Spectra SP Series 4 to 32-Zone Expandable Security Systems







Description

Spectra SP control panels (SP4000, SP5500, SP6000, SP65, and SP7000) offer a combination of innovative features and an advanced communication bus for a uniquely expandable security system. Through its communication bus, all Spectra SP panels can be expanded via wireless and hardwired expansion modules and a variety of accessory modules. With their in-field firmware upgrade capability, the Spectra SP series allows installers to upgrade their system without hassle - quickly, easily, and on-site. To further facilitate installation, every Spectra SP panel can be configured using easy-to-follow, menu-driven programming.

Spectra SP also features multipath communication; this enables your system to communicate through multiple channels, including telephony with its built-in landline dialer, IP with the IP150 Internet Module, IP/GPRS/GSM with the PCS series module, and voice with the VDMP3 Plug-In Voice Module.

With its reliable communication technology, flexible expansion and user-friendly keypads, Spectra SP is the complete residential or commercial security solution.

Features

- Supports StayD mode
- 4-wire expansion bus
- Wireless expansion (via RTX3 / RX1)
- Expandable to 32 zones
- Expandable to 16 PGMs
- 2 partitions
- 32 user codes
- Supports PCS series modules
- Supports IP150 Internet Module
- Supports VDMP3 Plug-in Voice Module
- Supports REM3 Hand-held Remote Keypad
- · Supports SR150 Wireless Siren
- Landline dialer (except SP65)
- · In-field firmware upgradable



System Overview

Control Panels



SP65

SP65: 9 to 32-Zone Control Panel SP4000: 4 to 32-Zone Control Panel SP5500: 5 to 32-Zone Control Panel SP6000: 8 to 32-Zone Control Panel SP7000: 16 to 32-Zone Control Panel

Wired Keypads



TM70

TM70: Intuitive Touchscreen TM50: Intuitive Touchscreen

K32LX: Wired LCD Keypad with Integrated RF

Transceiver

32-Character Wired LCD Keypad Module K32LCD+: 32-Zone Wired Fixed LCD Keypad Module K35: 32-Zone Wired LED Keypad Module K32+: K10V: 10-Zone Wired LED Keypad

10-Zone Wired LED Keypad K10H: K636: 10-Zone LED Keypad Module

Video Monitoring



Outdoor 720p HD Camera HD88: HD78F: **Event-Driven Indoor**

Security IP Camera /

Detector



HD88

Expansion Modules



ZX82: 8-Zone Expansion Module ZX8SP: 8-Zone Expansion Module ZX8: 8-Zone Expansion Module PGM82: 8-PGM Expansion Module PGM4: 4-PGM Expansion Module RTX3: Wireless Expansion Module

ZX82

RX1: Wireless Receiver

Communicator Modules



PCS265LTE: LTE / 4G / 3G / 2G / GSM

Communicator Module

PCS250 / G: GPRS / GSM

Communicator Module IP150. **IP Communicator**

PCS265LTE VDMP3: Plug-In Voice Module

Software & Accessories



Insite GOLD: Mobile App

2.8A Supervised Power PS25:

Supply

PS45: 5A Supervised Bus

Power Supply 2 Port HUB

HUB2: PMC5: Memory Key Insite **GOLD**

307USB: **Direct Connect Interface** BabyWare: **PC Software** InField: Firmware Upgrade

Software

Wireless Keypads and Remotes



32-Zone Wireless Fixed LCD Keypad K37: REM3: Hand-Held Two-Way Remote Control Keypad 2-Way Remote Control with Backlit Buttons REM25: REM2: 2-Way Remote Control with Backlit Buttons REM1: Remote Control with Backlit Buttons REM15: Remote Control with Backlit Buttons REM101: Emergency / Panic Remote Control Remote Control with Integrated Access Card RAC1:

K37

PMD85

Wireless Devices

PMD85: Wireless Outdoor Digital Dual-Optic

High-Performance PIR

PMD75: Wireless Digital Dual-Optic High-Performance PIR

Wireless PIR Motion Detector with Built-in PMD2P:

Pet Immunity

NV75MR: Wireless 16M Dual Mironel Optics Pet Immune Anti-Mask Detector

NV35MR: Wireless Outdoor / Indoor Window and Sliding Door Dual Detector with

Anti-Masking and Pet Immunity NV780MR: Wireless Dual Side-View Outdoor Detectors

with Anti-Masking and Pet Immunity

DCT6: Wireless Door Contact

DCT10: Wireless 2-Zone Long-Range Door Contact

DCTXP2: 2-Zone Wireless Door Contact DCT2: Wireless Ultra-Small Door Contact G550: Wireless Glass Break Detector GS250: **Gpower Wireless Multi-axis Detector** SD360: Wireless Ceiling-Mounted Smoke Detector SR130: Wireless Outdoor Siren with Built-in

Strobe Light

SR150: Wireless Outdoor Siren with Built-in

Strobe Light

RPT1: Wireless Repeater Module 2WPGM: 2-Way Wireless PGM

For compatibility details, visit us at paradox.com

Feature Details



Internet Communication (IP150)

The IP150 Internet Module allows you to control and monitor your security system remotely through any web browser. It allows for email notifications of important system events such as alarms, arm/disarm events, and troubles. For example, receive an email at work when your kids get back from school. Also, view the live status of your system and arm/disarm it. For instance, you have just left your office for the weekend but are unsure whether you armed the system. Simply check the status of your system from a laptop and arm it.



