the TD and RD signals of the V.24 interface and the line G.703 interface,
- the optical indication of the control signals of the V.24 interface,
- loop and test selection,
- the optical indication when a test or loop has been carried out,
- the optical indication of the general alarm, local and remote
- the reset button of the equipment,
- the connector for the 10/100Base-Tx LAN interface and the optical indication of the state of the network interface.

1.3 TECHNICAL CHARACTERISTICS

1.3.1 Line interface

Transmission rate	2 Mbit/s. 2 frame slots for rates lower than 9600 bit/s (slots 1 and 2). 3 frame slots for rates equal or higher than 9600 bit/s (slots 1 and 3). NOTE: The 2 Mbit/s frame uses slot 0 for synchronism
Data transmission	Duplex
Internal-oscillator stability	± 25 ppm
Transmission clock	Selectable internal or recovered from received data
Synchronism	Codirectional clock
Output impedance	75 Ω
Input impedance	75 Ω
Maximum line attenuation	6 dB at 1024 kHz
Connector type	BNC (Coaxial type DIN 1.5/5.6)
Frame structure	Selectable from the Management System between multiframe (value by default) or basic frame. The multiframe is in accordance with ITU-T G.704 Recommendation
Electrical characteristics and line coding	In accordance with ITU-T G.703 Recommendation
Phase-fluctuation tolerance	In accordance with ITU-T G.823 Recommendation

1.3.2 V.24 data interface

Transmission rate	Programmable between 50 ⁽¹⁾ , 100, 200, 600, 1200, 2400, 4800, 9600 or 19200 bit/s.
Operation mode	In accordance with ITU-T V.24 Recommendation. Available signals: TD, RD, RTS, CTS, RLSD-carrier detection (CD) and DSR. Selection of RTS-signal activation: permanently or according to interface
Data format	Binary, serial. Asynchronous. 1, 1.5 or 2 stop bits. From 5 to 8 data bits. Parity: even, odd, none, <i>mark</i> or <i>space</i> ⁽²⁾
Impedance levels	In accordance with ITU-T V.28 Recommendation
RTS-CTS delay	Selectable by means of internal microswitches in the following way: Rates of 50 ⁽¹⁾ , 100 and 200 bit/s: 0, 30, 60, 90, 120, 150, 180 and 210 ms Rates of 600, 1200, 2400, 4800, 9600 and 19200 bit/s: 0, 10, 20, 30, 40, 50, 60 and 70 ms Configurable from the Management System from 0 to 1000 ms, in 1 ms steps
Connector type	25-pin SUB-D in DCE configuration
Protection against electrostatic charges	IEC 870-2-1 level 4

⁽¹⁾ 50 bit/s rate can only be configured from the Management System.

⁽²⁾ *space* parity can only be configured from the Management System.

1.3.3 Other characteristics

Signalling

By optical indication

- Indication of activity in the TD and RD signals of the V.24 interface and the line G.703 interface.
- State of the control signals of the V.24 interface.
- Carrying out of some type of test.
- Carrying out of line and data loops.
- State of the network interface.
- Local⁽³⁾ and remote⁽⁴⁾ general alarm.

By relay

- Local⁽⁵⁾ general alarm

Characteristics of the general alarm signalling relay

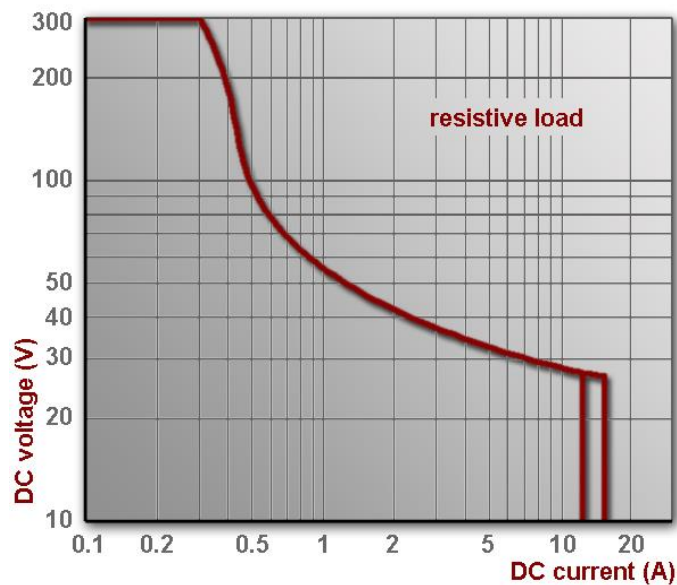
Type	Voltage-free changeover contact
Connector type	Aerial female for 2.5 mm ² flexible and rigid conductors
Changeover maximum current	3 A
Changeover maximum voltage	250 V _{AC} , 150 V _{DC}
Changeover maximum power	See Figure 1
Insulation voltage	IEC 870-2-1 class 2
Impulse voltage	IEC 870-2-1 class 2

