



58Khz

BTL Common Platform

EAS Systems

(EAS4.0 ver1.1 AM board)

Installation Manual

February 2012

Manual Part Number:

(Ver.)

WARRANTY DISCLAIMER

WG Security Products Inc. makes no representation or warranty with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. Further, WG Security Products Inc. reserves the right to revise this publication and make changes from time to time in the content hereof without obligation of WG Security Products Inc. to notify any person of such revision or changes.

FCC ID: P9I-WGBTLLG

"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."

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the Federal Communications Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The use of a shielded-type power cord is required in order to meet FCC emission limits and to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used. Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Note:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

RF exposure warning

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter

WG SECURITY PRODUCTS INC.

3031 Tisch Way, Suite 602, San Jose, CA 95128 (USA)
<http://www.wgspi.com>

Technical Support Contact Information	
North America South America	Tel: 949-545-6005 Toll Free: 888-633-5095 Fax: 949-545-6011 Email: service@wgspi.com
Rest of World	Tel: 4+49 8654 7715-21 Fax: 4+49 8654 7715-21 Email: support-ROW@wgspi.com

CRITICAL NOTE

As specified by FCC Regulations 15.21, any changes or modifications not expressly approved by the party responsible for compliance of this equipment, will void the user's permission and authority to operate this equipment.

TABLE OF CONTENTS

OVERVIEW	1
System Overview	1
System Configurations	2
Product Names and Part Numbers	3
Common Platform Features & Benefits	4
Specifications (common parameters)	5
COMMON PLATFORM ELECTRONICS	6
BTL AM Board Functions Description	6
Antenna Channels on BTL AM Board	7
TX Amplitude POT on BTL AM Board	8
BTL AM Board to Socket Board Power Cables Connections	9
Pedestal Socket Board Connections	10
Fuse Replacement Information (on BTL socket Board)	12
Pedestal Tuning Access (on BTL AM Board)	13
SMART POWER SUPPLY (SPS)	14
SPS Controls and Connections	14
SPS Box Terminals Illustration	15
SPS Box Main AC Input and Voltage Setup	16
Interconnection between Smart Power Supply and Pedestal	17
Power Cord Notices	18
SPS Box Mounting Instructions	20
SPS Box External Relay interface	21

OVERVIEW

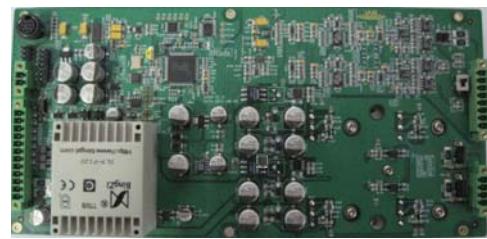
System Overview

Note: Common Platform EAS Systems differ only in the antennas that are used. All systems use a universal transceiver printed circuit board that performs all the functions of transmitting, receiving and alarm notification. This manual applies to AdGuard, AdGuard XL, Lane Guard and Diamond Door Guard.

The common platform line of products consist of one or more pedestals (transceiver antenna and optional extender), and one external PSU unit (WG SPS24). The transceiver pedestal has one universal transceiver board which transmits and receives utilizing highly advanced signal process technology, offering unsurpassed stability and detection performance.



Transceiver Antenna and Slave
(AdGuard)



BTL Transceiver PCB ver1.1



24vac Smart Power Supply Unit
(SPS)

Detection Range on Both Sides of Antennas with Micro Pencil Tags

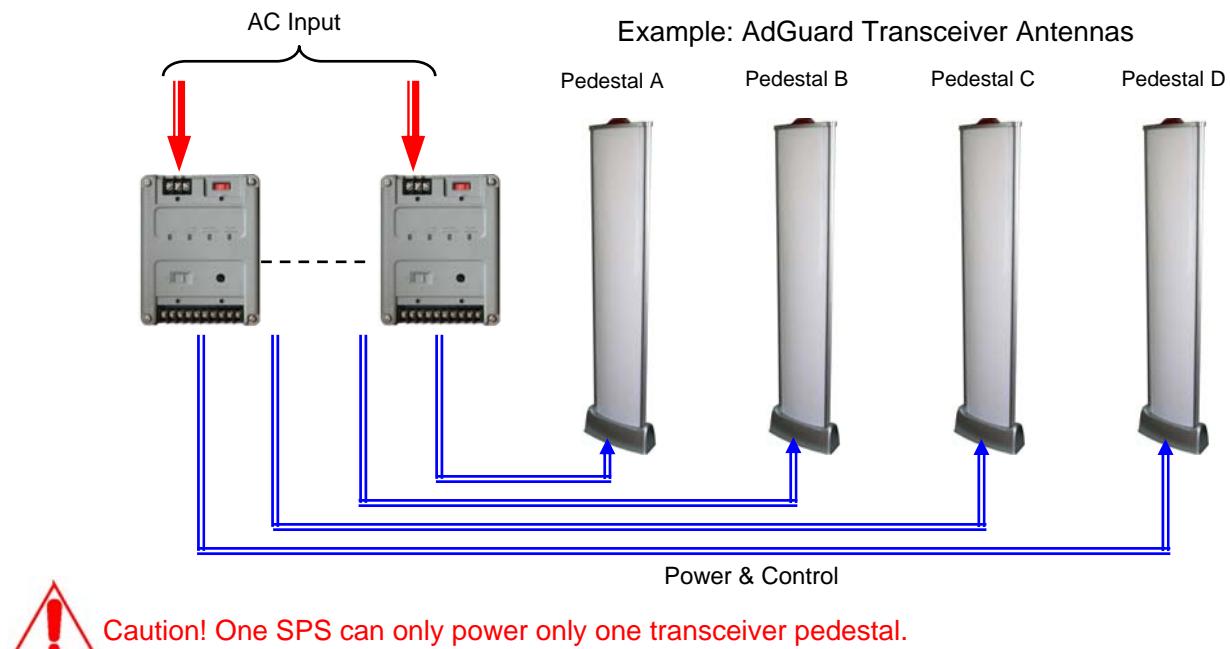
Antenna Type	Europe	USA
AdGuard BTL	m	ft
AdGuard BTL with Slave	TBD	TBD
AdGuard XL BTL	m	ft
AdGuard XL BTL with Slave	TBD	TBD
Lane Guard BTL	m	ft
Premier Guard BTL	m	ft
Premier Pro BTL	m	ft

System Configurations

Each transceiver pedestal is powered by its own dedicated SPS. The common platform SPS not only provides 24vac power to the transceiver pedestal, but it includes some very important features.

