NVE12K
Hardware Manual

UDP Technology

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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, induding iinterference 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

NVE12K compress video/audio data and transmit the compressed video/audio data through the network in real time. NVE 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.

NVE12K
Main features

- 19" / 1U Aluminum Sub-Rack
- Support up to 3 units of 4 ch NVE Blades (Total 12 channels @ D1)
- Hot-swappable NVE blade
- 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: NVE4000A-R (It is the blade version of NVE4000A)

NVE4000A-R
Main features

- High Quality Compression in real time streaming
- NVE 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 (NVE100 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 NVE100)
- RS-232C serial port for some devices like a POS terminal. (Except NVE100)
- Motion detection by hardware.
- On Screen Display (OSD) by hardware.

SDK

- Three types (RTSP, UDA5, and HTTP-API) are provided for application development.

2. Subrack

2.1. Specifications

NVE12K and NVE4000A-R specification is shown as following

Parameter		Value
Construction		Aluminum, 19” / 1U Sub-Rack
Applied Device		NVE4000A-R
Available Slots		3 ea (Hot Swappable Blades)
Power	Input	90 ~ 264VAC , 47 ~ 63Hz, 1.9A/115VAC 1.1A/230VAC
	Type	Single Power Supply
Power Consumption		2600mA (at 12V) Typically 48W
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		6,500rpm x 2ea
Temperature		0 ℃ ~ 60 ℃ (32 ℉ ~ 140 ℉)
Humidity		Up to 85% RH
Dimension		482.2(W) x 44.0(H) x 286.1(D) mm
Weight		1.75 Kg + 174g (NVE4000A-R) x 3 ea

