4U 40ch Rack for GANZ Encoder Series

ZA-NVE40K

Hardware Manual

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Safety and Regulatory Information

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. THE APPARATUS MUST NOT BE EXPOSED TO DRIPPING OR SPLASHING AND NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD BE PLACED ON THE APPARATUS.

CAUTION: TO PREVENT ELECTRICAL SHOCK, IF THE UNIT IS PROVIDED WITH A POLARIZED PLUG, DO NOT CONNECT THE PLUG INTO AN EXTENSION CORD, RECEPTACLE, OR OTHER OUTLET UNLESS THE PLUG CAN BE FULLY INSERTED WITH NO PART OF THE BLADES EXPOSED.

CAUTION: TO ENSURE REGULATORY AND SAFETY COMPLIANCE, USE ONLY THE PROVIDED POWER AND INTERFACE CABLES.

CAUTION: DO NOT OPEN THE UNIT. DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE INSTALLATION AND TROUBLESHOOTING INSTRUCTIONS. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE.

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

RACK MOUNT INSTRUCTIONS

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

FCC COMPLIANCE

This device complies with 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.

CE COMPLIANCE

This is A class product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

1. Introduction

ZA-NVE40K compress video/audio data and transmit the compressed video/audio data through the network in real time. GANZ encoder provides a high quality video image with a limited bandwidth and storage capacity. These products are ideally suited for a wide range of surveillance and remote monitoring applications. Main features are highlighted below.

ZA-NVE40K
Main features

- 19" / 4U Aluminum Sub-Rack
- Support up to 10 units of 4 ch GANZ Encoder Blades (Total 40 channels @ D1)
- Hot-swappable GANZ Encoder Blade, fan unit and power unit
- Identification of each Sub-Rack and each blade unit (for easy and quick maintenance)
- Temperature Sensor included
- Detect power supplier unit operation (Self-diagnosing)
- Detect fan unit operation (Self-diagnosing)
- Applied device: ZN-RS4000 series (It is the blade version of ZN-S4000 series)

ZN-RS4000 series
Main features

- High Quality Compression in real time streaming
- ZN-RS4000 provides high quality MPEG-4 and MJPEG encoding at D1 in real time.

Network

- RTP/RTSP and unicast/multicast are supported.

Streaming

- support dual streaming mode such as different codec/resolution/bit rate and so on.
- support de-interlacing by hardware.

Video/Audio

- Support quad view in external monitor.
- Support two ways audio (ZN-S100AE supports only audio input)
  Transmits to client - G.711 by software
  Receives from client - one digital audio

Additional Features

- RS-485 serial port for Pan/Tilt/Zoom. (Except ZN-S100AE)
- RS-232C serial port for some devices like a POS terminal. (Except ZN-S100AE)
- Motion detection by hardware.
- On Screen Display (OSD) by hardware.

SDK

- Four types (RTSP, UDA5, ActiveX, HTTP-API) are provided for application development.

2. Subrack

2.1. Specifications

ZA-NVE40K and ZN-RS4000AE series specification is shown as following

Construction		Aluminum, 19” / 4U Sub-Rack
Applied Device		ZN-RS4000AE series
Available Slots		10 ea (Hot Swappable Blades)
Power	Input	85 ~ 264 VAC, 47~63Hz, 2A
	Type	Dual Power Supply
Connector (Each slot)	Video Input	4 ch (BNC Type)
	Audio Input	4 ch (2.5 mm Pitch Terminal Block, Pluggable)
	Audio Output	1 ch (2.5 mm Pitch Terminal Block, Pluggable)
	Digital Input/Output	4 / 2 ch (2.5 mm Pitch Terminal Block, Pluggable)
	RS-232C/RS-485	1 / 1 ea
	Network	10/100 Base-T
Fan Unit		1,800 rpm x 3ea
Temperature		0 ^{o}C ~ 60 ^{o}C (32 ^{o}F ~ 140 ^{o}F)
Humidity		Upto 85% RH
Dimension		482.6(W) x 177(H) x 322(D) mm
Weight		7,420 g (Power Cable included) + 1,300 g (ZN-RS4000AE series x 10ea)