- Accepts a wide AC input voltage ranges
- Controls transmitter bursts for troubleshooting
- Adjusts pedestal alarm volume
- Provides alarm visual & audio indication and relay output
- Provides Jammer Detection alarm and relay output

24vac power and data/control is carried by a single TX cable from the SPS to the pedestal. Each SPS is individually powered. This picture depicts an example where 4 power supplies are integrated into a single industry standard rack with main power input and to which each SPS is then connected.



Caution! One SPS can only power only one transceiver pedestal.

The Common Platform Product Line includes any of the following antenna models.



Common Platform EAS Systems

Product Names and Part Numbers

Accessories

<u>Accessory Name</u>	<u>Order Number</u>
1. Smart Power Supply (SPS unit)	WG SPS24
2. Instruction Manual	
3. Power Line Connector (2 pins)	
4. Communication Connector (4 pins)	
5. Laptop Tuning Software	
6. Serial Tuning Cable	
7. USB to Serial Convertor	
8. WG IR Tuning Module	

Systems

<u>Antenna Name</u>	<u>Order Number</u>
1. AdGuard BTL Transceiver Pedestal	WG BTLAG
2. AdGuard BTL Slave Pedestal	WG BTLAG-EX
3. AdGuard XL BTL Transceiver Pedestal	WG BTLAGX
4. AdGuard XL BTL Slave Pedestal	WG BTLAGX-EX
5. Lane Guard Transceiver Pedestal	WG BTLLG
6. Premier Guard BTL Transceiver	WG BTLPG
7. Premier Pro BTL Transceiver	WG BTLPP

Common Platform Features & Benefits

- All-in-One platform design for the Acousto-Magnetic (AM) product line makes it a perfect AM detection core solution for various antenna forms and needs. There are visible advantages on short term and long term operation along with low cost maintenance.
- Unprecedented Digital Signal Processing Technology
The common platform line brings an ever advancing DSP technology to an unprecedented level compared with traditional anti-theft solutions, eliminating false alarms and maintaining a considerable detection range.
- Universal Mobile PC Tuning Interface
Benefiting from its highly performance-rich digital processing controller, the common platform can connect to laptop PC through the popular USB port.
- Anti-Jammer Alarm
The Anti-Jammer alarm function addresses the modern high-tech theft actions that defeat the Acousto-Magnetic detection system with DIY jamming devices. WG's common platform design detects and alerts security personnel as soon as the jammer device attempts to defeat the transceiver pedestal.
- Local and Remote Audible and Visual Notification
Alarm flexibility provides local alarming at the pedestal plus remote alarm notification through the SPS via convenient visual and external ports.
- Transceivers can be individually optimized for label or ferrite tag detection.

Common Platform EAS Systems

Specifications (common parameters)

Smart Power Supply (SPS) Electrical

	100vac $\pm 10\%$
Primary Input (Stepdown Transformer)	110vac $\pm 10\%$
	120vac $\pm 10\%$
	220vac $\pm 10\%$
	240vac $\pm 10\%$
Secondary Output	26Vac $\pm 5\%$
Rated Output Current	1.8A
Maximum Secondary Output Current	1.9 A
Built-in Fuse (self recovery)	500mA

Smart Power Supply (SPS) Mechanical

Height	80mm (3.15")
Width	110mm (4.33")
Thickness	140mm (5.5")
Weight	3 Kg (6.6 lbs)

Environmental (Pedestals and SPS)

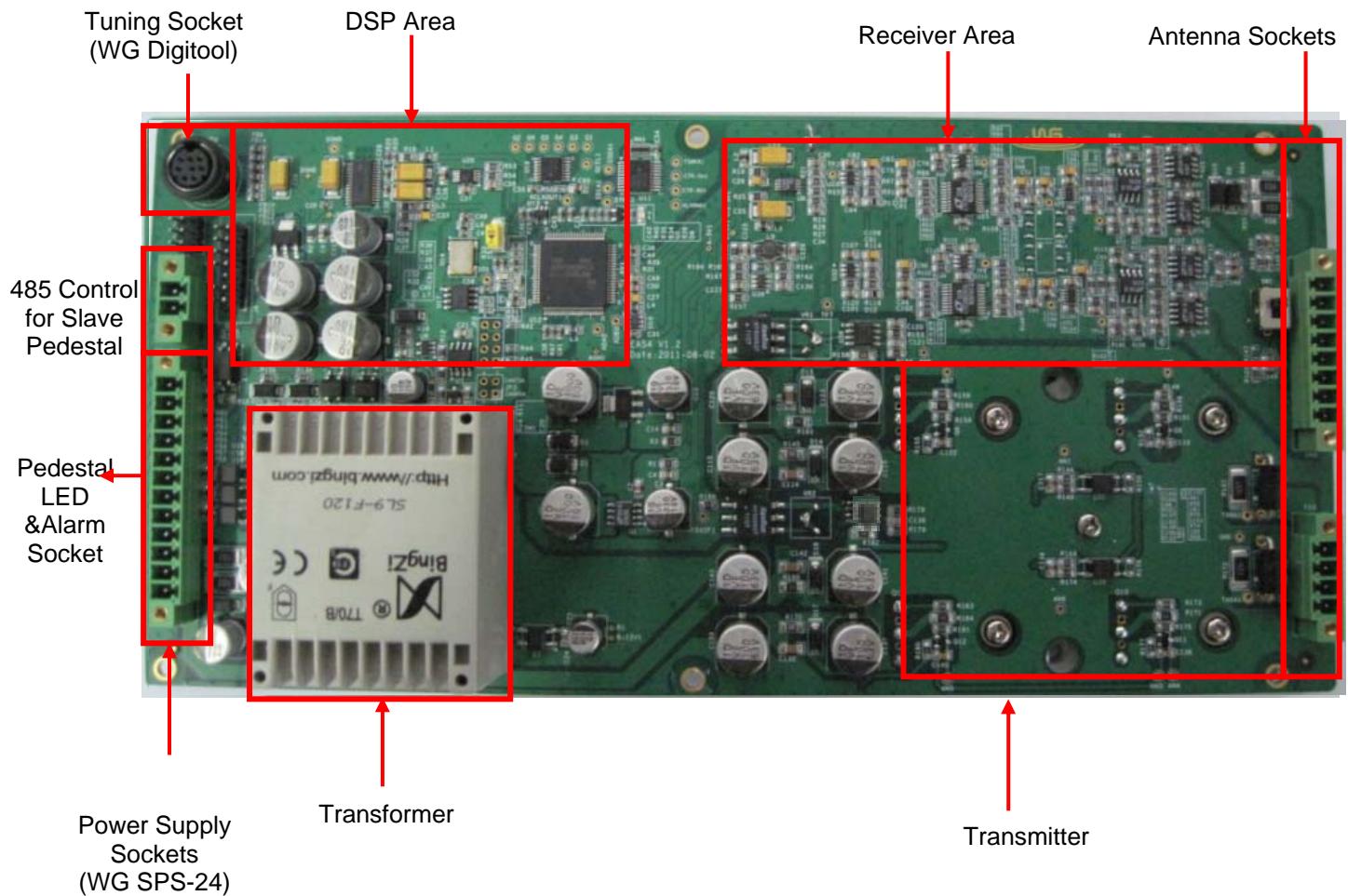
Operating Temperature	45 °C (113°F)
Relative Humidity	0 to 85% non-condensing

