ViewZ®

Driving Visual Innovation

VZ-MV802

MULTIVIEWER SYSTEM

HARDWARE MANUAL

VERSION 1.0

Dated Dec. 21, 2018

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COMPLIANCE INFORMATION

The ViewZ equipment has been tested to comply with the following.

- FCC - Class A
  This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his / her own expense.
- CE
- C-Tick
- RoHS

WARRANTY STATEMENT

ViewZ warrants to the original purchaser of the products manufactured by ViewZ (the "Product,") will be free from defects in material and workmanship for a period of three (3) year from the date of shipment of the Product to the purchaser.

If the Product proves to be defective during the three (3) year warranty period, the purchaser's exclusive remedy and ViewZ's sole obligation under this warranty is expressly limited, at ViewZ's sole option, to:

(a) repair the defective Product without charge for parts and labor or
(b) provide a replacement in exchange for the defective Product or
(c) if after a reasonable time, is unable to correct the defect or provide a replacement Product in good working order

then the purchaser shall be entitled to recover damages subject to the limitation of liability set forth below.

Limitation of Liability

ViewZ's liability under this warranty shall not exceed the purchase price paid for the defective product. In no event shall ViewZ be liable for any incidental, special or consequential damages, including without limitation, loss of profits for any breach of this warranty.

If ViewZ replaces the defective Product with a replacement Product as provided under the terms of this Warranty, in no event will the term of the warranty on the replacement Product exceed the number of months remaining on the warranty covering the defective Product.

Equipment manufactured by other suppliers and supplied by ViewZ carries the respective manufacturer's warranty. ViewZ assumes no warranty responsibility either expressed or implied for equipment manufactured by others and supplied by ViewZ.
This hardware warranty shall not apply to any defect, failure or damage:

a) Caused by improper use of the Product or inadequate maintenance and care of the Product;
b) Resulting from attempts by those other than ViewZ representatives to install, repair, or service the Product;
c) Caused by installation of the Product in a hostile operating environment or connection of the Product to incompatible equipment; or
d) Caused by the modification of the Product or integration with other products when the effect of such modification or integration increases the time or difficulties of servicing the Product. Any Product which fails under conditions other than those specifically covered by the Hardware Warranty, will be repaired at the price of parts and labor in effect at the time of repair. Such repairs are warranted for a period of ninety (90) days from date of reshipment to customer.

Extended Warranty Options

ViewZ offers *OPTIONAL* Extended Warranty plans that provide continuous coverage for the Product after the expiration of the Warranty Period. Please contact an ViewZ sales representative for details on the options that are available for your ViewZ equipment.

Services and Repairs outside the Warranty Period

ViewZ makes its best offer to repair products that are outside the warranty period, provided the product has not reached its end of life.

Disclaimer

Use of this product is limited to the intended design purpose. Any damage caused by use other than the design purpose will void the above warranty.

Operating Environment

ViewZ VZ-MV802 Multiviewers should be operated in an environment that is safe for sensitive electronic equipment. It should not be placed in hot, dusty, or humid locations without adequate cooling, filtration, or ventilation.

INTRODUCTION TO VZ-MV802 MULTIVIEWERS

The ViewZ VZ-MV802 Multiviewer platform displays multiple auto-detecting video inputs at different formats on a high resolution display up to resolutions of 2048x1080. The VZ-MV802 Platform combines the display of video windows, audio meters, label/UMD, tallies, alarms and indicators in a very space efficient package.

HARDWARE

The ViewZ VZ-MVxxx Multiviewer Platform consists of 2 different sizes of mechanical frames to serve the needs of broadcast, professional AV and surveillance markets. Each multiviewer frame has a unique IP address, which allows a PC/laptop to easily connect and configure the display layouts.

VZ-MVxxx PLATFORM PRODUCT LINE

Two types of mechanical frames are available for the VZ-MVxxx family:

1. **VZ-MV802:** The 1 RU VZ-MV802 accepts 8 video inputs including from HDMI*, DVI or VGA. The VZ-MV802 has two flexible DVI/HDMI (1.2/1.3) with user selectable resolutions up to 2048x1080. Analog or AES audio options can be added at any time during or after the purchase.