Table 1. Specification for ZA-NVE40K

2.2. Power Consumption

Minimum – Including 1 x ZN-RS4040AE (V1.42) and no fan unit

Input Voltage	12 V
Current	812 mA
Consumption	9.74 W

Maximum – Including 10 x ZN-RS4040AE (V1.42) and 3 fan units

Input Voltage	12 V
Current	10382 mA
Consumption	124.58 W

Rack case & fan unit (Without ZN-RS4040AE)

Rack case	32 mA
Fan unit(1ea)	850 mA

2.3. Unit view

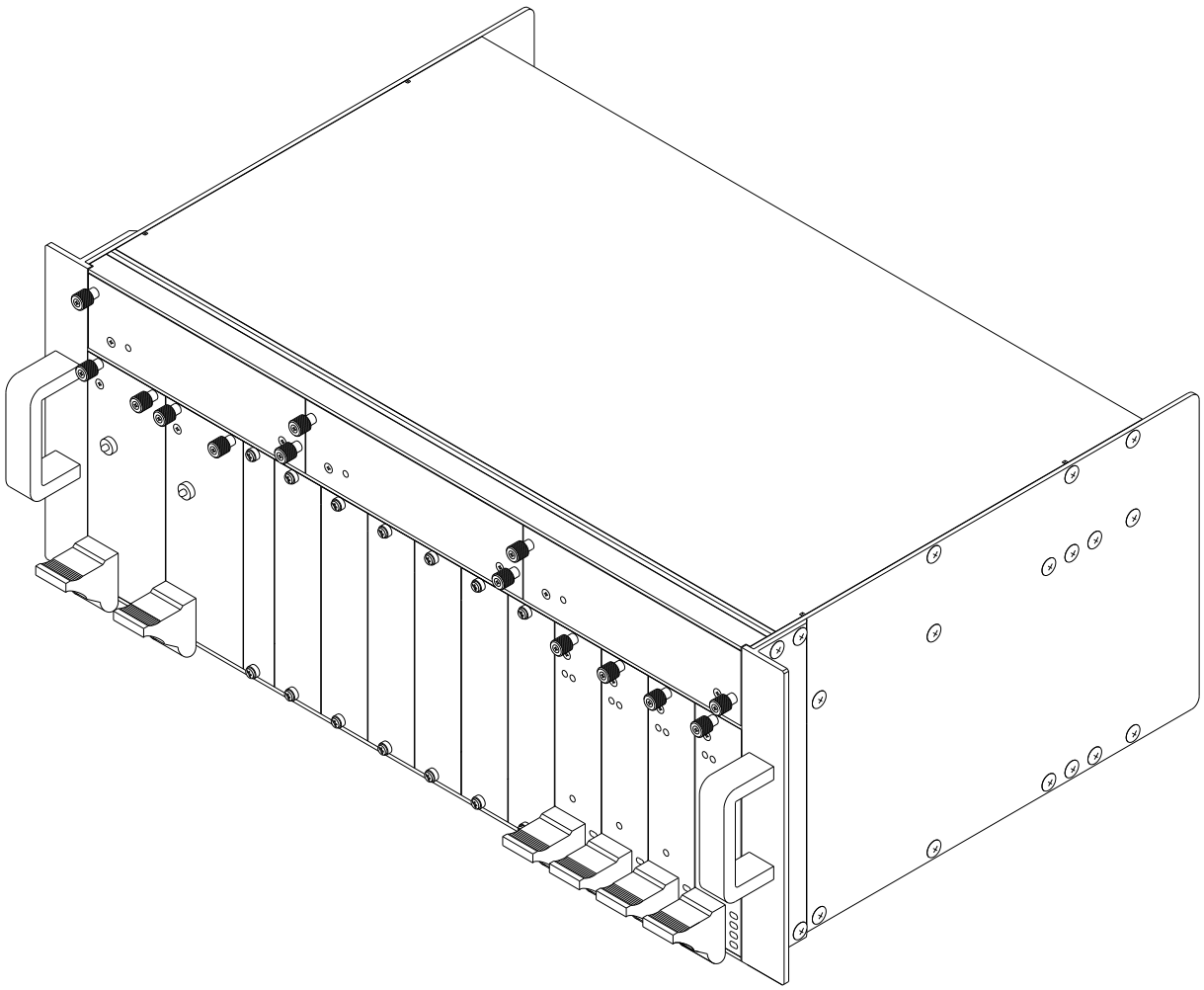


Figure 1. GANZ encoder subrack

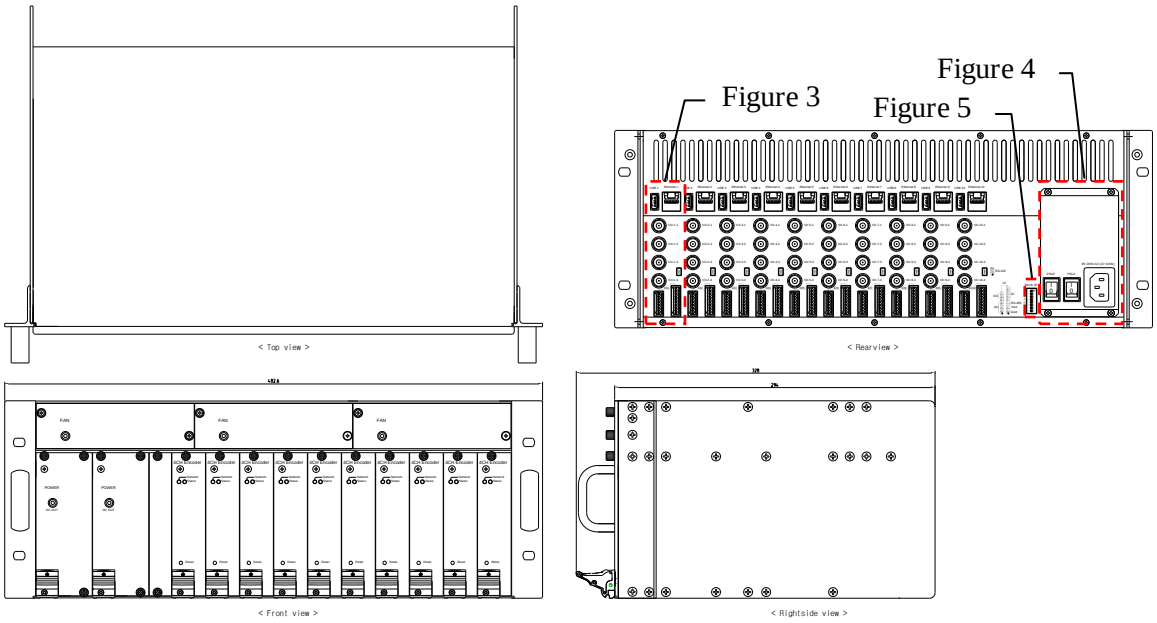


Figure 2. Front, rear, top and bottom view of subrack

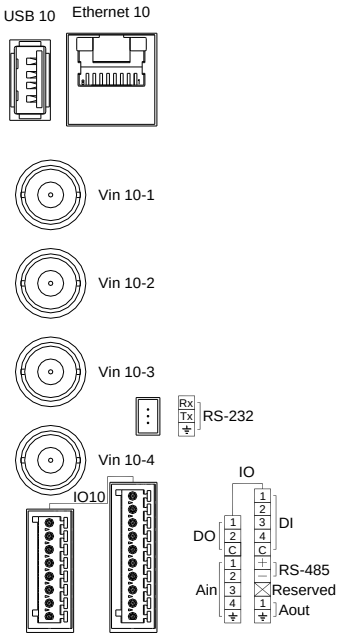


Figure 3. Detailed rear view of subrack (video, audio, digital input/output, etc.)