Mechanical (Pedestals)

AdGuard BTL Pedestal	66"H x 12.6"W x 3"D (166 x 33 x 7.6cm) 21.5Kg Weight
AdGuard XL BTL Pedestal	66"H x 18.5"W x 3.54"D (166 x 48 x 8.6cm) 26.5Kg Weight
Lane Guard BTL (w/o brackets)	52.8"H x 14.4"W x 1.5"D (134 x 36.7 x 3.8cm) 15Kg Weight
Premier Guard BTL	60"H x 15"W x 5.9"D(153 x 38 x 15cm) ??Kg Weight
Premier Pro BTL	60"H x 26.7"W x 5.9"D(153 x 68 x 15cm) ??Kg Weight

COMMON PLATFORM ELECTRONICS

BTL AM Board Functions Description



Antenna Channels on BTL AM Board



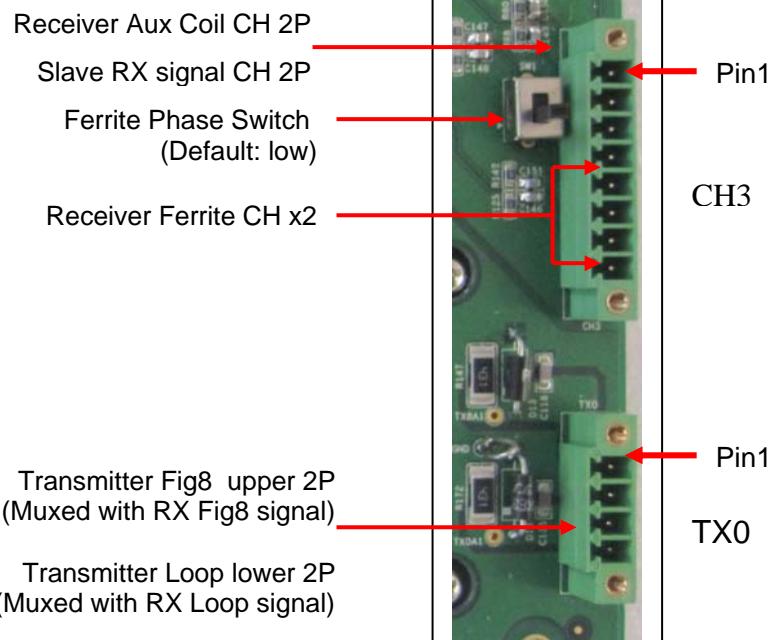
Some pedestal types may have internal auxiliary RX coil antenna and connect to this socket.

Tips:

The ferrite channel phase switch is useful when sometime install run into high noise environmental and two ferrite rod antennas may have additive noise value to block up the RX channel. Switch the phase may bring noise down.



TX Fig8 and Loop sockets connect to the two types of coil antennas. They must not be transposed; strictly follow the sockets identification.