Wireless Communication (PCS Series)

The PCS series modules provide the Spectra SP control panels with wireless communication capabilities to report system events via IP, GPRS, and/or GSM. Whether it be uploading/downloading via IP or GPRS, receiving system status and events by voice or text message, or reporting to the monitoring station via IP, GPRS, or GSM, the PCS series enhances the communication capabilities of any Spectra SP installation.



Voice Communication (VDMP3)

The VDMP3 is a plug-in, voice-assisted module that can be programmed to call up to five telephone numbers in the event of an alarm. For example, when an alarm occurs at your store during off-hours, every employee can receive notification via telephone. You can also call the VDMP3 from an outside line, enabling you to arm or disarm the system as well as activate PGMs. The VDMP3 essentially turns any outside telephone into a keypad. The VDMP3 is easy to install; plug it in directly onto the panel, set the phone numbers, and select the activation event.



StayD

StayD resolves all issues with common security systems and represents the only solution for secure living. The revolutionary StayD feature represents a completely reversed philosophy compared to all other security systems made today. Traditional systems share the same principle - in order to provide security, users must remember to arm the system; otherwise the system is disarmed and does not provide security. A StayD system is always armed, and needs only to be partly disarmed when an entry or exit is needed. With StayD, you can truly have peace of mind knowing, that you are always protected.



In-field Upgradable

Spectra SP is not only easy to install, but is also fully in-field upgradable, allowing for simple on-site updates. The process is effortless; connect the PC to the panel and you are a few clicks away from performing a complete system upgrade within minutes. No need to change panels or hardware; all the updates are performed using Paradox's InField Firmware Upgrade Software.



App-based System Control

The Insite GOLD app enables you to remotely access your Paradox security system and view your system cameras. Insite GOLD provides lots of functionality and information at one's fingertip. It has an intuitive user-interface which enables you to easily connect to your security system and edit settings. Now you can control your Paradox security system from any Android / iOS smartphone.

TM70 Overview



____ 7 in

TM70: Intuitive Touchscreen

17.7 cm

SpotOn Locator™

Upload photos, images, or schematics to eliminate the need for deciphering LED zone lights. These images display any door, window, or motion detector that are active. Since the images are uploaded by the user, they are truly customized, and can be unique to each installation. SpotOn Locator™ is integrated in the original firmware, and when purchased, is unlocked with an authorization code.

■ OneScreen Monitoring[™]

Provides a real-time visual display of the system's status on one screen. It allows the user to choose which partitions will be displayed showing arming level, alarm, ready, and troubles. It also displays zone statuses; open, close, bypass, alarm, and tamper. OneScreen Monitoring™ also features Solo Test™ mode, which allows installers and users to easily test all system zone's via the TM70 Touch's screen. OneScreen Monitoring™ is integrated in the original firmware, and when purchased, is unlocked with an authorization code.

Specifications

Display	16-bit, color LCD; 8.6 x 15.4 cm (3.1 x 5.9 in.), 800 x 480 pixels
Input Voltage	9 to 15 Vdc
Current Consumption	250 mA at max brightness + 80 mA sounder
Keypad Zone Input	1 for a detector or external temperature sensor
Tamper	Built-in, cover and wall
Humidity	5 to 90%
Operating Temperature	-10 to 55 °C (14 to 131 °F)
Compatibility	Swan, EVO, Spectra, Magellan

Note: All control panel outputs are rated to operate between 11.4 Vdc and 12.5 Vdc.



Specifications PRX2780000033-P2C

The PRX2780000033-P2C is a metal box enclosure for provision multiple module and panel mounting.

Features:

- Many punch-out holes for simple wiring
- Easy door removal
- Sizes: 28cm X 28cm X 7.6cm (11" x11" x 3")





Specifications PRXK-TK278

The PRXK-TK278 is a BOM Kit for 1x tamper switch PRX2502302000-P2C and 1x tamper bracket PRX2781030000-P2C to suit with Paradox Metal Box Enclosure PRX2780000033-P2C; to protects against tampering (opening door or removal from wall).



SP5500+ / SP6000+ / SP7000+ User Guide

4 to 32-Zone Expandable Security Systems



NV5 High-Performance Digital Infrared Motion Detector

Description

The NV5 is the entry-level motion detector from Paradox's ENVY line of next generation motion detection. Featuring advanced processing technology, optical technology, and easy installation, the NV5 represents state of the art technology with the most advanced and innovative digital infrared detector of its class.