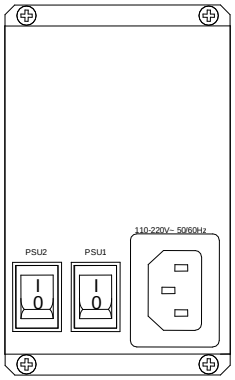


Figure 4. Detailed rear view of subrack (power cord)

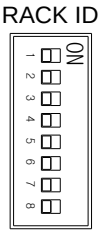


Figure 5. Detailed rear view of subrack (RACK ID)

2.4. Mechanical characteristics

Mechanical characteristics of subrack:

- Dimension
  - Width (inch): 19 "
  - Height (U): 4 U
  - Depth (mm): 288 mm

3. NVE blade

3.1. Specifications

		ZN-RS4000AE series	
		4ch MPEG-4 100/120fps@D1	
		Single Mode	Dual Mode
Video	Input channel	4ch	2ch
	Output Channel	1 Quad	2 Loop Out
	Compression	MPEG-4, MJPEG Selectable per Channel	
	Resolution	D1, 2CIF, CIF, QCIF	
	Compression FPS	100/120fps@D1	
Audio (Optional)	Input/Output Channel	4/1ch	2/1ch
	Data Format	PCM(software compression : G.711, uLaw)	
Network		10/100 Base-T	
De-interlacing		Supported by hardware	
Motion Detection		Supported by hardware	
OSD		Supported by hardware	
Video Stream Encryption		AES	
Protocols		SNTP, DHCP, UDP, TCP, RTP, RTSP(unicast/ multicast)	

Parameters		Min	Typical	Max	Units
Video input range	Peak to peak amplitude	0.5	1	1.35	V
	Sync amplitude	143	286	386	mV
	Horizontal lock range	-	-	±6.2	% of line length
	Color sub-carrier Lock-in range	-	-	±450	Hz
Audio input range		0.01	1	2.5	Vp-p