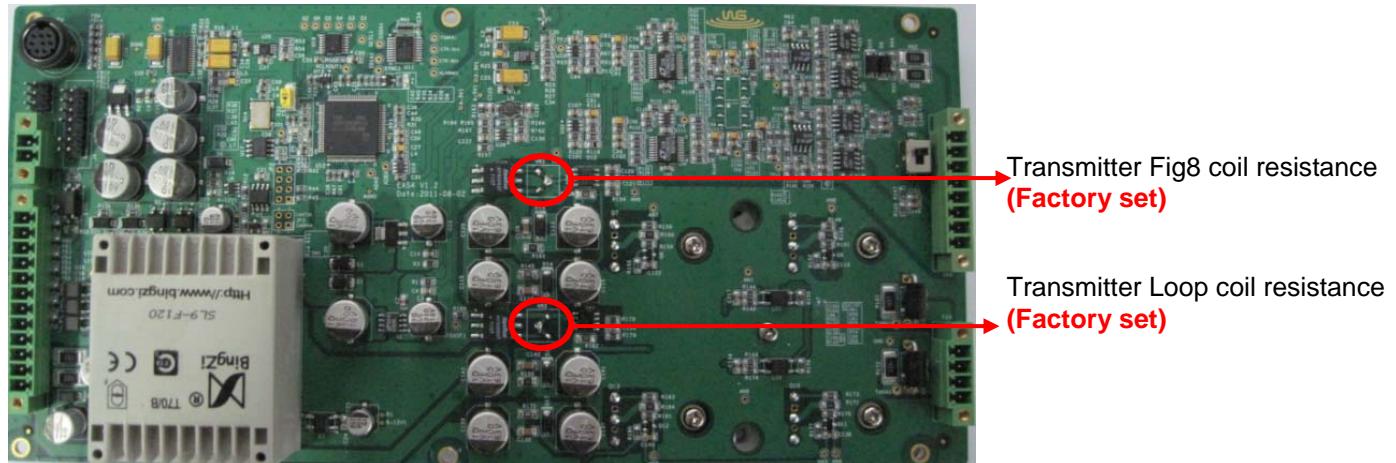
Receiver Channels Socket

Pin #	Function	Cable color
1	Receiver Aux loop coil	Blue
2	Receiver Aux loop coil	Blue
3	Slave RX signal	Yellow
4	Slave RX signal	Red
5	Receiver Ferrite CH1	Black
6	Receiver Ferrite CH1	Red
7	Receiver Ferrite CH2	Black
8	Receiver Ferrite CH2	Red

Transmitter Channels Socket

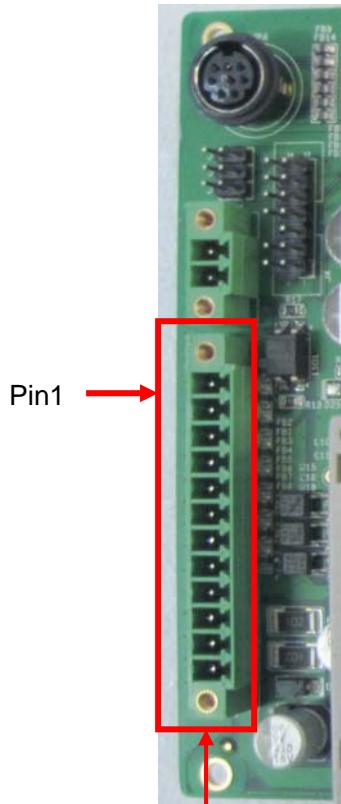
Pin #	Function	Cable color
1	TX Fig8	Red
2	TX Fig8	Yellow
3	TX Loop	Brown
4	TX Loop	Yellow

TX Amplitude POT on BTL AM Board



BTL AM Board to Socket Board Power Cables Connections

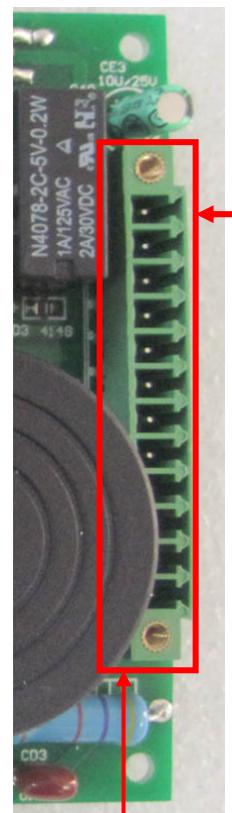
BTL AM Board



Pin #	Function	Cable color
1	12V	Brown
2	5V	Red
3	empty	Orange
4	GND	Yellow
5	Alarm Volume	Green
6	Anti-Jammer	Blue
7	Alarm	Purple
8	TX OFF	Grey
9	24V	White
10	+32V	Black
11	GND	Brown
12	-32V	Red