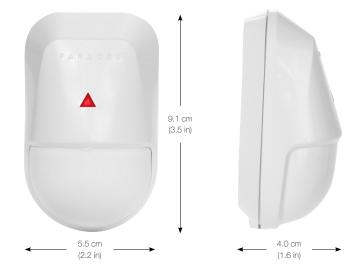
The NV5 features Paradox's developed optics - a Hybrid Cylindrical / Spherical combination 1.0 inch lens with 3rd generation 3D Lodiff® Fresnel segments- the first and most advanced lens in the detection industry. This combination offers the best detection possible for passive infrared energy reception optimized for far beams (cylindrical) and medium/close beams (spherical). This lens also features Paradox's "Equalized" detection pattern, ensuring equal sensitivity throughout the protected area. Furthermore, the NV5 offers Small Pet Resistance or, alternatively, a Super Creep Zone Mirror add-on optics, which provides superior detection directly below the detector (see Beam Pattern).

The NV5 offers Auto Pulse Signal Processing with two levels of RF rejection, dual or single edge processing, and LED feedback for each setting. With precision and equalized detection, superior detector stability, total area coverage, and complete false alarm protection, the NV5 is the most advanced and innovative digital infrared detector in its class.









Features

- Infrared motion detector managed by Full Authority Digital Electronics Control (FADEC)
- Paradox's Hybrid Cylindrical-Spherical 1.0 inch lens with 3rd generation 3D Lodiff[®] Fresnel segments- 10 x 10 m (32.8 x 32.8 ft), 90° viewing angle, and 0.5 m (1.6 ft) to max range (no dead zone beam pattern)
- Paradox's equalized detection pattern ensures equal sensitivity throughout the protected area
- Paradox Super Creep down-looking beam optic option for straight down detection
- Pet Resistance up to 16 kg (35 lb)
- Dual/Single Edge Processing selection the only one in its class
- Paradox patented Auto Pulse Signal Processing (APSP)
 with settings for normal or high interference environments
- Digitally equalized temperature compensation; unit performance specifically tailored to obtain same catch capability at all specified operating temperatures
- Digital Sensitivity trimmer adjustment with five range levels and LED feedback, allows for perfect unit adjustment for all room sizes
- Optional wall/ceiling mount bracket
- Miniature yet easy to install with no PCB removal or adjustment
- CE and EN50131 Grade 2 approved (see PARADOX.com for latest approval updates)
- Interchangeable lenses; 90° standard lens

Advanced Digital Technology (FADEC)

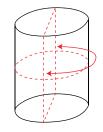
The NV5's digital analysis and algorithms ensure precise and accurate detection performance, managed by Full Authority Digital Electronics Control (FADEC). Depending on the environment application, the NV5 can be easily configured with its unique pre-programmed profile settings (Normal, Moderate, Pet Resistant, and Harsh).

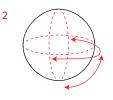
- High-resolution and full-dynamic range digital signal conversion
- · High-speed, advanced algorithm, digital signal processing
- Digital EMI / RFI interference rejection
- Five choices of digital range levels (via trimpot)

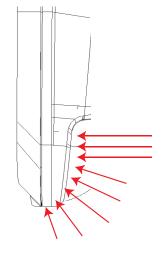
Advanced Optical Technology

Paradox's Hybrid Cylindrical-Spherical combination offers the best detection possible for passive infrared energy reception for far beams (1. Cylindrical) and medium/close beams (2. Spherical). This lens design allows for ultimate perpendicular beam collection. Superior and uniform energy collection translates to a better image quality of the target which provides unmatched detection accuracy and stability.

- 3rd generation 3D LoDiff® Fresnel segments
- Optically and digitally equalized beam pattern (all beams optimized for generating equal signal level at any distance or angle)
- Optional Super Creep Zone or Pet Resistance up to 16 kg (35 lb)