Table 1. Specification for NVE12K

2.2. Unit view

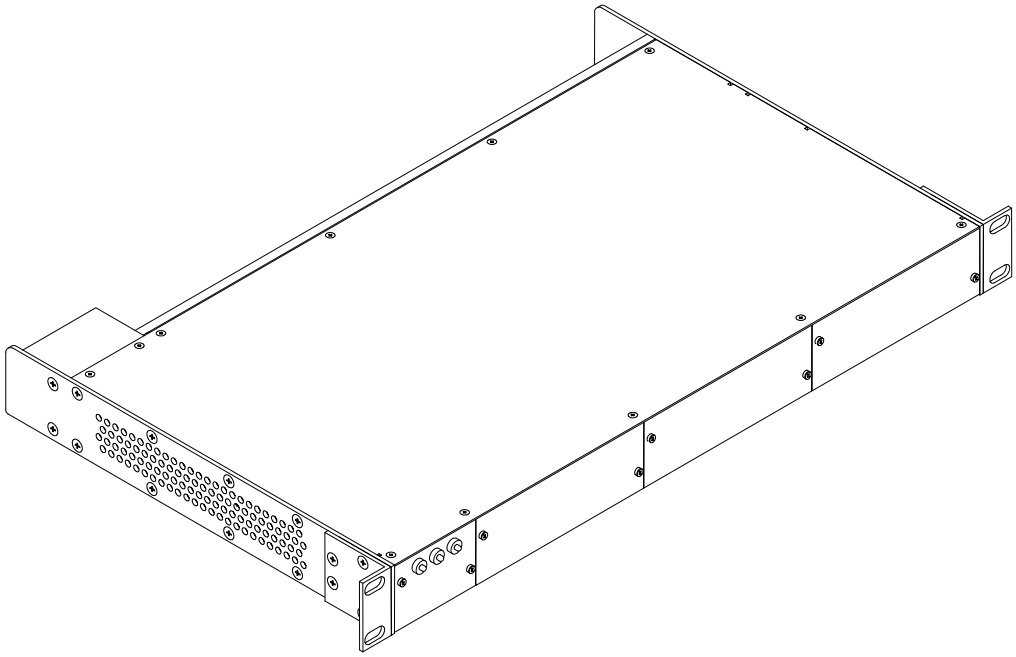

Figure 1. NVE subrack

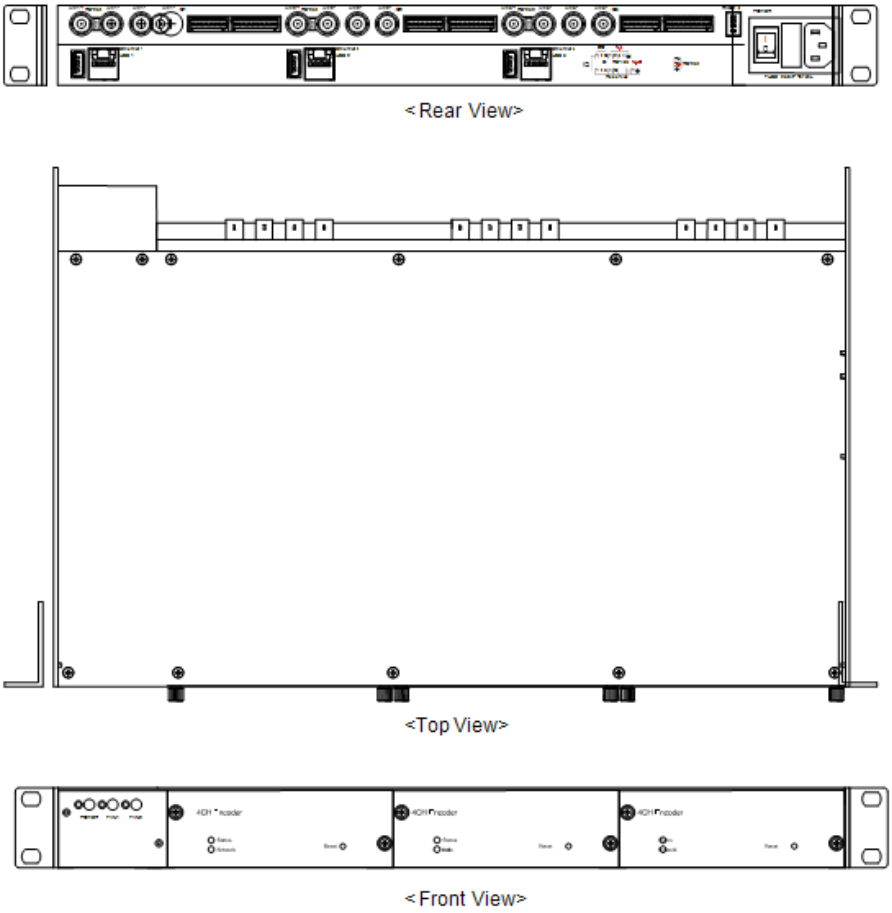

Figure 2. Rear, top and front view of subrack

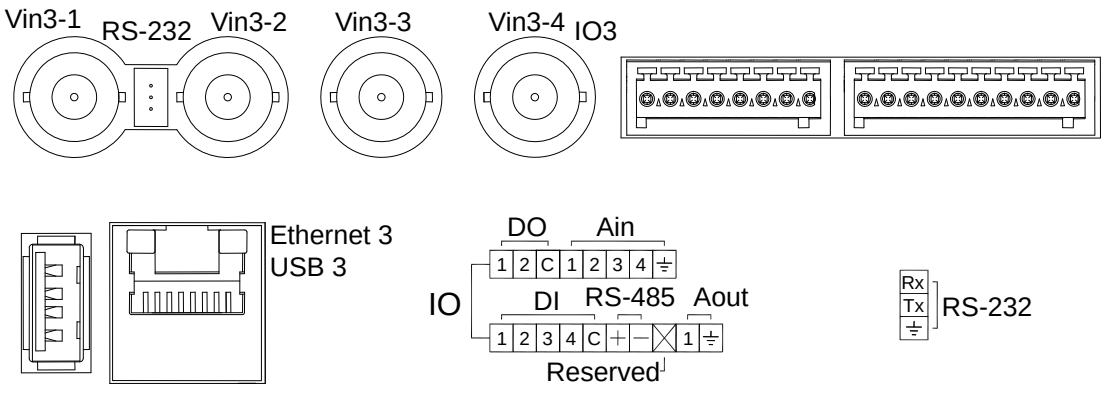

Figure 3. Detailed rear view of subrack (video, audio, digital input/output, etc.)