Table 2. Specification for ZN-RS4000AE series

3.2. Unit view

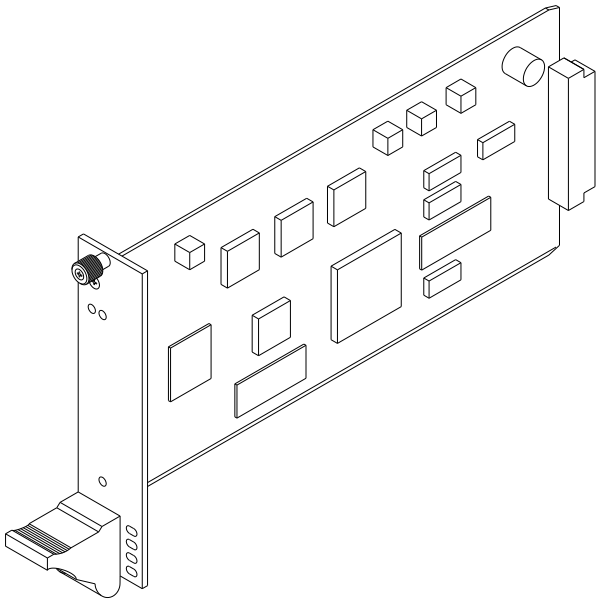


Figure 6. blade

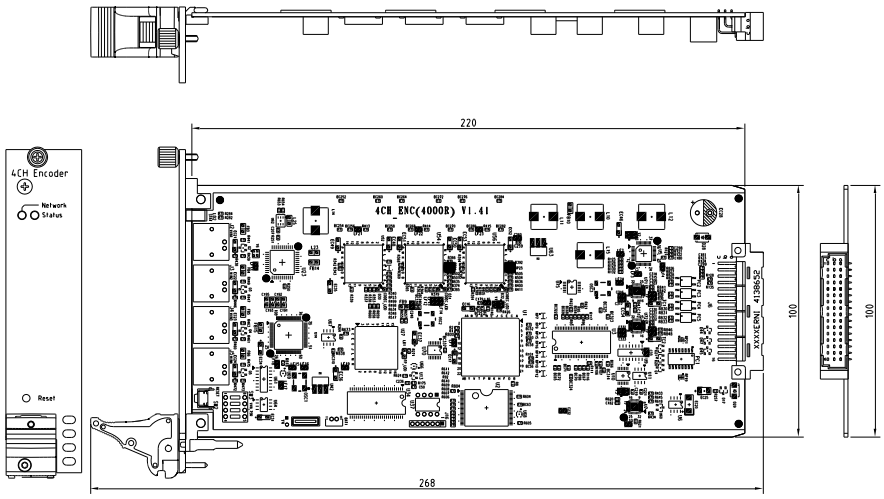


Figure 7. Front, top, side view of a blade

3.3. Mechanical characteristics

Mechanical characteristics of a blade:

- Dimension (Unit: mm): 30.1 (W) x 128.4 (H) x 220 (D)

3.4. Ejecting and inserting blades

Ejecting a blade

1. Unscrew four collar screws.
2. Grasp the inject/eject handle of the blade and push it down as shown in below figure.
3. Remove the blade from the rack.

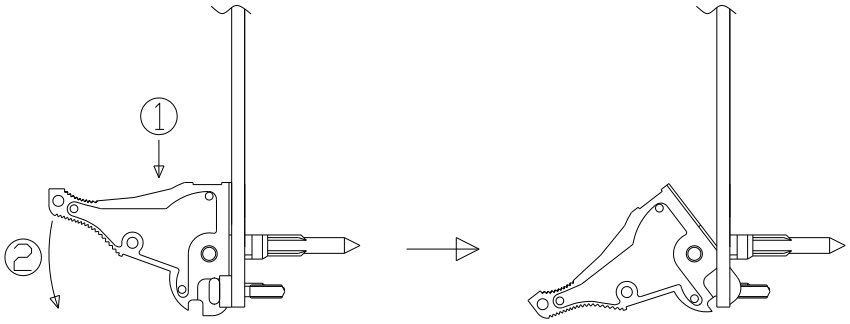


Figure 8. Ejecting a blade

Inserting a blade

1. Make sure that the inject handle is in the outward position.
2. Insert the blade into the rack.
3. Grasp the inject handle of the blade and pull it up.
4. Screw four collar screws.

3.5. Factory Default Settings

Factory default settings are as follows:

- IP address: 192.168.xx.yy (refer to 2.3 Serial Number / MAC Address)
- Mask: 255.255.0.0
- Gateway: 192.168.0.1
- User ID: root
- Password: pass

MAC address = 00-1C-B8-C0-14-B1 → IP address = 192.168.35.69

Convert the Hexadecimal number to Decimal number

Factory Default (FD) initialization procedure is as follows:

1. Turn ON the power.
2. Press “Reset” button when Status LED starts blinking rapidly.
3. Release “Reset” button when Status LED blinks slowly.

3.6. Rebooting

Reset can be carried out as follows:

1. Press Reset for 1 second.
   When Reset function is activated, Status LED and Network LED will blink together, twice. User may stop pressing Reset at this point.

2. When “Reset” function has been completed, LEDs will stop blinking.

4. Power Supplier Unit

4.1. Specifications

- AC/DC Switched Mode Power Supplier Unit (PSU)
- 19" 3U Rack Mountable, 10HP, DC12V, 150W