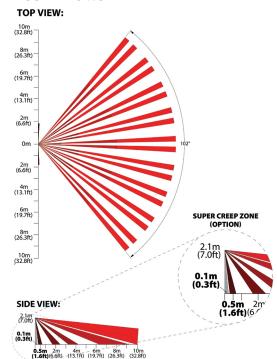




Technical Specifications

Installation height	2.1 m $-$ 3.1 m (7.0 ft $-$ 10.2 ft) For 10 m and above range, unit must be installed at 2.1 m (7.0 ft) height and above
Sensor	Dual rectangular element, low noise, high sensitivity, EMI immunity
Lens	Hybrid Cylindrical Spherical 3 rd gen. Fresnel Lens, equal beam sensitivity (patent pending)
Processing	High resolution digital signal processing. Four profiles (Normal, Medium, Pet Res., Harsh), true digital temperature compensation.
Super Creep Zone	Add on mirror option for enhanced creep zone at 0.1 m from the wall (no Pet Resistence)
Range adjustment	5 level range adjustments (50% to 150%)
Startup time	10 seconds
Detection speed	0.2 m/s to 3 m/s (0.6 ft/s to 9.8 ft/s)
Power input	10 Vdc to 15 Vdc
Current consumption	10.5 mA @ Standby / 11.3 mA @ Alarm
Coverage	10 m (32.8 ft) x 90°
Coverage	0.5 m (1.6 ft) down looking with optional creep zone
PET Resistance	Up to 16 kg (35 lb)
Alarm indicator	Red LED for 3 seconds
Alarm output	Solid State, N.C. 150 mA
Anti-tamper switch	N.C. 28 Vdc, 0.15 A
Operating temperature	-10°C to 50°C (14°F to 122 °F)
Humidity	95% max.
Dimensions	9.1 x 5.5 x 4 cm (3.5 x 2.2 x 1.6 in.)
RFI Immunity	10 V/m 80 MHz to 2 GHz
Environmental standards	Complies with EN 50131 Security Grade 2 / Environmental Class I

Beam Pattern



Wall/Ceilling Bracket

Wall Mount Bracket Ceiling Mount Bracket









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TM50 (5") / TM70 (7")

Touch Screen Keypads



TM50/TM70

The TM50/TM70 are touch screen input keypads designed to communicate with Paradox control panels, and offer user friendly interface. Both offer vivid colors and two sizes to select, 7" – TM70 or 5" – TM50.

The TM70 due to its larger screen allows for more information to be displayed on one screen and is more convenient in comparison to the TM50.

Both touch screen displays are compatible with Spectra, Magellan and EVO Paradox systems, and both support Paradox next generation Swan panels with RS-485 fast encrypted bus, and features like complete menu programming, remote keypad firmware upgrade and screen saver images download from the Insite GOLD application.

The TM70 / TM50 have screen savers with auto mode, adjustable brightness with auto dim mode and full dark sleep mode, indoor temperature display, bus voltage monitoring and easy multi-partition control.

The TM70 LCD color display resolution is 800 x 400 pixels while the TM50 resolution is 472 x 272 pixels. Both come with an external SD media card (4 GB), 2 GB free space for uploading jpegs for screen savers.

The TM70 is offered in white and the TM50 in white or black colors, other colors may be custom ordered.

Features

- ▶ 7" (TM70) / 5" (TM50) with vivid color display
- ▶ Compatible with Swan, EVO, Spectra and Magellan
- Built-in zone input
- Customizable labels (zones, partitions, users, doors and PGMs)
- External SD Media Card slot (4 GB with 2 GB of free space) for uploading photos; acts like a digital picture frame
- Firmware upgradable via SD card
- ▶ Indoor temperature reading
- In-wall bracket (optional)



TM70 installed with in-wall optional bracket

Technical Specifications

	TM70	TM50						
Power Input	9 to 15 VDC							
Consumption	250 mA at max brightness + 80 mA sound	er 150 mA at max brightness, +80 mA sounde						
Wire Connection	18 Gauge	22 Gauge, 18 Gauge recommended						
Display	7" 800 x 480	5" 480 x 272						
Dimensions	17.7 x 11.4 x 1.5 cm (7 x 4.5 x 0.6 in.)	14.2 x 9.5 x 1.4 cm (5.6 x 3.75 x 0.56 in.)						
Humidity		5-90%						
Indoor Temperature	Yes							
SD Card	4 GB	; 2 GB free						
Input	Zone,	configurable						
Tamper	Built-in,	cover and wall						
Compatibility	Swan, EVO,	Spectra, Magellan						
Remote Upgrade	Sv	van only						
Jpeg Download	Swan via Bus, E	VO/Spectra SD Card						
Auto Dim		Yes						
Chime		Yes						







IP150+ **Internet Module**



Description

The IP150+ Internet Communication Module provides access to Paradox systems. With the IP150+, connecting to a system is possible with Insite GOLD application, PC software for programming, upgrade and monitoring, as well as reporting to central station by connection to Paradox receivers.

The IP150+ can also be configured to work with closed networks, without internet connections.

The IP150+ module includes two outputs that are remotely configured through the web interface or the Insite GOLD app. They can be used to control lights, heaters, and such.

The IP150+ offers fail-safe upgrades: it will fall back to the previous version should any issues arise during the upgrade process

The IP150+ is designed with a space saving clip-on, perfect for rapid, no-screw installation and includes LED status for proper operation.

Easy Clip-on Installation



IP150+ Installed in a Metal Box



IP150+ Installed in a Plastic Box

Features

- ▶ Central station reporting via IPR512 or IPRS-7
- ▶ Provides connectivity to Insite GOLD, BabyWare, NEware or InField to access your system through the internet
- ▶ DHCP connectivity with no configuration
- ▶ Remote firmware upgrades with a fail-safe mode
- ▶ Sends notification and alarm system events via email
- ▶ Internal diagnostic logs via Insite GOLD app
- > SSL support for sending secured email messages, via a secure sockets layer; a popular protocol for encrypting information over the internet
- ▶ Easy installation: no screws needed, a built-in clip for mounting in a metal box
- ▶ Compatible with Spectra SP series, MG5000 / MG5050 / MG5075, and EVO control panels

Specifications

Panel Compatibility	EVO, Spectra SP, MG5000, MG5050, and MG5075
Upgrade Software	InField
IP Receivers	IPR512 or IPRS-7
Encryption	MD5 and RC4
Current Consumption	100 mA
Input Voltage	13.8 Vdc, supplied by the panel serial port
Enclosure Dimensions	10.9 x 2.7 x 2.2 cm (4.3 x 1.1 x 0.9 in.)
Certification	CE, EN 50136 ATS 5 Class II





Specifications DFMWP16

The DFMWP16 is combo siren and strobe (slim design).