*Flexible Outputs – VZ-MV802 examples: **OPTIONS*

Output(s)		
	1	**2**
Inputs	4	4
Inputs	8	

2. **VZ-MV1604:** The 2 RU VZ-MV1604 accepts 16 video inputs including HDMI*, DVI or VGA. The VZ-MV1604 has four flexible DVI/HDMI (1.2/1.3) with user selectable resolutions up to 2048x1080. Analog or AES audio options can be added at any time during or after the purchase.

*Flexible Outputs –VZ-MV1604 examples: **OPTIONS*

Output(s)				
	1	**2**	**3**	**4**
Inputs	4	4	4	4
Inputs	4	4	8	
Inputs	8		8	
Inputs	12			4
Inputs	16			

TECHNICAL SPECIFICATIONS

- Auto detect HD-SD/SDI/CV 50/60Hz (available formats depends on the model)
- Auto detect HDMI/DVI/VGA/CV/YC/component (available formats depends on the model)
- Output resolution up to 2048x1080 (720x480 – 2048x1080)
- Digital and Analog clocks can be synchronized with NTP or LTC (time code)
- Up to 30 presets for display layout
- Presets can be recalled via GPI, front panel buttons or ASCII protocol via network or serial
- On Screen Display (OSD) for labels, border and alarms can be customizable via iSkin® with industry standard graphical tools
- Auto-detect aspect ratio between 16x9 and 4x3
- Communication interface via IP or RS232
- Supports ViewZ eXtended Protocol (AXP)
- Supports direct TSL tally/UMD interface
- Supports multiple languages (including 2 byte characters)
- Supports SDI output (optional)

Table 1: Serial Video input (OPTION)

Standards	Upgradeable to 3Gb/s (SMPTE 424M) HD-SDI (SMPTE 292M) SD-SDI (SMPTE 259M-C) PAL/NTSC
Connector	BNC
Equalization	Automatic to 140m (Belden 1694A)
Return Loss	15db up to 270mb/s
Embedded Audio	SMPTE 272-A

Table 2: Video Formats supported

480i	720p/30	1080p/23.98	2048x1080p/23.98
480p	720p/50	1080p/24	2048x1080p/24
576i	720p/59.94	1080p/25	
576p	720p/60	1080p/29.97	
720p/23.98	1035i/59.94	1080p/30	
720p/24	1035i/60	1080sf/23.98	
720p/25	1080i/50	1080sf/24	
720p/29.97	1080i/59.94	1080sf/30	

Table 3: Computer Formats supported (50/ 60Hz)

720x480	852x480	1024x768	1280x768
800x600	1280x960	1280x1024	1360x768
1280x800	1400x900	1400x1050	1600x1200
1366x768	1920x1080	1920x1200	1680x1050

Table 4: Audio input

Type	Default	Option
AES	75 Q unbalanced via BNC	110 Q balanced via XLR
Analog Stereo	Unbalanced via BNC	balanced via XLR

Table 5: Display Output

Standards	HDMI 1.3 up to 2048x1080, SDI*
Connector	HDMI
Impedance	100Q, 75Q

**OPTION*

Table 6: Audio Outputs

Type	Number/type/connector	Location	Adjustment
AES	1 / unbalanced / BNC	Rear Panel	None, Line Level
Stereo Analog	1 / unbalanced / phone jack	Rear Panel	None, Line Level
Stereo Analog	1 / unbalanced / phone jack	Front Panel	Front Panel knob

Table 7: Output Resolution (50 and 60Hz)

720x480	852x480	1024x768	1280x768
800x600	1280x960	1280x1024	1360x768
1280x800	1400x1050	1600x1200	1680x1050
1366x768	1920x1080	1920x1200	2048x1080

TabLE-8: General Purpose Interface I/ O

Number	On VPM	On CPM
Inputs	8, assignable to input or output	8, assignable to input or output
Outputs	8, assignable to input or output	8, assignable to input or output
Connector	DB9	RJ50 to DB9