4.2. Unit view

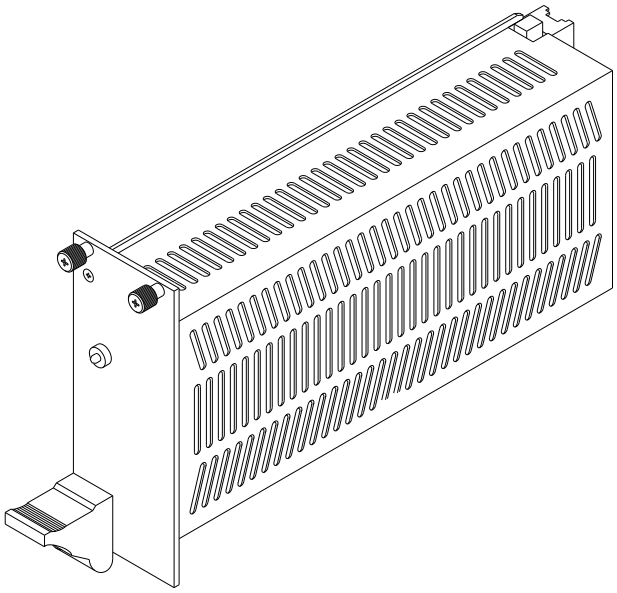


Figure 9. Power supplier unit

4.3. Electrical characteristics

Specification for only Power supply

Parameter		Units	Value
Nominal Output Voltage		V	12
Maximum Output Current		A	13
Maximum Output Power		W	156
Efficiency(Typical) (*1)	100V AC	%	83
	200V AC	%	86
Input Voltage Range (*2)		-	85~265VAC(47~63Hz)
Input Current(Typical) (*1)		A	1.9/0.95
Inrush Current(Typical)		-	14A at 100VAC, 28A at 200VAC, Ta=25℃, Cold Start
Power Factor (*1)		-	0.99/0.95
Output Voltage Range		V	9.6~14.4
Maximum Ripple & Noise (*3)	0≤Ta≤60℃	mV	150
	-10≤Ta≤0℃	mV	180
Maximum Line Regulation (*4)		mV	48
Maximum Load Regulation (*5)		mV	96
Temperature Coefficient		-	Less than 0.02%/℃
Over Current Protection (*6)		A	13.6~
Over Voltage Protection (*7)		V	15.0~17.4
Hold-up Time(Typical) (*8)		-	20ms
Leakage Current (*9)		-	Less than 0.5mA. 0.3mA(Typical) at 100VAC 0.5mA(Typical) at 230VAC

- NOTE -

*1. At 100/200VAC, Ta = 25 and maximum output power.
*2. At 100~240VAC(50/60Hz)
*3. Measure with JEITA RC-9131A probe, Bandwidth of scope: 100MHz.
*4. 85~265VAC, constant load.
*5. No load-Full load, constant input voltage.
*6. Constant current limit and Hiccup with automatic recovery.
Not operate at over load or dead short condition for more than 30sec.
*7. OVP circuit will shutdown output, manual reset (Re power on).
*8. At 100/200VAC, nominal output voltage and maximum output current.
*9. Measured by the each measuring method of UL, CSA, EN and DENAN (at 60Hz).

4.4. Environmental characteristics

Parameter	Units	Value
Operating Temperature (*1)	-	-10~+60℃ (-10~+40℃:100%, +50℃:60%, +60℃:20%)
Operating Humidity	-	30~90%RH (No Dewdrop)
Storage Temperature	-	-30~+85℃
Storage Humidity	-	10~95%RH (No dewdrop)

- NOTE -
*1. Load (%) is percent of maximum output power or maximum output current, whichever is greater.

4.5. Mechanical characteristics

- Construction Format: 10HP x 3U compatible
- Dimension (Unit: mm): 50.8(W) x 128.4(H) x 236(D)
- Weight (Unit: g): 812
- Cooling: Free Air Convection