⁽³⁾ It lights up when one of the following alarms is produced: Built-in autocheck failure, RTC failure, Incorrect identification code (ID), Data link failure, LFA (Loss of Frame Alignment), LOS (Loss Of Signal), AIS (Alarm Indication Signal) and BER>10⁻⁵.

⁽⁴⁾ It lights up when one of the following alarms is produced: Built-in autocheck failure, RTC failure, Incorrect identification code (ID), Data link failure, LFA (Loss of Frame Alignment), LOS (Loss Of Signal) and AIS (Alarm Indication Signal). The information comes through the bit of the frame associated with RAI (Remote Alarm Indication).

⁽⁵⁾ Relay activation conditions are established by programming.

Max. DC load breaking capacity



NOTE: 2A is the maximum current

Figure 1 DC voltage/DC current

Test devices

- Line loop (local and remote)
- Data loop (local and remote)
- Permanent sending of test signals, logical level "0" or "1" (to port V.24)
- Permanent sending of a fixed 8-bit pattern, configurable by the user. By default, **10100110** (to line).
- Sending of AIS (all "1").

The selection is carried out by means of internal microswitches (except for the last two) or from the Management System

Receiver blocking

Data reception is blocked due to CD-signal loss, synchronism error or 2 Mbit/s frame failure.

Capacity of chronological register

1000 alarms and events

Internal clock

Frequency stability within specified temperature and voltage ranges $\pm 25\text{ppm}$

Ageing $< 5\text{ppm/year}$

1.3.4 Operating and storage conditions**Temperature and humidity**

From $-5\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$ and relative humidity not greater than 95%, in accordance with IEC 721-3-3 class 3K5 (climatogram 3K5)

Power supply

Nominal input voltage $48\text{ V}_{\text{DC}} \pm 20\%$

Connector type Aerial female for 2.5 mm^2 flexible and rigid conductors

Insulation voltage IEC 870-2-1 class 2

Impulse voltage IEC 870-2-1 class 3 (1.2/50 μs)

Fast transient bursts IEC 870-2-1 class 3

Electrostatic discharges IEC 870-2-1 class 3

Damped oscillatory waves IEC 870-2-1 class 2

Protection against polarity inversion Permanent by series diode

Consumption 9.6 W

Protection against overvoltages By fuse of 1 A/250 V

Storage conditions In accordance with IEC 721-3-1, class 1K5

1.3.5 Mechanical characteristics

Dimensions	19" (482 mm) in width and one standard unit in height (44 mm). Depth: 334 mm
Weight	3.4 kg
External connection	By connectors at the rear of the equipment. The LAN interface connector is located on the front plate

1.3.6 Management System

Terminal management interface

10/100Base-Tx LAN interface

Type of interface	IEEE 802.3 (CSMA/CD)
Connector	8-pin RJ-45 female
Type of cable	UTP-5
Transmission rate	10 or 100 Mbit/s

Management computer

Type	Compatible personal computer (PC)
Model	Pentium III 350 MHz processor or higher
RAM memory	512 MBytes
Graphic adapter	1 Mbyte SVGA
Communication	LAN module with 10/100Base-Tx interface
Operating system	Microsoft Windows 2000 or Microsoft Windows XP
Web browser	Microsoft Internet Explorer v 5.5 or higher
JAVA virtual machine (Sun Microsystems)	Version 1.6 or higher