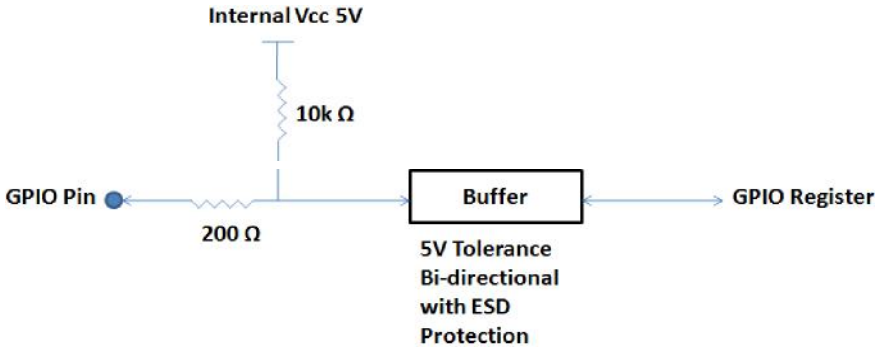


Figure 1: GPI/O Electrical Characteristics

Table 9: Serial Port

Number of Ports	1 x RS232
Adapter	RS232 to RS422 or RS485 (optional)
Connector	RJ45
Baud Rate	Up to 115200
UMD support	Native to TSL and TSI, other third party protocols

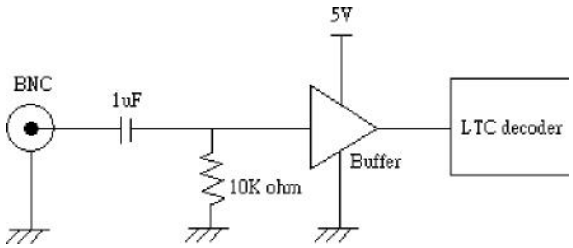
Table 10: Ethernet

Network Type	Fast Ethernet 100 Base-TX
Connector	RJ45
Cable	Auto-detect. Either straight or crossed cable will work
UMD support	Native to TSL and TSI, other third party protocols

*UIM – Universal Interface Module. The UIM is a small footprint router protocol translator that acts s a bridge between the VZ-MV802 platform of multiviewers and other third party router, tally and UMD protocols. The UIM can support third-party TCP/IP, UDP as well as serial protocols. The UIM can also act as an SNMP agent for the ViewZ VZ-MV802 multiviewers.

Table 11: Timecode

Timecode	LTC
Connector	BNC



Physical Specifications

Size	H: 1.75 in (4.45 cm, 1RU)), W: 18 in (21.6 cm), D: 13 in (33 cm)
Rack installation	Standard 19-inch equipment rack.
Weight	12 lbs. (2.8kg)
Power	90/250 VAC, 60/50Hz, 100 W, internal auto switchable
Noise Level	Maximum 38dB. VZ-MV802 has temperature sensor to regulate fan speed, actual noise level may be much lower

Figure 2 - 3 shows the front and back panels of the VZ-M802

Figure 2: VZ-MV802 front panel view

Front Panel indicators, connectors and buttons are:

1. Signal presence LED
2. Power supply status
3. Audio volume adjustment
4. Audio phone jack output
5. Paging mode
6. Buttons to recall presets

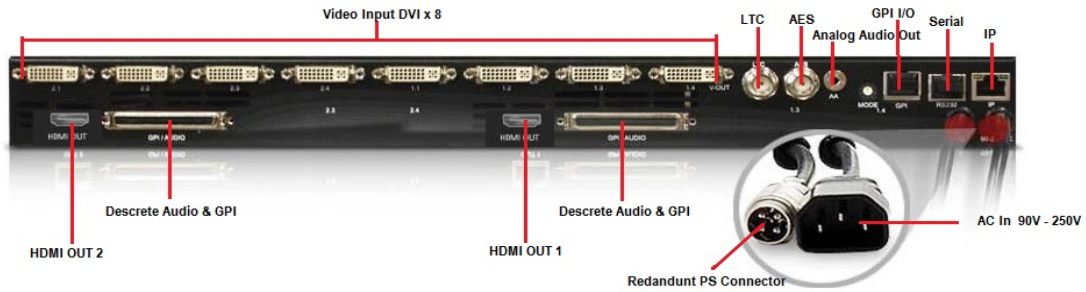


Figure 3: VZ-MV802 rear panel view

Rear Panel indicators, connectors and buttons are:

1. For HDMI output up to 2048x1080 @30ft (10 meters).
2. DVI-I's: Input for video (auto-detect HDMI (with adapter), DVI, VGA (with adapter).
3. BNC's: HD/SD-SDI, and 3G HD-SDI (option)
4. BNC: LTC input to sync on screen clocks
5. BNC: Line level AES audio monitor output*
6. Rotary Switch: Reserved for future use
7. RJ50: GPI/O for control, alarm and tally
8. RJ45: RS232 serial
9. RJ45: IP control
10. SCSI connector: for discrete audio and GPI/O
11. Phone Jack: Line level stereo audio monitor output*
12. Redundant DC Power 12V
13. AC Power – 90 to 250 50/60Hz

*Audio monitoring is available in line level in stereo and AES

What's in the box

	Accessories / Models	VZ-MV802
1	Hardware	1
2	Power Cord (North America Only)	1
3	VGA to DVI-I Adaptor	8
4	RJ-50-DVI Adapter RJ-50HDMI	2 1
5	DC Redundant Power Supply	1
6	I/O	2
7	SCSI-DB9 GPI/Audio Cable RJ45-DB9 RS232 Cable RJ50-DB9 GPI I/O Cable	2 1 1
8	CD - VZ Commander, User Manual	1

INSTALLATION

Mechanical Installation:
VZ-MV802 can be installed in a standard 19” rack using the proper screws and washers (not included). VZ-MV802 modules are shipped with rack ear. These accessories are not installed to ensure proper shipment. First locate them in the accessories box and then install them.

Note: For proper ventilation, make sure the side panel air vents are not blocked.

Figure 4: Rack mount and airflow for VZ-MV802 frames

Power Connection:

Connect the AC power cord to the rear panel AC receptacle-. The VZ-MV802 - includes a Universal power supply for 90V to 250V operation, and DC redundant power supply

OPERATION

Powering Up

There is no power switch on the VZ-MV802 Multiviewer. Plugging in the power cord will turn on the Multiviewer. Unplugging the power cord will turn off the Multiviewer.

Connection / Indicator / Button Descriptions

- 8 DVI-I connectors for auto-detect high resolution inputs
- 16 embedded audio meters per SDI inputs
- 8 GPI/O on the control board for alarms and recalling presets
- 8 GPI/O on the video processing board for tally, alarm and recalling presets
- 1 Ethernet connection for control and configuration
- 1 RJ45 input for serial connection
- 1 BNC for AES audio output for monitoring
- 1 phone jack on the rear panel for line Level analog audio monitoring
- 1 phone jack on the front panel with volume control for audio monitoring
- 1 BNC for LTC input
- 2 HDMI(1.2/1.3) outputs
- Temperature sensor to control fan speed
- LED for input status (present/absent). One LED per input
- 5 buttons on the front panel to recall presets

Optional Hardware

- Unbalanced Analog audio inputs (16 inputs per video processing card)
- Unbalanced AES audio inputs(8 inputs per video processing card)
- Balanced Analog audio inputs (16 inputs per video processing card)
- Balanced AES audio inputs(8 inputs per video processing card)
- RJ45 to VGA Receive