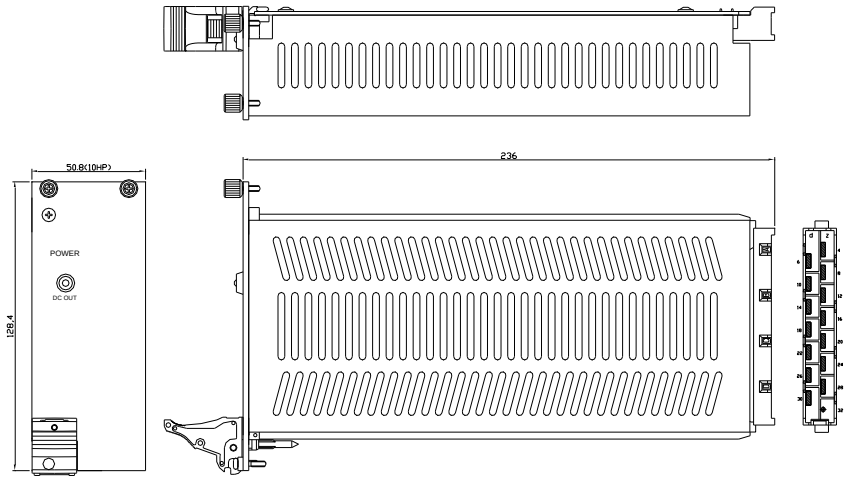
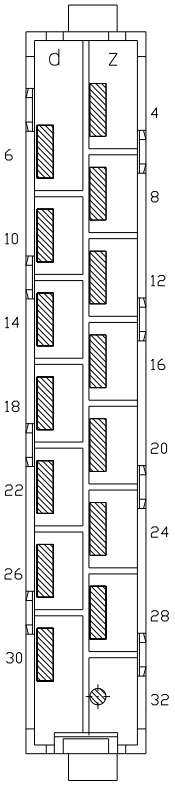


Figure 10. Front, top, side view of PSU

4.6. Pin Description

- Mating Connector: DIN61412-H15 Female



Pin #	Signal Name	
4	Output +12V	DC OUTPUT
6		
8	Sense +V	Assorted Signal
10	Sense 0V	
12	Output 0V	DC OUTPUT
14		
16	NC	
18	NC	
20	NC	
22	NC	
24	NC	
26	NC	
28	AC LINE	AC INPUT
30	AC Neutral	
32	FG	

Figure 11. Pin connection of PSU

4.7. Ejecting and inserting PSU

Ejecting a PSU

1. Unscrew four collar screws.
2. Grasp the inject/eject handle of the PSU and push it down as shown in below figure.
3. Remove the PSU from the rack.

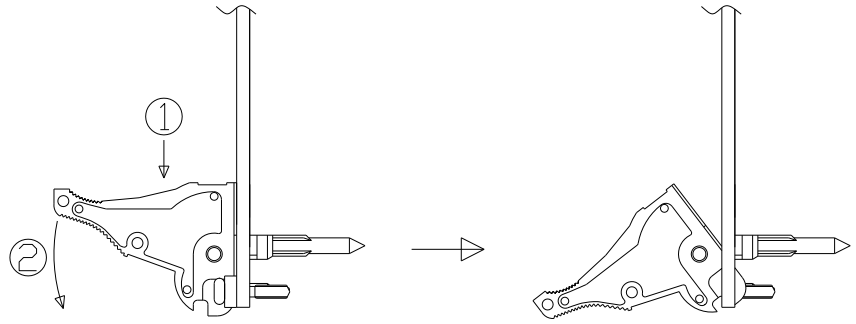


Figure 12. Ejecting a PSU

Inserting a PSU

1. Make sure that the inject handle is in the outward position.
2. Insert the PSU into the rack.
3. Grasp the inject handle of the PSU and pull it up.
4. Screw four collar screws.