- New design
- Siren tone selectable for different applications
- Sound volume adjustable: low dB for testing and high dB for normal operation
- Bright: new LED strobe design
- Independent siren and strobe operation
- High quality UV treated case
- Weatherproof
- Front and back tampers
- EOLRs built in, suitable for most major alarm panels

Operating voltage: 9-15VDC

SPL @ 1meter: 110dB

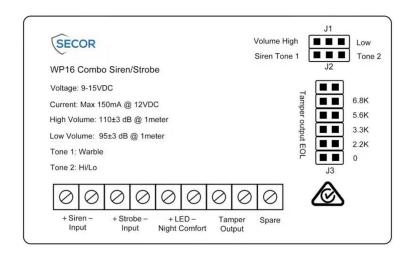
Siren current draw: 150mA

Strobe current draw: 50mA

Siren tone selectable: Tone 1: warble; Tone 2: Hi/Lo

Dimension: 200 x 110 x 40mm









Specifications DFMWP08

The DFMWP08 is indoor top hat piezo.

Input voltage: 12VDC

SPL @ 1meter: 105dB

Current draw: 90mA





VRLA 12V7AH

SA12V7

Specifications

Nominal Voltage Nominal Capacity 20HR

Dimensions

Approx Weight

Terminal

Container Material

Lead Material

Sulfurid Acid Separator

Rated Capacity

Max. Discharge Current

Internal Resistance

Operating Temp.Range

Nominal Operating Temp.Range

Cycle Use

Standby Use

Capacity affected by Temperature

Self Discharge

12 V

7.0 AH

 Length
 151±1mm [5.94 inches]

 Width
 65±1mm [2.56 inches]

 Container Height
 95±1mm [3.74 inches]

Container Height 95±1mm (3.74 inches)
Total Height (with terminal) 100±1mm (3.94 inches)

Approx 2.10 kg (4.63 lbs)

F1

ABS Plastic

Purity Lead 99.995%

Distilled Sulfurid Acid (Zero metal content)

AGM

7.00 AH/0.350A [20hr, 1.80V/cell, 25°C/77°F] 6.53 AH/0.653A [10hr, 1.80V/cell, 25°C/77°F] 6.00 AH/1.20A [5hr, 1.75V/cell, 25°C/77°F] 5.37 AH/1.79A [3hr, 1.75V/cell, 25°C/77°F] 4.55 AH/4.55A [1hr, 1.60V/cell, 25°C/77°F]

105A (5s)

Approx $23m\Omega$

Discharge: -15 - 50°C (5 - 122°F) Charge: 0 - 40°C (32 - 104°F) Storage: -15 - 40°C (5 - 104°F)

25±3°C [77±5°F]

Initial Charging Current less than 2.1A. Voltage

14.4V - 14.7V at 25°C (77°F) Temp.Coefficient -30mV/°C

No limit on Initial Charging Current Voltage

13.5V - 13.8V at 25°C (77°F) Temp.Coefficient -20 mV/°C

40°C [104°F] 103% 25°C [77°F] 100% 0°C [32°F] 86%

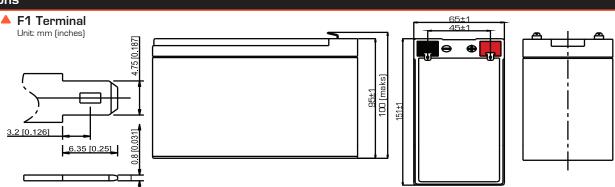
Sentry AGM series batteries may be stored for up to 6 months at 25° C (77° F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.



Applications

- All purpose
- Standby Applications
- Recreation Vehicles
- Uninterruptible Power Supply (UPS)
- Electric Power System (EPS)
- Fire & Security
- Generators
- Medical Equipment