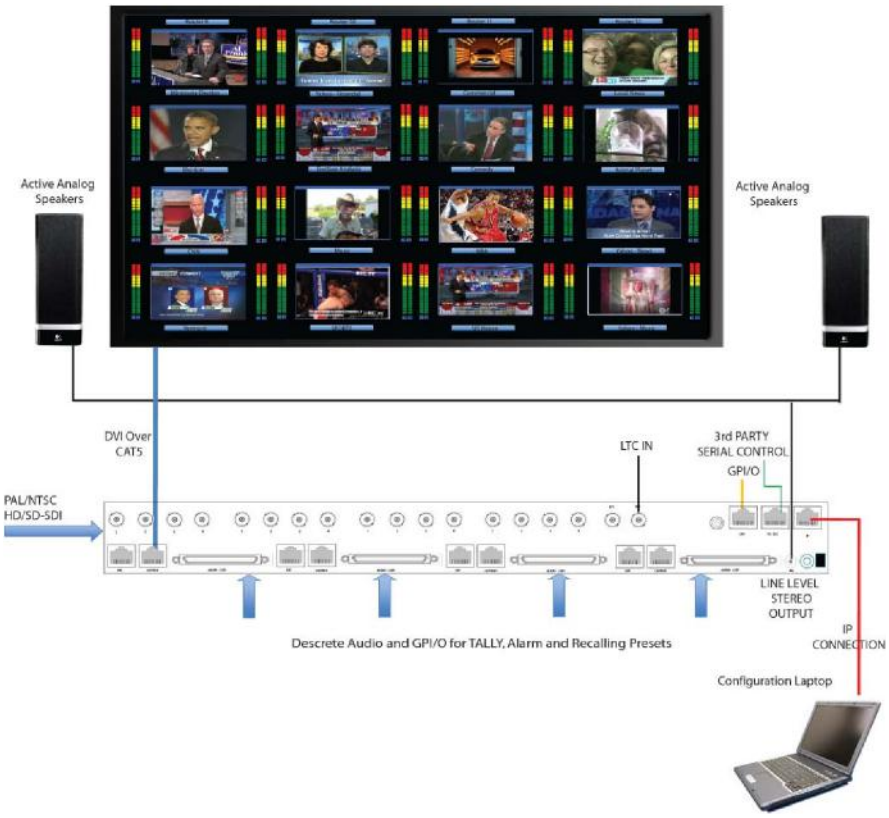


Figure 5: VZ-MV1604 setup with a single output (16 windows), displaying analog and digital clocks with standalone labels and audio meters

APPENDIX A: CONNECTORS

BNC Inputs:

- 4 X BNC Connector (option)
- Auto Detection for SDI and CVBS signal

Figure 6: 75 ohm BNC Connector

- SCSI Connector for Audio and GPI/O
- 8 GPIO
- 8 AES
- 16 Analog audio
- Others are Grounds
- TOTAL 68 PINS

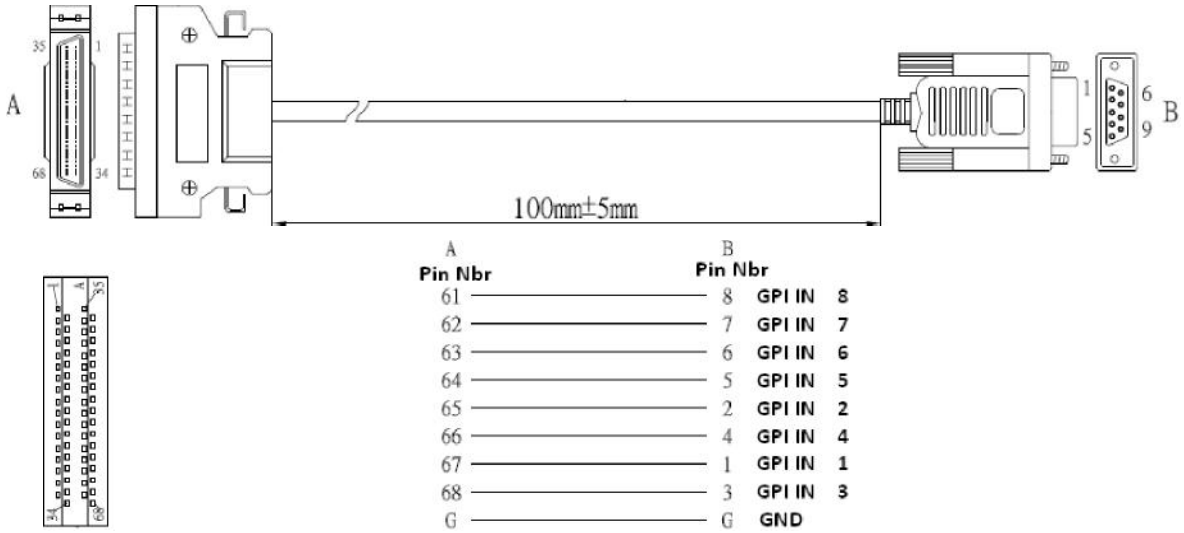
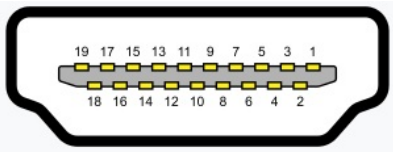