5. Fan Unit

5.1. Description

- 19” 1U rack mountable fan unit
- 3 DC fans

5.2. Unit view

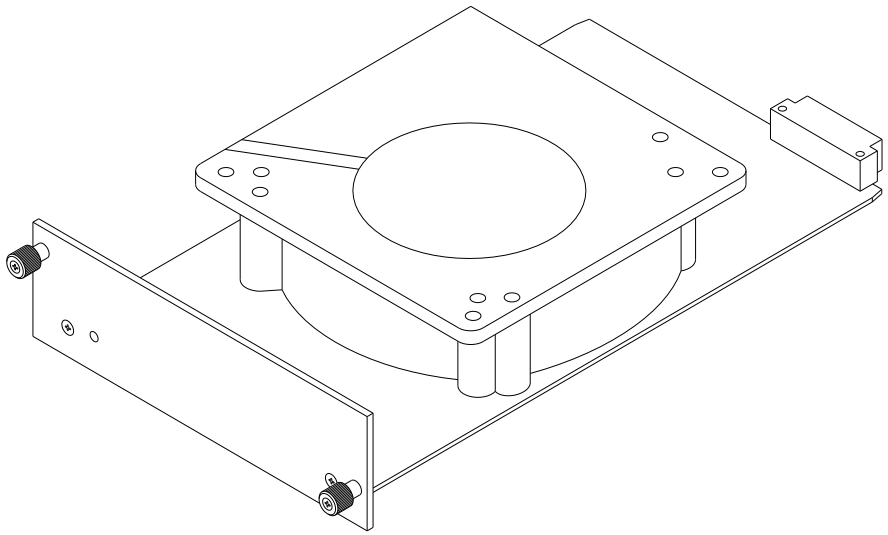


Figure 13. Fan unit

Name	Remarks
Status LED	Fan on & off
DC Status Lamp	In power switch
DC Inlet	DC power input terminal
DC Outlet	DC power output terminal

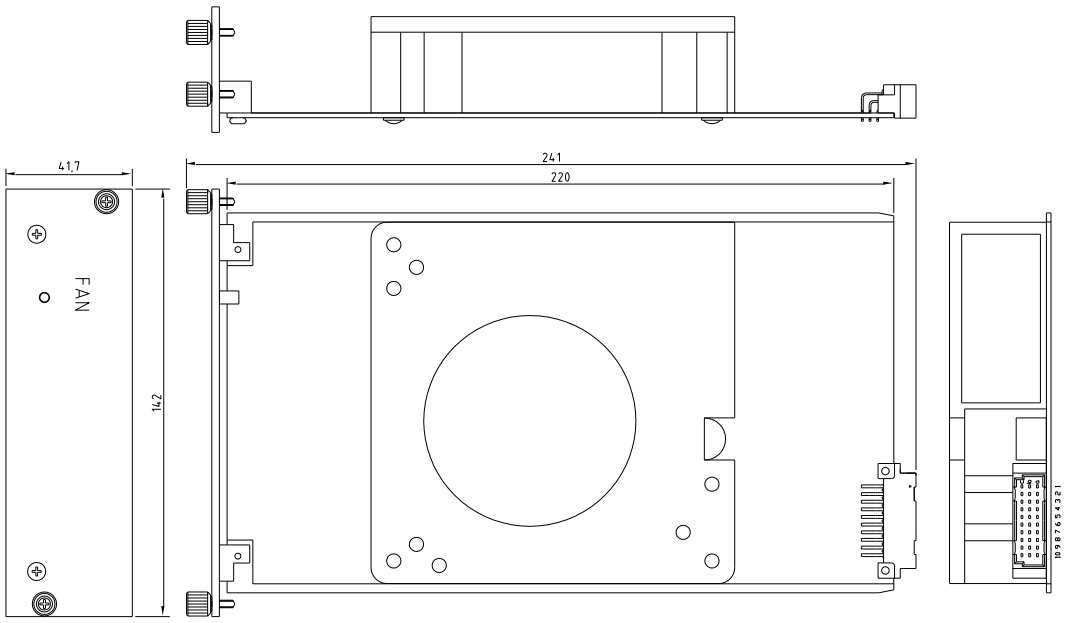


Figure 14. fan unit

5.3. Electrical characteristics

Parameter		Units	Value
Input Voltage	Rated Voltage	V	DC 12
	Operating Voltage		DC 6 ~ 13.8
Input Power		W	3.60
Maximum Air Flow		m3/min	0.63 x 3EA = 1.89 (At Average Value in Free Air)
Fan Speed		min-1	1800

5.4. Environmental characteristics

Parameter		Value
Allowable Ambient Temperature Range	Operating	-10~+60℃
	Storage	-40~+60℃
Expected Life		20℃ 100,000 Hours (Failure Rate 10%)

5.5. Mechanical characteristics

Mechanical characteristics of fan unit:

- Dimension
  - Width (inch): 19 "
  - Height (U): 1 U
  - Depth (mm): 270 mm
- Number of DC fans (EA): 3