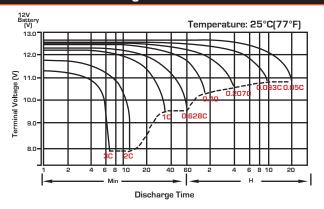
Dimensions



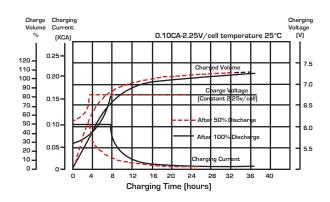
	Constant Current Discharge (Amperes) at 25°C (77°F)														
F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	18.0	12.8	10.48	8.79	6.53	4.79	3.86	2.29	1.69	1.36	1.14	0.98	0.774	0.640	0.345
1.80V/cell	21.4	14.3	11.4	9.44	6.94	5.05	4.03	2.38	1.74	1.40	1.17	1.01	0.791	0.653	0.350
1.75V/cell	24.2	15.6	12.2	10.0	7.29	5.27	4.18	2.45	1.79	1.43	1.20	1.03	0.805	0.663	0.357
1.70V/cell	26.7	16.7	12.9	10.5	7.59	5.46	4.32	2.51	1.83	1.46	1.22	1.05	0.817	0.672	0.361
1.65V/cell	28.8	17.7	13.5	10.9	7.86	5.62	4.46	2.57	1.86	1.48	1.23	1.06	0.826	0.680	0.365
1.60V/cell	30.6	18.6	14.1	11.3	8.09	5.76	4.55	2.61	1.89	1.50	1.25	1.07	0.834	0.685	0.367

	Constant Power Discharge (Watts/Cell) at 25°C (77°F)														
F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	34.2	24.5	20.2	17.1	12.8	9.44	7.64	4.56	3.37	2.72	2.29	1.99	1.565	1.296	0.701
1.80V/cell	40.2	27.2	21.9	18.3	13.5	9.91	7.96	4.72	3.47	2.79	2.34	2.03	1.593	1.318	0.708
1.75V/cell	45.1	29.5	23.3	19.3	14.2	10.3	8.23	4.85	3.55	2.85	2.39	2.06	1.616	1.344	0.719
1.70V/cell	49.2	31.3	24.5	20.1	14.7	10.6	8.48	4.96	3.62	2.89	2.42	2.09	1.633	1.347	0.725
1.65V/cell	52.6	32.9	25.5	20.8	15.2	10.9	8.73	5.05	3.68	2.93	2.45	2.11	1.649	1.359	0.731
1.60V/cell	55.5	34.3	26.3	21.5	15.5	11.2	8.88	5.12	3.72	2.96	2.47	2.13	1.660	1.367	0.734

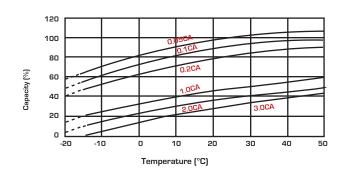
Discharge Characteristics



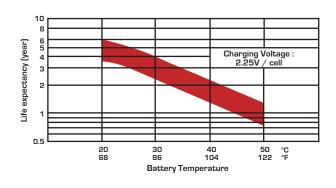
Float Charging Characteristics



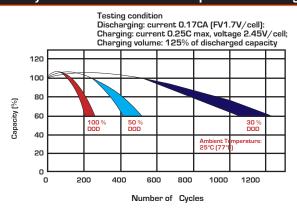
Temperature Effects in Relation to Battery Capacity



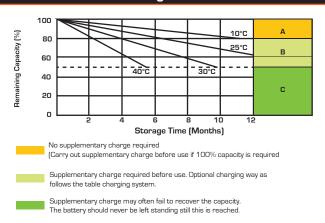
Effect of Temperature on Long Term Float Life