Backside Socket Board

Pin1
Pin2
Pin3
Pin4
Pin5
Pin6
Pin7
Pin8
Pin9
Pin10
Pin11
Pin12

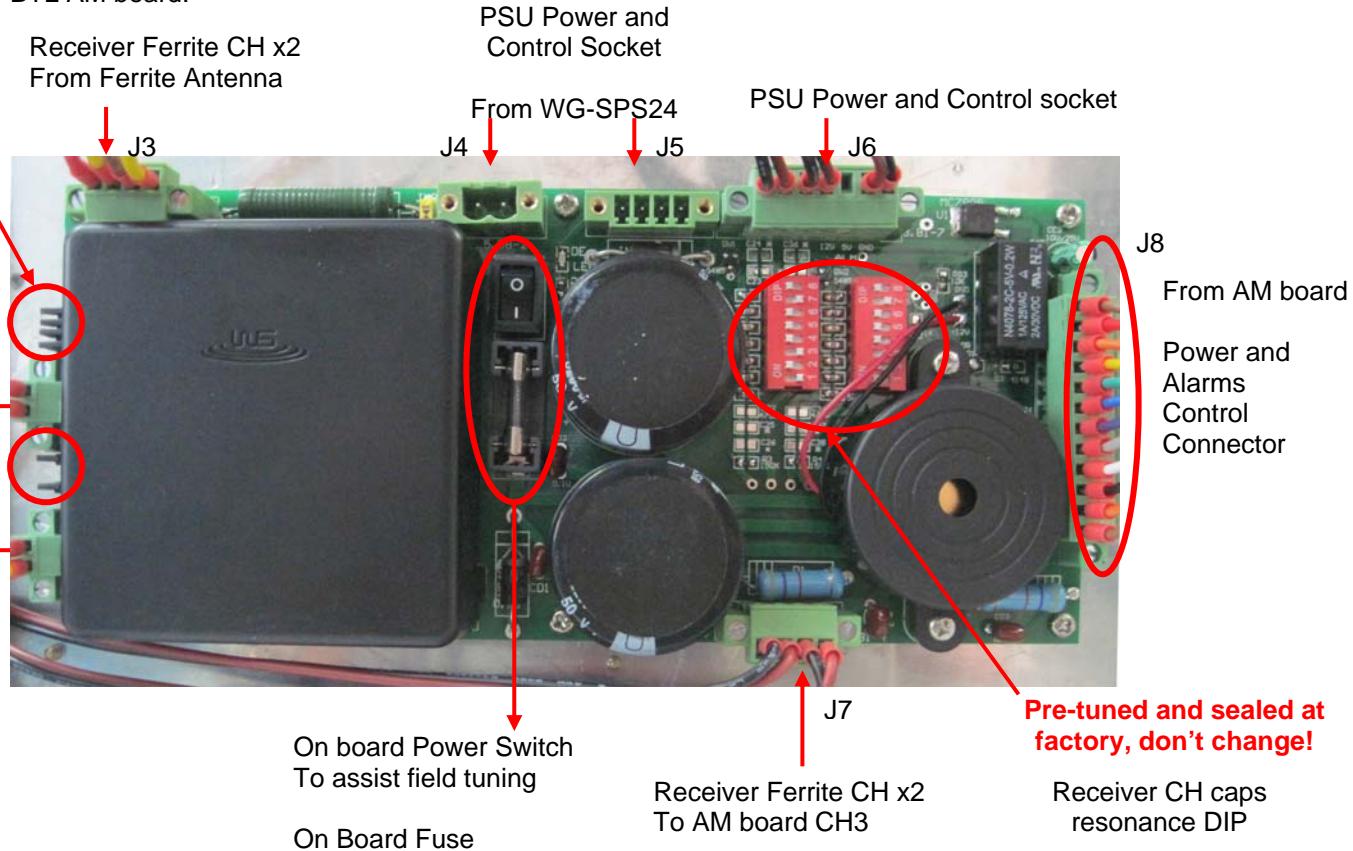


Pin1



Pedestal Socket Board Connections

AD-Guard and Premier Guard BTL series systems has a socket board on pedestal to facilitate TX caps tuning and trans-connect all antenna connections and PSU power connections to BTL AM board.



Socket board J8 12P pin descriptions

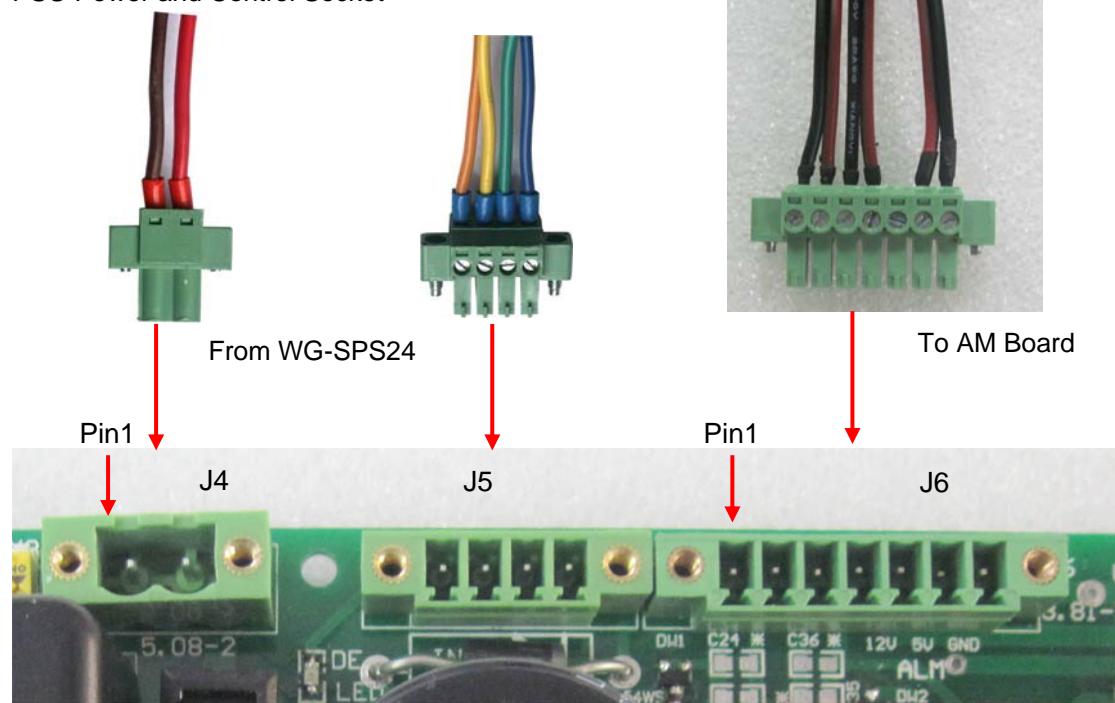
Pin #	Function	Cable color
1	12V	Brown
2	5V	Red
3	empty	Orange
4	GND	Yellow
5	Alarm Volume	Green
6	Anti-Jammer	Blue
7	Alarm	Purple
8	TX OFF	Grey
9	24V	White
10	+32V	Black
11	GND	Brown
12	-32V	Red



Connector Picture

Common Platform EAS Systems

PSU Power and Control Socket

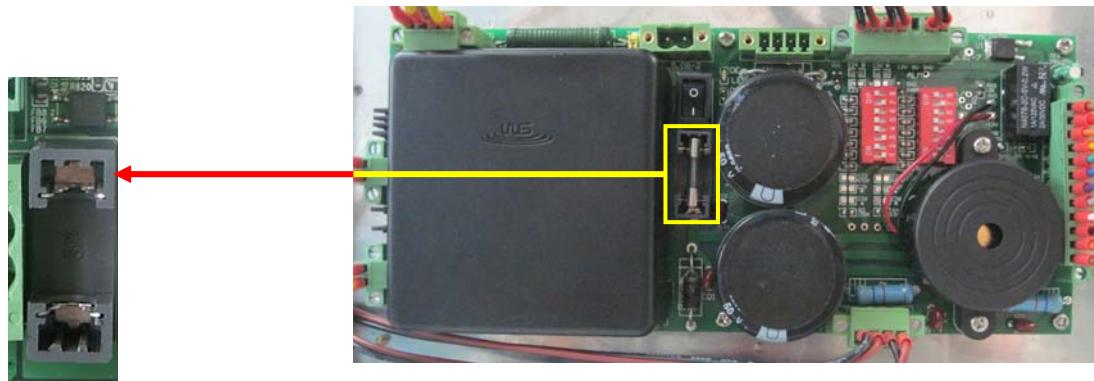


Pin #	Function	I/O	Cable color
1	GND	Common GND	Brown (white)
2	24VAC	26vac \pm 5%	Red
3	TX OFF	Output	Orange
4	Alarm	Input	Yellow
5	Anti-Jammer	Input	Green
6	Alarm Volume	Output	Blue

Pin #	Function	Cable color
1	Ferrite CH1	Black
2	Ferrite CH1	Red
3	Ferrite CH2	Black
4	Ferrite CH2	Red
5		
6	Alarm	Red
7	Alarm	Black

Fuse Replacement Information (on BTL socket Board)

The fuse holder is accessed through the socket board side of pedestal.