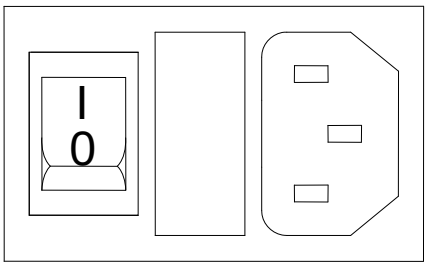

Figure 4. Detailed rear view of subrack (power cord)

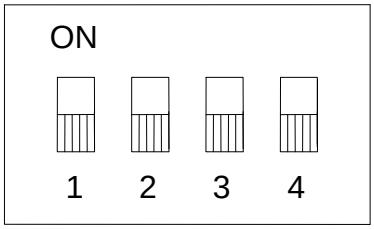

Figure 5. Detailed rear view of subrack (RACK ID)

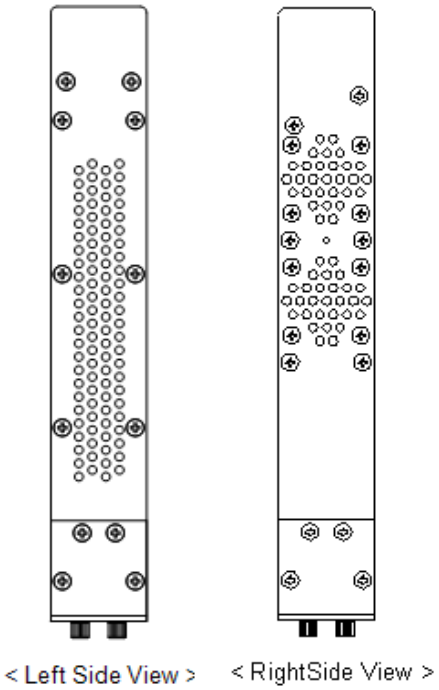

Figure 6. Leftside and Rightside view of subrack

2.3. Mechanical characteristics

Mechanical characteristics of subrack :