Figure 6: 68 pin SCSI Connector

Pin #	17	18	35	36	37	38	39	40	41	42
Function	AA #12	AES#4	AA #08	AA #07	AA #03	AA #04	AA #02	AA #14	AA #01	AA #13
43	44	45	46	47	48	51	52	53	55	56
AA #05	AA #09	AA #06	AA #16	AA #10	AA #15	AES #5	AES #11	AES #1	AES #06	AES #03
57	58	59	60	61	62	63	64	65	66	67
AES #2	AES #7	MOD E A	MOD E B	GPIO #08	GPIO #07	GPIO #06	GPIO #05	GPIO #02	GPIO #04	GPIO #1
68										
GPIO #3										

HDMI Output Connector:



HDMI type A receptacle (female)

Pin 1	TMDS Data2+
Pin 2	TMDS Data2 Shield
Pin 3	TMDS Data2−
Pin 4	TMDS Data1+
Pin 5	TMDS Data1 Shield
Pin 6	TMDS Data1−
Pin 7	TMDS Data0+
Pin 8	TMDS Data0 Shield
Pin 9	TMDS Data0−
Pin 10	TMDS Clock+
Pin 11	TMDS Clock Shield
Pin 12	TMDS Clock−
Pin 13	CEC
Pin 14	Reserved (HDMI 1.0–1.3a) Utility/HEAC+ (HDMI 1.4+, optional, HDMI Ethernet Channel and Audio Return Channel)
Pin 15	SCL (I²C serial clock for DDC)
Pin 16	SDA (I²C serial data for DDC)
Pin 17	Ground (for DDC, CEC, ARC, and HEC)
Pin 18	+5 V (min. 0.055 A)[3]
Pin 19	Hot Plug Detect (all versions) HEAC− (HDMI 1.4+, optional, HDMI Ethernet Channel and Audio Return Channel)

HDMI Input Connector

Pin #	1	2	3	4	5	6	7	8
Function	Clk+	Clk-	Data 2+	Data 1-	Data 1+	Data 2-	Data 0+	Data 0-

RS232 RJ45 Connector:

- 1 pin for Tx
- 1 pin for Rx
- 3 pins for 5V power
- 3 pins for GND

Pin #	1	2	3	4	5	6	7	8
Function	5V	GND	Tx	GND	Rx	GND	5v	5v

GPI I/O:

- RJ-50 defined GPI I/O
- 8 pins GPI I/O
- 1 power alarm
- 1 GND

Pin #	1	2	3	4	5	6	7	8	9	10
Function	GPI I/O #1	GPI I/O #2	GPI I/O #3	GP I I/O	GPI I/O #5	GPI I/O #6	GP I I/O	GP I I/O	Power Alarm	GND