Fuse Replacement:
5mm x 20mm
3.15A (Fast Fuse)

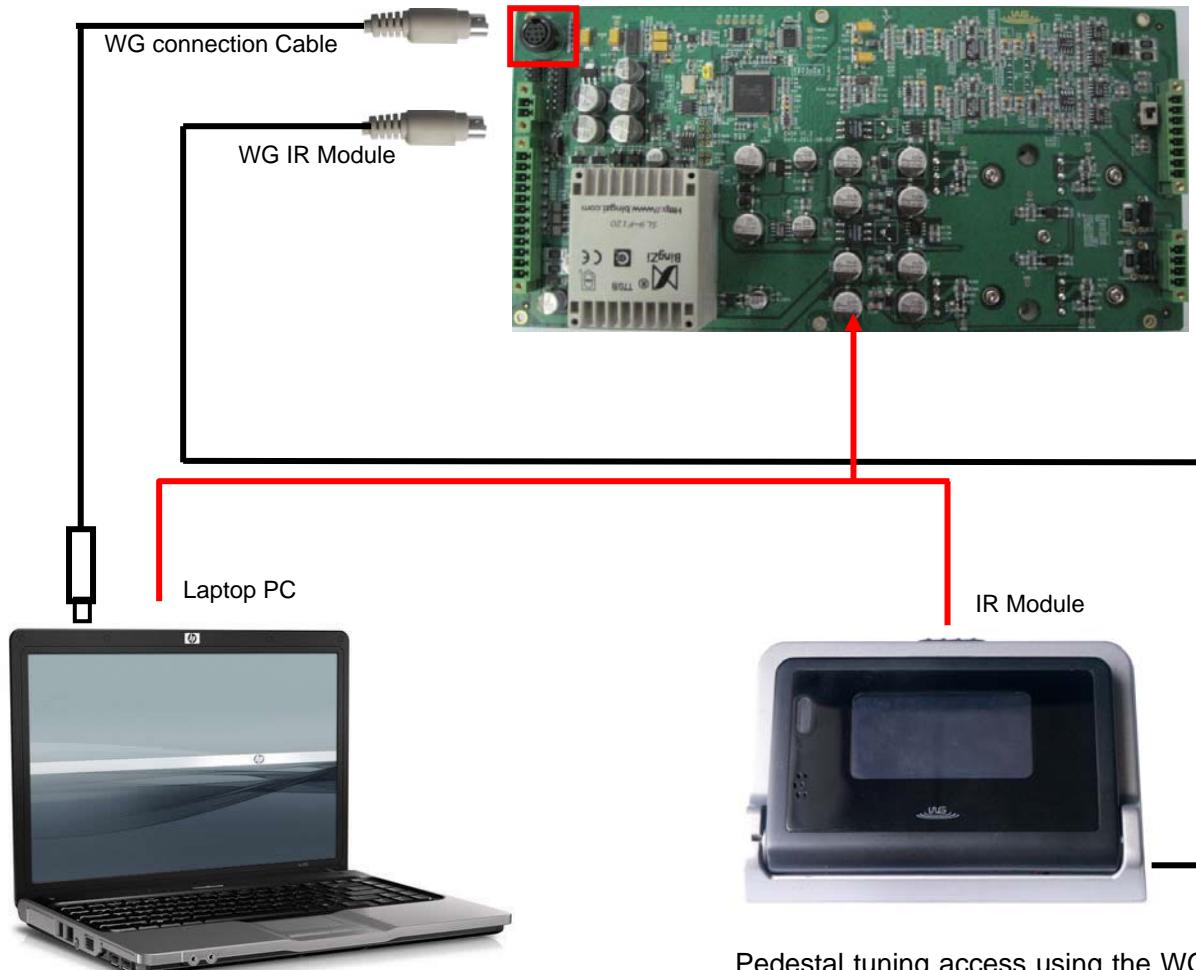


1. Equipment shall be electrically disconnected from the main circuit supply when replacing the fuse.
2. Remove the fuse holder with a screwdriver, rotating it in a counterclockwise direction.
3. Replace the fuse in accordance with the specification noted above.

WARNING – TO REDUCE THE RISK OF DAMAGE; REPLACE ONLY WITH THE SAME FUSE TYPE AND RATING.

Pedestal Tuning Access (on BTL AM Board)

Common Platform systems include advanced tuning features that offer the technician a choice of access. There is a connector on the Transceiver PCB for tuning access. The installer can connect to the pedestal using a laptop PC with a WG connection cable or attach an external IR tuning and display module. The same dedicated tuning connector on the transceiver board accepts both the WG USB cable and external IR tuning and display module.



Pedestal tuning access using a laptop PC is through the WG connection cable.

Pedestal tuning access using the WG IR tuning module offers the external display interface and traditional remote control interface.

Laptop tuning software with WG cable and IR Tuning Module are optional and must be ordered separately from WG Security Products.