- Dimension
  - Width (inch): 19 "
  - Height (U): 1 U
  - Depth (mm): 286.1mm

3. NVE blade

3.1. Specifications

		NVE4000A-R	
		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 NVE4000A-R

3.2. Unit view

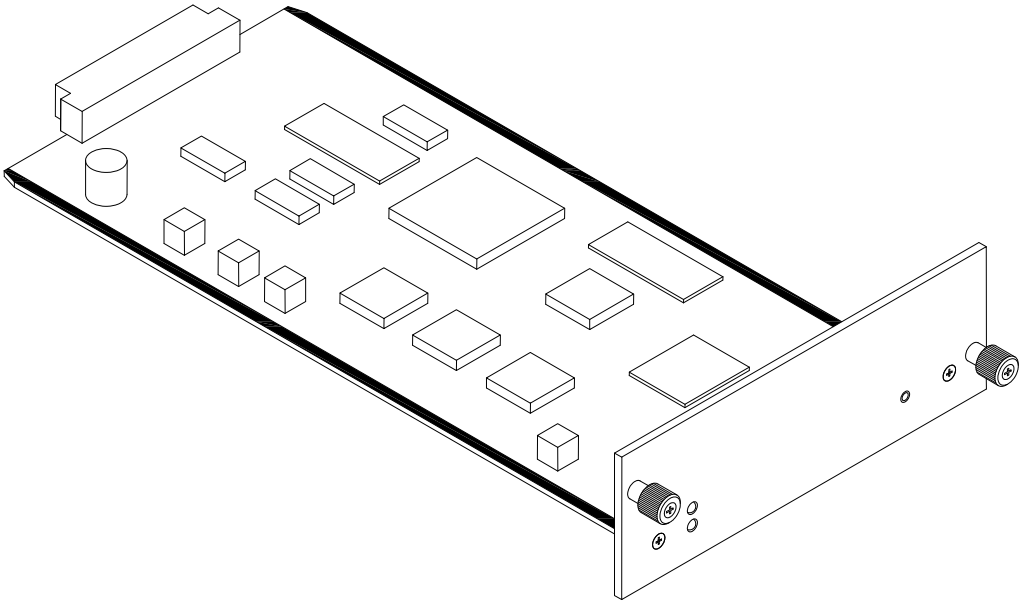

Figure 7. NVE blade

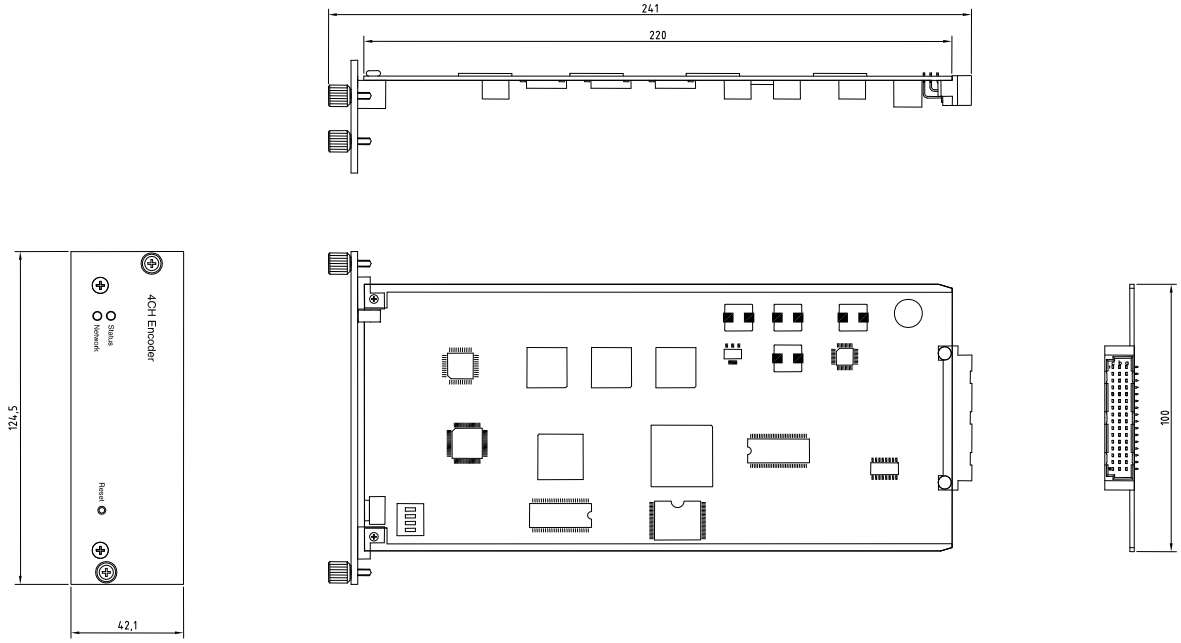

Figure 8. Front, top, side view of a blade

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 two screws.
2. Remove the blade from the rack as figure 9.