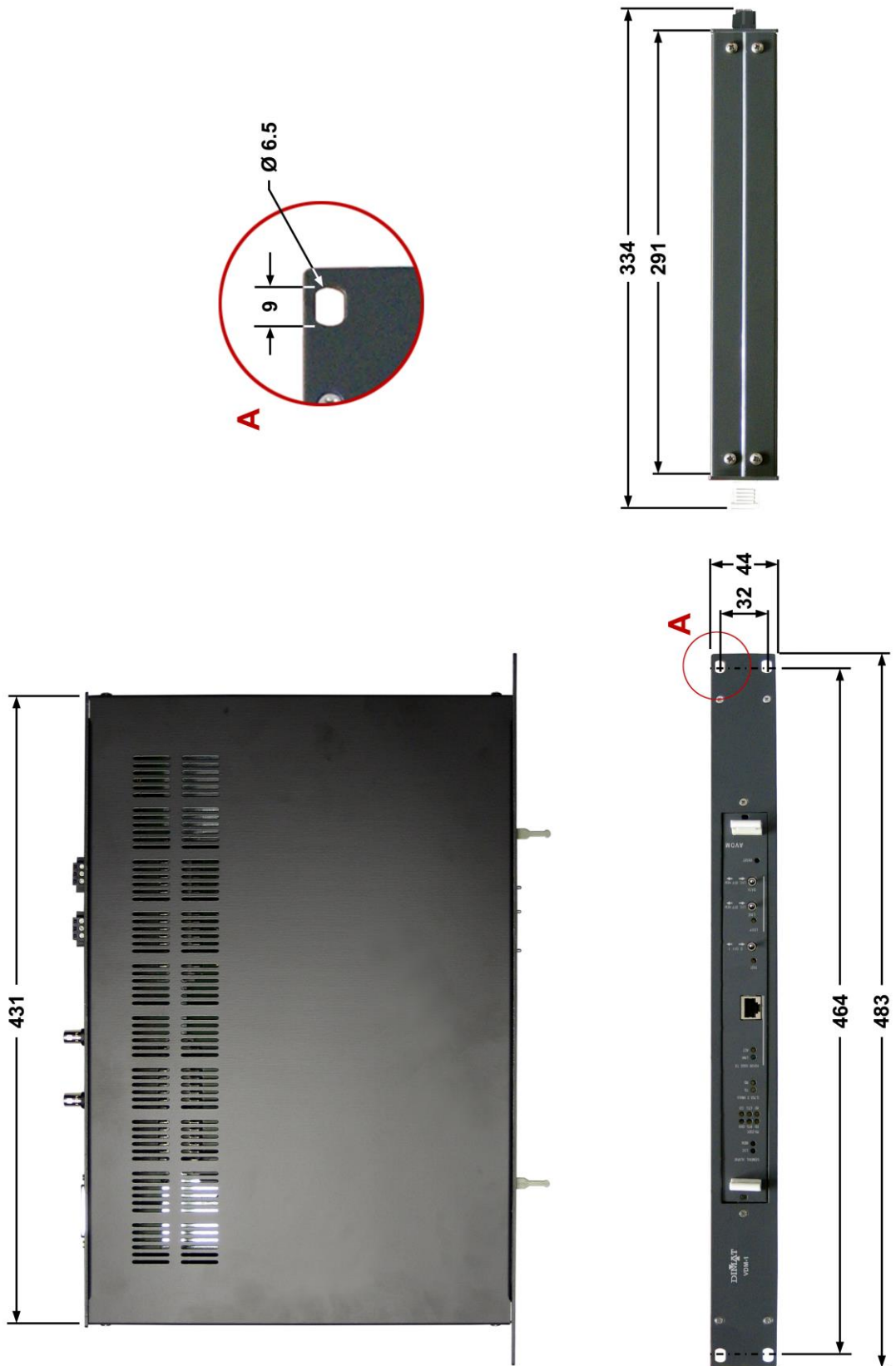


Figure 2 VDM-1 overall dimensions



Figure 3 VDM-1 front view