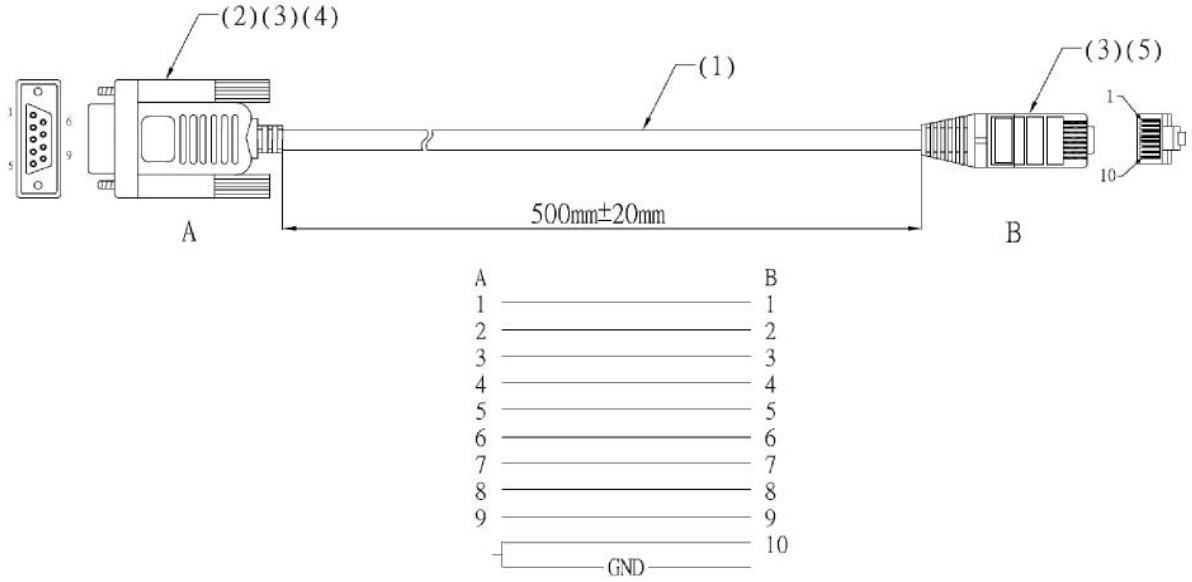


Figure 8: RJ50 to DB9 cable

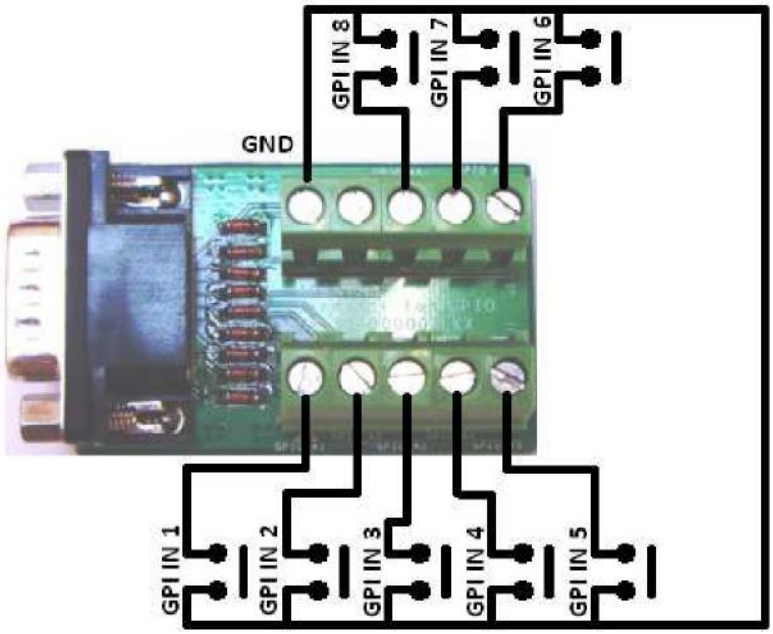


Figure 9: GPI-IN Wiring diagram. Connect this terminal block to the RJ50 to DB9 cable shown in Figure 10.