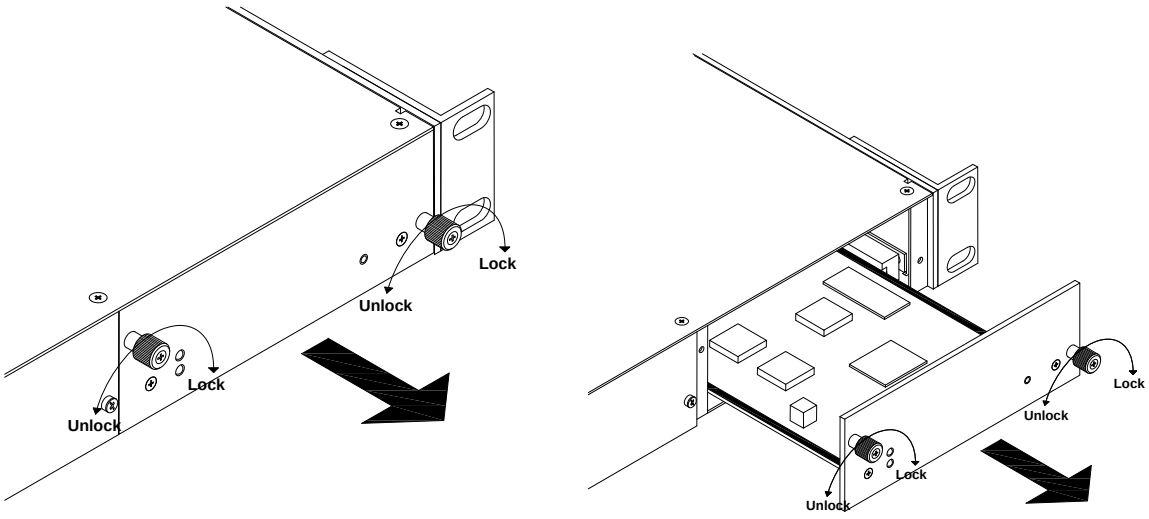

Figure 9. Ejecting a blade

Inserting a blade

1. Insert the blade
2. Screw to the rock direction

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 = 00-13-23-01-23-45 → 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

- DC Power Supplier Unit (PSU)
- 19" 1U Rack Mountable, 10HP, DC12V, 74.4W

4.2. Unit view

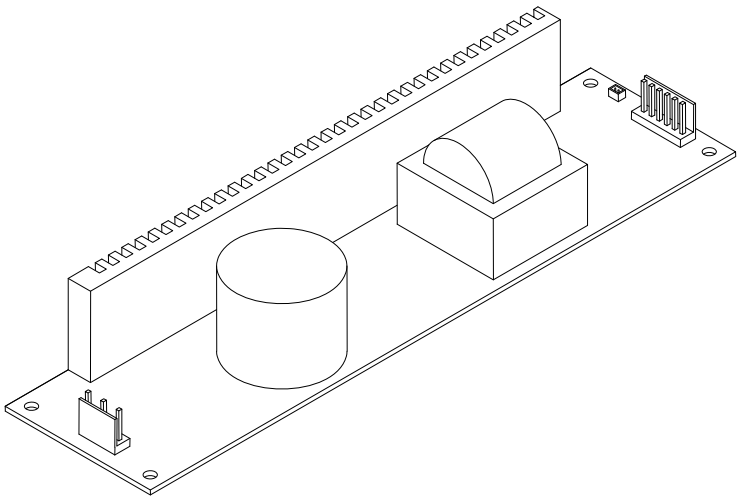

Figure 10. Power supplier unit

4.3. Electrical characteristics

Output	DC VOLTAGE	12V
	RATED CURRENT	6.2A
	CURRENT RANGE	0 ~ 6.8A
	RATED POWER	74.4W
	PEAK LOAD(10sec.) Note.4	81.6W
	RIPPLE & NOISE (max.) Note.2	80mVp-p
	VOLTAGE ADJ. RANGE	3 ~3.5V
	VOLTAGE TOLERANCE Note.3	3.00%
	LINE REGULATION	1.00%
	LOAD REGULATION	3.00%
	SETUP, RISE TIME	100ms, 35ms/230VAC 100ms, 35ms/115VAC at full load
	HOLD TIME (Typ.)	60ms/230VAC 12ms/115VAC at full load
Input	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC
	FREQUENCY RANGE	47 ~ 63Hz
	EFFICIENCY(Typ.)	80%
	AC CURRENT (Typ.)	1.9A/115VAC 1.1A/230VAC
	INRUSH CURRENT (Typ.)	COLD START 18A/115VAC 36A/230VAC
	LEAKAGE CURRENT	<1mA / 240VAC
PROTECTION	OVER LOAD	115 ~ 150% rated output power
		Protection type : Hiccup mode, recovers automatically after fault condition is removed
	OVER VOLTAGE	13.8 ~ 16.2V
		Protection type : Hiccup mode, recovers automatically after fault condition is removed
FUNCTION	REMOTE ON/OFF	RC+/RC- : 0 ~ 0.8V power on ; 4 ~ 10V power of
SAFETY & EMC (Note 5)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 Approved
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC
	EMI CONDUCTION & RADIATION	Compliance to EN55011, EN55022 (CISPR22) Class B
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3