Figure 4 VDM-1 rear view



Figure 5 AVDM module front view

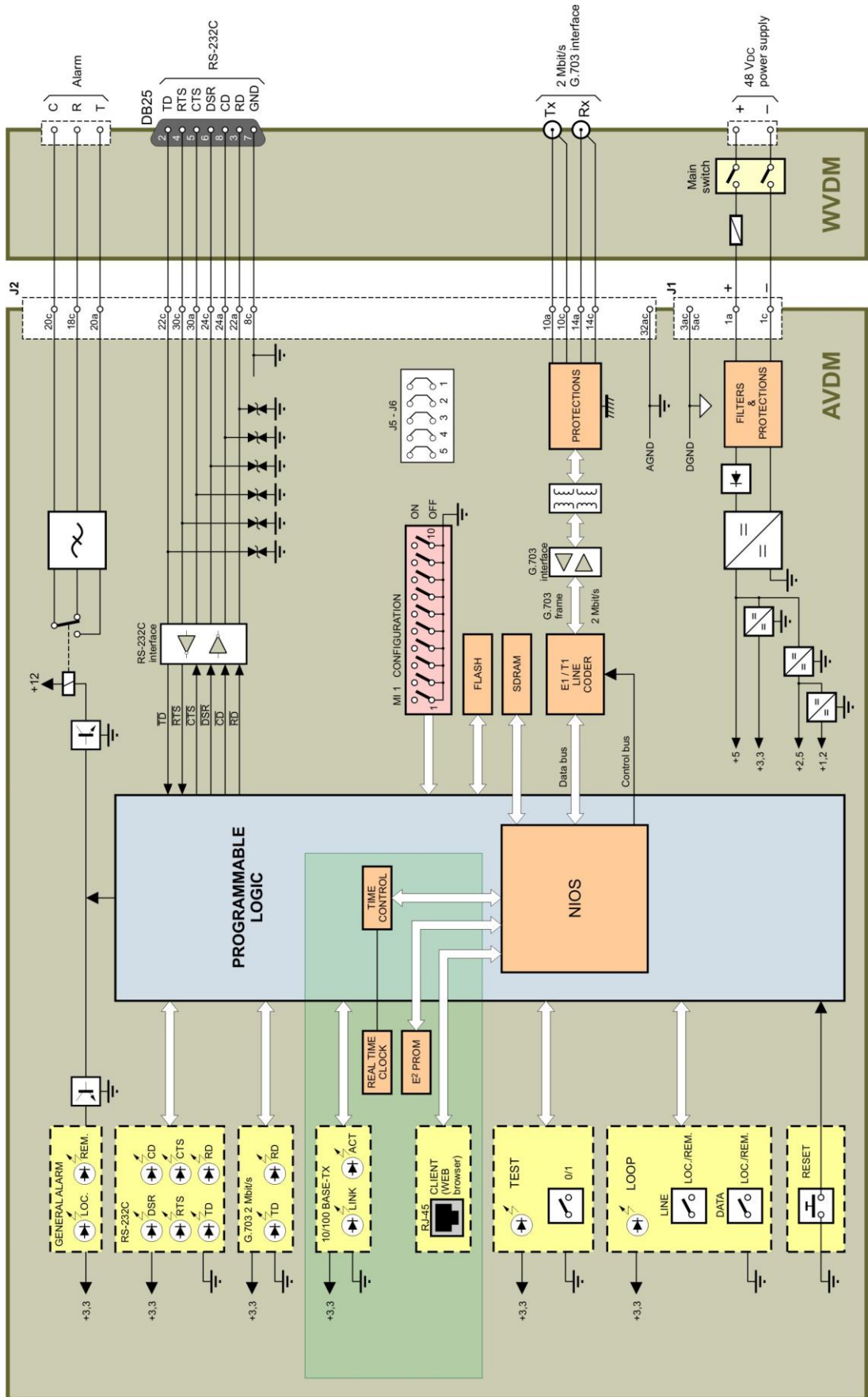


Figure 6 VDM-1 block diagram