SMART POWER SUPPLY (SPS)

SPS Controls and Connections

SPS Front View

 **Fuse Replacement:**
Internal AC fuse rating
(T3.15AL, 250V)

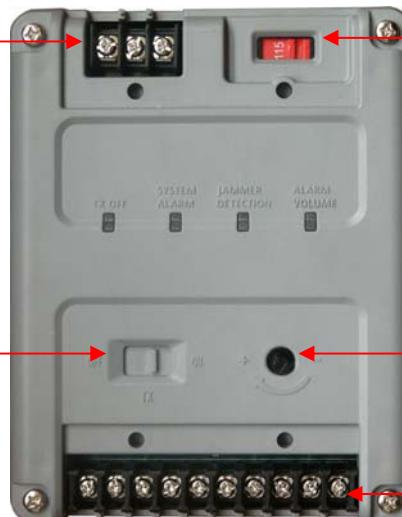


SPS Power
On/Off Switch

 **Caution! Remove power
before service.**

SPS Top View

Main AC Power In



Input Voltage
Select Switch A

TX Antenna
On/Off Switch

Pedestal Alarm
Volume Adjust

24vac
Power & Data
Output

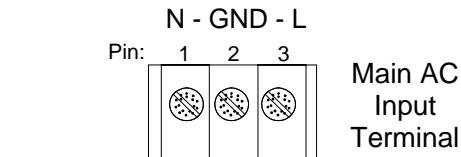
SPS Rear View

Input Voltage
Select Switch B



Common Platform EAS Systems

SPS Box Terminals Illustration



SPS Main AC Input Terminal Layout

Main AC Cable (3 wires)		
Pin	Function	Color
1	Neutral	Blue
2	Ground	Green w/Yellow Stripe
3	Live	Red(Brown)



LED Status

LED	On	Off
TX Off	TX is Off	TX is On
System Alarm	Alarm Enabled	Alarm Disabled
Jammer Detection	Detection Enabled	Detection Disabled
Alarm Volume	Dim Means Weaker	Bright Means Louder

SPS Output Terminal Layout (10 pins)

Pin #	SPS to Pedestal Cable (6 wires)						Alarm Relay		Jammer Relay	
	1	2	3	4	5	6	7	8	9	10
Function	GND	24VAC	TX OFF	Alarm	Anti-Jammer	Alarm Volume				
Electrical	Common GND	26 VAC	>4.0vdc	<2.5vdc	<2.5vdc	5-15vdc	1A Contact	1A Contact		
I/O	Output	Output	Output	Input	Input	Output	Output	Output	Output	

SPS Box Main AC Input and Voltage Setup

The Smart Power Supply (SPS) box accepts 5 input voltages: 100vac 110vac and 120vac in North America and Japan, 220vac and 240vac in Europe and Australia.



Caution: Set the two Voltage Switches (A and B) on the SPS at the specified combination based on the local incoming voltage value (see picture below).

AC Power In



Voltage Switch A



Voltage Switch B



HIGH MID LOW
(Three Positions)

100vac

Voltage Switch A - 115



220vac

Voltage Switch A - 230



Voltage Switch B - LOW



Voltage Switch B - MIDDLE



110vac

Voltage Switch A - 115

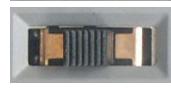


240vac

Voltage Switch A - 230



Voltage Switch B - MIDDLE



Voltage Switch B - HIGH



120vac

Voltage Switch A - 115

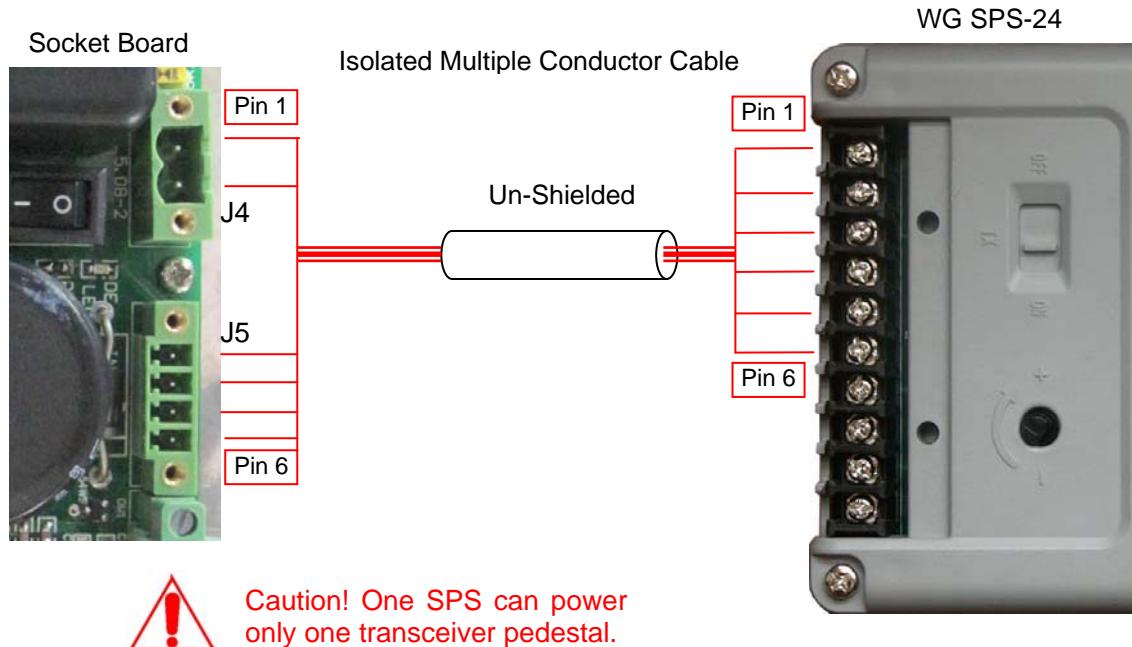


Voltage Switch B - HIGH



Interconnection between Smart Power Supply and Pedestal

The system transceiver board has two sockets (combined pins 1 to 6) that connect to SPS output terminal pins 1 to 6 (one-to-one pin connection). The reference diagram shows the pin mapping relation between transceiver board and PSU.



Cable Conductors Specifications

Note: Specifications are calculated at 30 meters (100 feet) length.