Table 3. Electrical specification of PSU

- NOTE –
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25 of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. 33.3% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.
5. The power supply is considered a component which will be installed into final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

4.4. Environmental characteristics

Environmental characteristics	WORKING TEMP.	-20 ~ +70 (Refer to output load derating curve)
	WORKING HUMIDITY	20 ~ 90% RH non-condensing
	STORAGE TEMP., HUMIDITY	-20 ~ +85C° , 10 ~ 95% RH
	TEMP. COEFFICIENT	±0.04%/C° (0 ~ 50C°)
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, Period for 60min.each along X, Y, Z axes

Table 4. Environmental specification of PSU

4.5. Mechanical characteristics

Mechanical characteristics	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, EN61000-6-2 (EN50082-2) Heavy industry level, criteria A
	MTBF	355Khrs min.
		MIL-HDBK-217F (25C°)
	DIMENSION	222*55*30mm (L*W*H)
	PACKING	0.3Kg; 48pcs/15.6Kg/1.12CUFT

Table 5. Mechanical specification of PSU

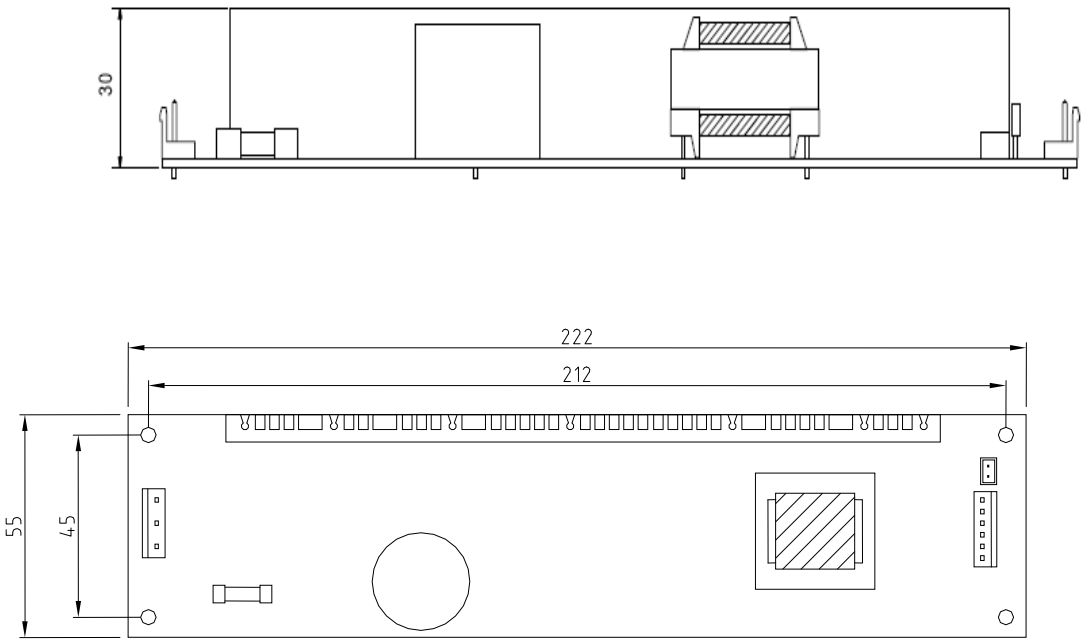

Figure 11. Front and top view of PSU

5. Fan Unit

5.1. Description