Cycle Life in Relation to Depth of Discharge



Self Discharge Characteristics



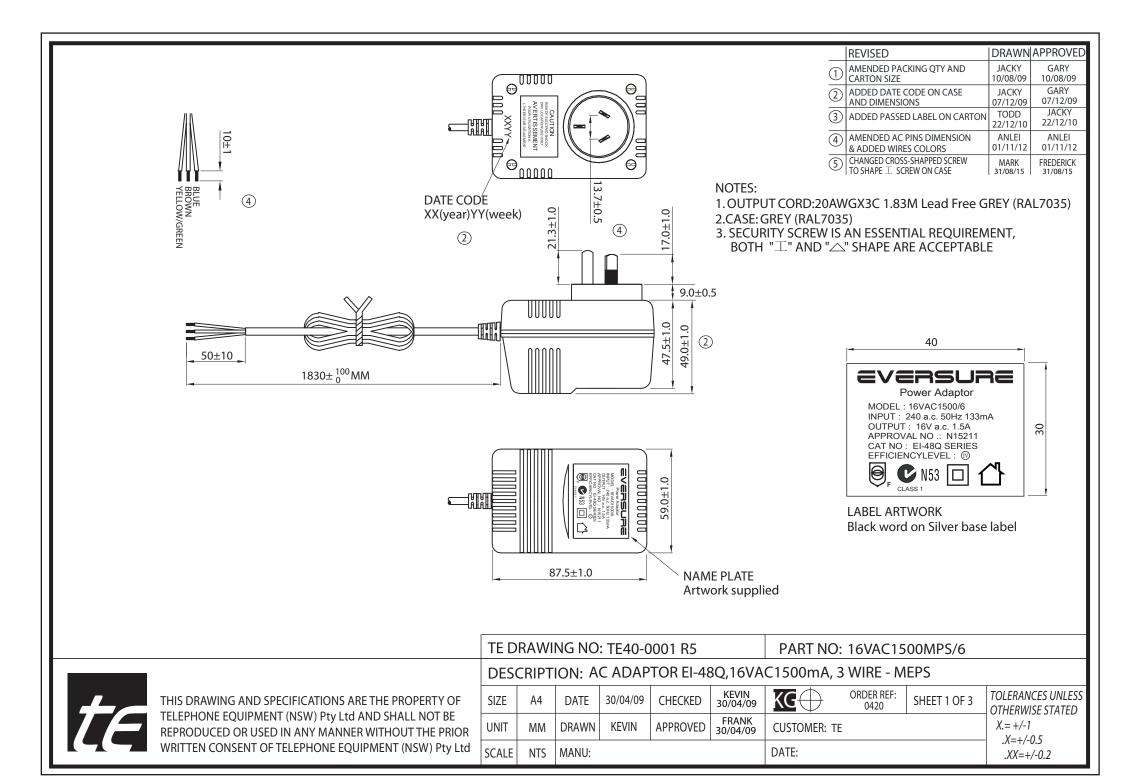
Charging System

DOD	Currency Limit (A)	Constant Voltage (V)	Fully Charged Time (h)
	0.15C₁₀	13.5-13.8 vpc (12V)	10
20	0.20C ₁₀	6.75-6.9 vpc (6V)	8
50	0.15C₁₀	13.5-13.8 vpc (12V)	15
	0.20C ₁₀	6.75-6.9 vpc (6V)	12
80	0.15C₁₀	13.5-13.8 vpc (12V)	16
80	0.20C ₁₀	6.75-6.9 vpc (6V)	14
100	0.15C₁₀	13.5-13.8 vpc (12V)	20
100	0.20C ₁₀	6.75-6.9 vpc (6V)	18

State of Charge (SOC)

Open Circuit Voltage (V/cell)	Open Circuit Voltage (12V/cell)	Open Circuit Voltage (6V/cell)	State of Charge (% of full charge capacity)
2.14-2.15	12.84-12.90	6.42-6.46	100
2.12-2.13	12.72-12.78	6.36-6.39	90
2.11	12.66	6.33	80
2.09	12.54	6.27	70
2.07	12.42	6.21	60
2.05	12.30	6.15	50