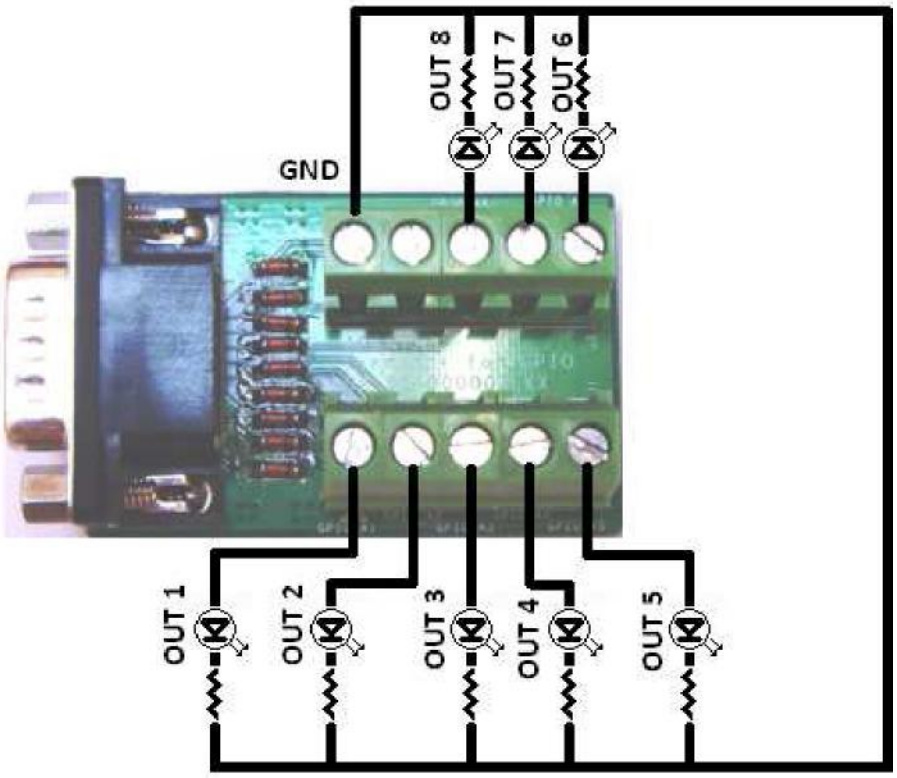


Figure 10: GPI-OUT Wiring diagram. Connect this terminal block to the RJ50 to DB9 cable shown in Figure 10. Note: All LED are standard LED's, all resistors are 150 ohms

APPENDIX B: REDUNDANT POWER SUPPLIES

- Input: Universal 100-240 VAC / 47-63 HZ input, without any slide switcher output: 12V / 0~5A
- Case Dimension: 120L X 60W X 38 H MM
- Efficiency: 78% is typical
- Safety: UL/CUL/GS/PSE/BSMI
- EMI: FCC/CE Class B, conduction and radiation has been met.
- High frequency design, less power consumption
- CEC law (energy efficiency) has been met
- Over voltage protection, short circuit protection

Input:

Voltage	Range: Universal 100-200 VAC, single- phase Nominal: 100–120 VAC / 200-24-VAC
Frequency	47 – 63Hz
Current	1.5A Max
Inrush Current	30A Max/100VAC; 60A Max / 240VAC
Efficiency	78% minimum 9At normal line voltage, full Load)

DC Output:

Voltage	12.00V
Current	5A MAX
Regulation	Vo+-5%
Ripple- and Noise	200 mV Max
Total Power	60 W Max

Protection:

Over Voltage Protection	V out (110% - 140%)
Short Circuit Protection	Automatic recovery after short circuit fault removed

Operational & Environmental Performance:

Temperature Range

Operating	0 OC~C +40 OC
Storage	~ 20 OC~C +60 OC

Humidity Range (non-condensing)

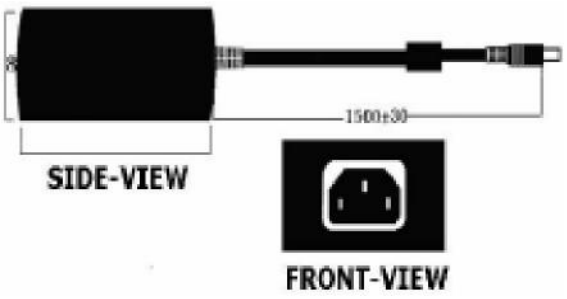
Operating	OPERATING	20%~ 80% RH
Storage	STORAGE	10%~ 90% RH

Cooling should operate without fan
MTBF: 50000 HOURS Min: 25OC FULL LOAD

MECHANICAL

WEIGHT: 320g
CABLX- TYPE UL 1185 18AWG
WIRE + PLUG
BLACK
PLUG: 5.5 X
2.5 X 10 mm

Lock Ring to secure
connection
CABLX- LX-NGTH: 150 cm
CASE DIMENSION: 120 mm(L) x 60mm(W) x 38mm(H)
EXTERNAL LOOK:



MATERIAL FLAMMABILITY: UL 94V-0

CONTACT VIEWZ.

For troubleshooting, support and service, as well as upgrades, please contact:

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