- 19” 1U rack fixed fan unit
- Number of DC fans (EA): 2

5.2. Unit view

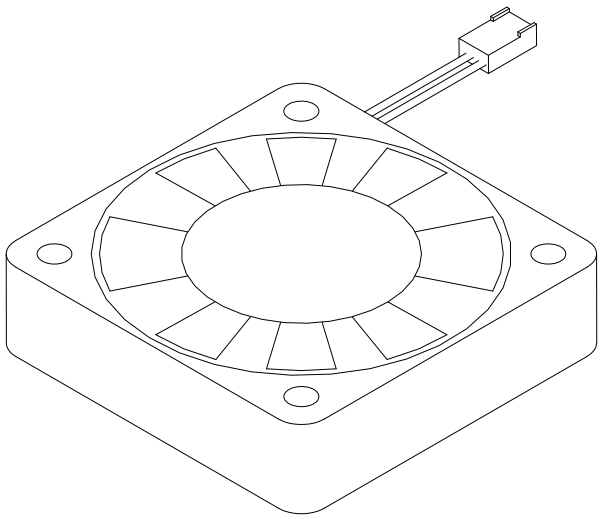

Figure 12. Fan unit

5.3. Electrical characteristics

Parameter		Units	Value
Input Voltage	Rated Voltage	V	DC 12
	Operating Voltage		DC 10.2 ~ 13.8
Input Power		W	1.2
Maximum Air Flow		m3/min	0.17 x 2EA = 0.34 (At Average Value in Free Air)
Fan Speed		min-1	6500

Table 6. Electrical specification of Fan unit

5.4. Environmental characteristics

Parameter		Value
Allowable Ambient Temperatur Range	Operating	-10°C ~ +70°C
	Storage	-40°C ~ +70°C

Table 7. Environmental specification of Fan unit

5.5. Mechanical characteristics

Mechanical characteristics	Casing/ Impeller	Plastic (Black) 94V-0
	Lead Wire	UL1061, AWG26, +Red, -Black
	Dimension	1.575 in sq. x .394 in (40mm sq. X 10mm)
	Low Weight	0.525oz (15g)

Table 8. Mechanical specification of Fan unit

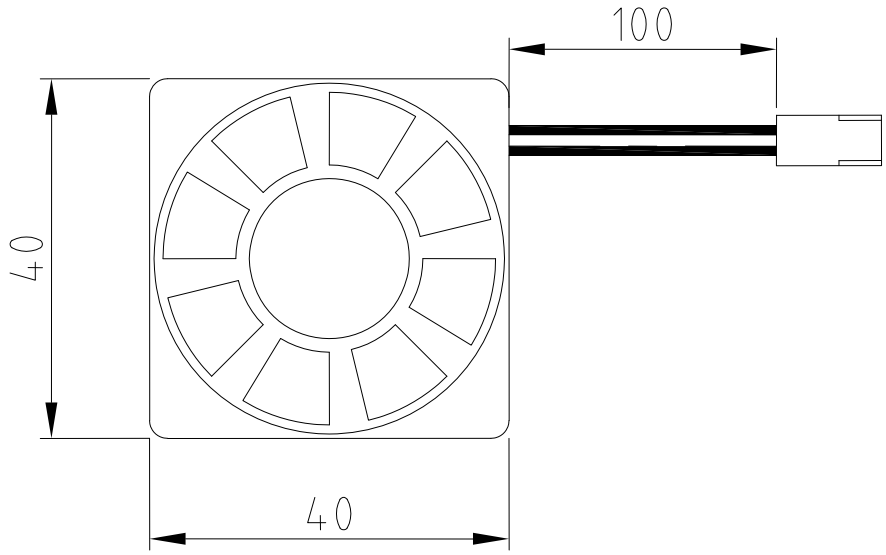

Figure 13. Top view of fan unit

Revision History

Rev.	Date	History
A	2007-03-05	Created.
B	2007-04-01	Updated for electronic specification figures to up to date
C	2008-04-18	Video output 1ch feature info deleted
D	2008-11-25	Video input range of blades added
E	2009-05-04	Resolution modified (Half D1 - > 2CIF)