TEM	ITE	\ a	CRECIFICATION						
2. Secondary rated output voltage and current Loaded Voltage : AC 18 V ± 5% AT 1500 mA									
voltage and current 3. Ripple voltage 4. Insulation resistance Primary - secondary: DC 500 V 100 M Ω Min 5. Dielectric withstand test Primary - secondary: AC 3.64 KV 1 seconds 6. Temperature rise At rated loading 90°C max. For input coil (By resistance method) and 55°C max. on case surface (By use of thermometer) 7. EFFICIENCY Primary SAA PLUG IN TYPE 8. Leadout Primary Secondary PVC cable length: 1.8 Meter Colour : GREY (RAL7035) Wire size AWG#20/3C Plug : STRIPPED AND TINNED PRIMARY SECONDARY 9. Test circuit									
3. Ripple voltage 4. Insulation resistance Primary - secondary: DC 500 V 100 MΩ Min 5. Dielectric withstand test Primary - secondary: AC 3.64 KV 1 seconds 6. Temperature rise At rated loading 90°C max. For input coil (By resistance method) and 55°C max. on case surface (By use of thermometer) 7. EFFICIENCY Primary SAA PLUG IN TYPE 8. Leadout PVC cable length: 1.8 Meter Colour: GREY (RAL7035) Wire size: AWG#20/3C Plug: STRIPPED AND TINNED PRIMARY SECONDARY 9. Test circuit	1	•	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2						
4. Insulation resistance Primary - secondary: DC 500 V 100 M Ω Min 5. Dielectric withstand test Primary - secondary: AC 3.64 KV 1 seconds 6. Temperature rise At rated loading 90 ℃ max. For input coil (By resistance method) and 55 ℃ max. on case surface (By use of thermometer) 7. EFFICIENCY ≥ 79% Primary SAA PLUG IN TYPE 8. Leadout PVC cable length: 1.8 Meter Colour: GREY (RAL7035) Wire size: AWG#20/3C Plug: STRIPPED AND TINNED PRIMARY SECONDARY 9. Test circuit		ent							
Frimary - secondary: DC 500 V 100 MΩ Min 5. Dielectric withstand test Primary - secondary: AC 3.64 KV 1 seconds 6. Temperature rise At rated loading 90 ℃ max. For input coil (By resistance method) and 55 ℃ max. on case surface (By use of thermometer) 7. EFFICIENCY ≥ 79% Primary SAA PLUG IN TYPE 8. Leadout PVC cable length: 1.8 Meter Colour: GREY (RAL7035) Wire size: AWG#20/3C Plug: STRIPPED AND TINNED PRIMARY SECONDARY 9. Test circuit			mV (RMS) MAX. AT Rated Loading						
6. Temperature rise At rated loading 90°C max. For input coil (By resistance method) and 55°C max. on case surface (By use of thermometer) 7. EFFICIENCY ≥ 79% Primary SAA PLUG IN TYPE 8. Leadout PVC cable length: 1.8 Meter Colour: GREY (RAL7035) Wire size: AWG#20/3C Plug: STRIPPED AND TINNED PRIMARY PRIMARY SECONDARY 9. Test circuit	4. Insulation resist	ance	Primary - secondary: DC 500 V 100 M Ω Min						
and 55℃ max. on case surface (By use of thermometer) 7. EFFICIENCY ≥ 79% Primary SAA PLUG IN TYPE 8. Leadout Secondary PVC cable length: 1.8 Meter Colour : GREY (RAL7035) Wire size: AWG#20/3C Plug : STRIPPED AND TINNED PRIMARY SECONDARY THERMAL FUSE 9. Test circuit	5. Dielectric withst	and test	Primary - secondary: AC 3.64 KV 1 seconds						
and 55℃ max. on case surface (By use of thermometer) 7. EFFICIENCY ≥ 79% Primary SAA PLUG IN TYPE 8. Leadout Secondary PVC cable length: 1.8 Meter Colour : GREY (RAL7035) Wire size: AWG#20/3C Plug : STRIPPED AND TINNED PRIMARY SECONDARY THERMAL FUSE 9. Test circuit	6. Temperature rise	e	At rated loading 90℃ max. For input coil (By resistance method)						
7. EFFICIENCY ≥ 79% 8. Leadout Primary SAA PLUG IN TYPE Secondary PVC cable length: 1.8 Meter Colour : GREY (RAL7035) Wire size: AWG#20/3C Plug : STRIPPED AND TINNED PRIMARY SECONDARY THERMAL FUSE PRIMARY PRIMARY PRIMARY A THERMAL FUSE									
8. Leadout Secondary PVC cable length: 1.8 Meter Colour : GREY (RAL7035) Wire size: AWG#20/3C Plug : STRIPPED AND TINNED PRIMARY SECONDARY THERMAL FUSE 9. Test circuit	7. EFFICIENCY								
Secondary PVC cable length: 1.8 Meter Colour GREY (RAL7035) Wire size: AWG#20/3C Plug : STRIPPED AND TINNED PRIMARY SECONDARY THERMAL FUSE 9. Test circuit		Primary	SAA PLUG IN TYPE						
9. Test circuit Colour : GREY (RAL7035) Wire size: AWG#20/3C Plug : STRIPPED AND TINNED PRIMARY SECONDARY THERMAL FUSE O O O O O O O O O O O O O	8. Leadout								
9. Test circuit Wire size: AWG#20/3C Plug: STRIPPED AND TINNED PRIMARY SECONDARY THERMAL FUSE PRIMARY SECONDARY THERMAL FUSE		Secondary	PVC cable length: 1.8 Meter						
9. Test circuit Plug : STRIPPED AND TINNED PRIMARY SECONDARY THERMAL FUSE			Colour GREY (RAL7035)						
9. Test circuit			Wire size: AWG#20/3C						
9. Test circuit			Plug : STRIPPED AND TINNED						
9. Test circuit			PRIMARY SECONDARY						
LOADING	9. Test circuit		THERMAL MILE AND A THERMAL						
			LOADING						
10. Case SAA48 colour = GREY (RAL7035)	10. Case		SAA48 colour = GREY (RAL7035)						

		REVISED	DRAWN	APPROVED
(1	AMENDED PACKING QTY AND CARTON SIZE	JACKY 10/08/09	GARY 10/08/09
(2	ADDED DATE CODE ON CASE AND DIMENSIONS	JACKY 07/12/09	GARY 07/12/09
(3	ADDED PASSED LABEL ON CARTON	TODD 22/12/10	JACKY 22/12/10
(4	AMENDED AC PINS DIMENSION & ADDED WIRES COLORS	ANLEI 01/11/12	ANLEI 01/11/12
(5	CHANGED CROSS-SHAPPED SCREW TO SHAPE ⊥ SCREW ON CASE	MARK 31/08/15	FREDERICK 31/08/15

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TE DRAWING NO: TE40-0001 R5

DESCRIPTION: AC ADAPTOR EI-48Q,16VAC1500mA, 3 WIRE - MEPS

SIZE	A4	DATE	30/04/09	CHECKED	KEVIN 30/04/09	KG	ORDER REF: 0420	SHEET 2 OF 3	TOLERANCES UNLESS OTHERWISE STATED
UNIT	MM	DRAWN	KEVIN	APPROVED	FRANK 30/04/09	CUSTOMER: TE			X.= +/-1 .X=+/-0.5
SCALE	NTS	MANU:				DATE:	.XX=+/-0.2		

PART NO: 16VAC1500MPS/6