Pin #	Function	I/O	Cable color
1	GND	Common GND	Brown (white)
2	24VAC	26vac \pm 5%	Red
3	TX OFF	Output	Orange
4	Alarm	Input	Yellow
5	Anti-Jammer	Input	Green
6	Alarm Volume	Output	Blue

Power Cord Notices

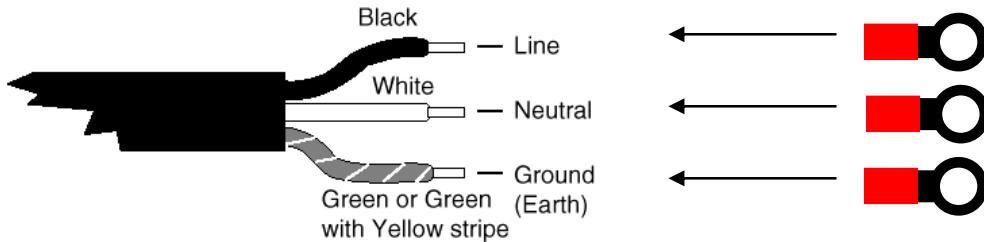
The SPS delivered does not include AC cable for installation; we recommend that you use a CE approved power cord H05 VV-F or H05 VVH2-F2 (Refer to the Electrical code which governs your country for installation of an Anti-Theft Unit to the Main power Supply) with the cable specification and gauge provided below.

North American Power Supply Connections

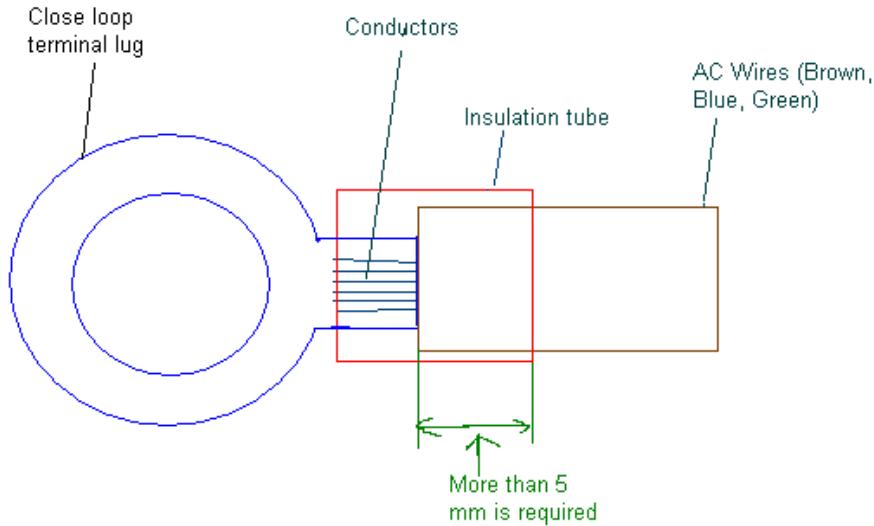
Here is a sample of qualified external power line at one end with three close loop lugs connector and a molded receptacle terminal block at the other end. Conductors are color coded white (neutral), black (line) and green or green/yellow (ground).

Operation of this equipment at voltages exceeding 130 VAC will require power supply cords which comply with NEMA configurations.

close loop lugs must attach wires as the following spec



The AC wire into the insulation tube must be no less than 5mm long.

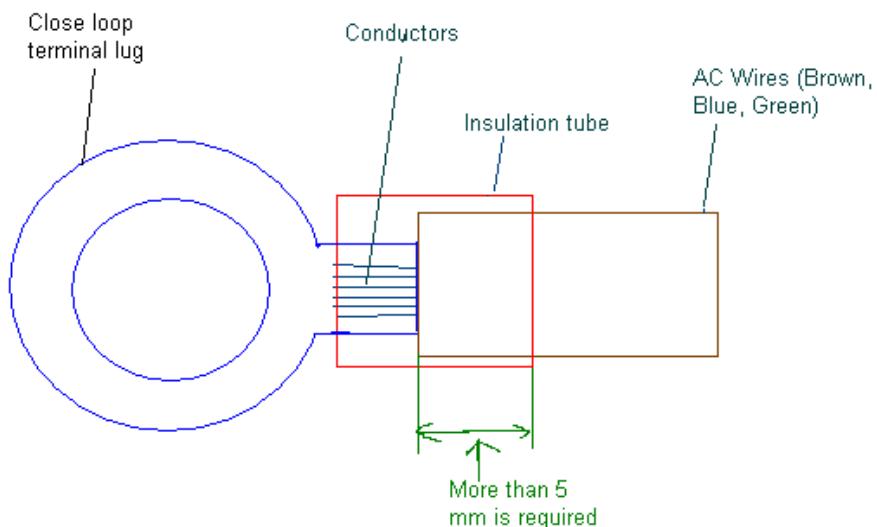
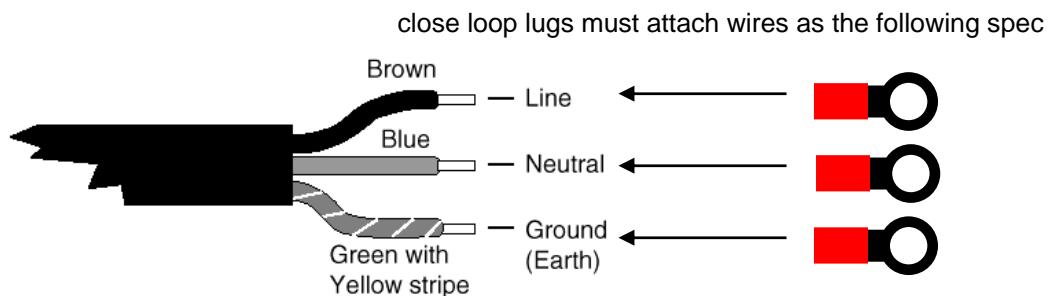


For North America use of power cords with an AC Plug is not allowed to be used with the product when permanently installed. Use standard building wiring as defined by the NEC or CEC.

Also for the North America, conduit size and knockout sizes are called out in UL 60950-1 Annex NAE, Table NAE.2 and Table NAE.3 or the NEC and CEC. (Licensed electrician should find reference of these requirements from the relative regulations.)

International Power Supply Cord

Here is a sample of qualified external power line at one end with three close loop lugs connector and a molded receptacle terminal block at the other end. Conductors are CEE color-coded—light blue (neutral), brown (line) and green/yellow (ground). Other IEC 320 C-13 type power supply cords can be used if they comply with the safety regulations of the country in which they are installed.



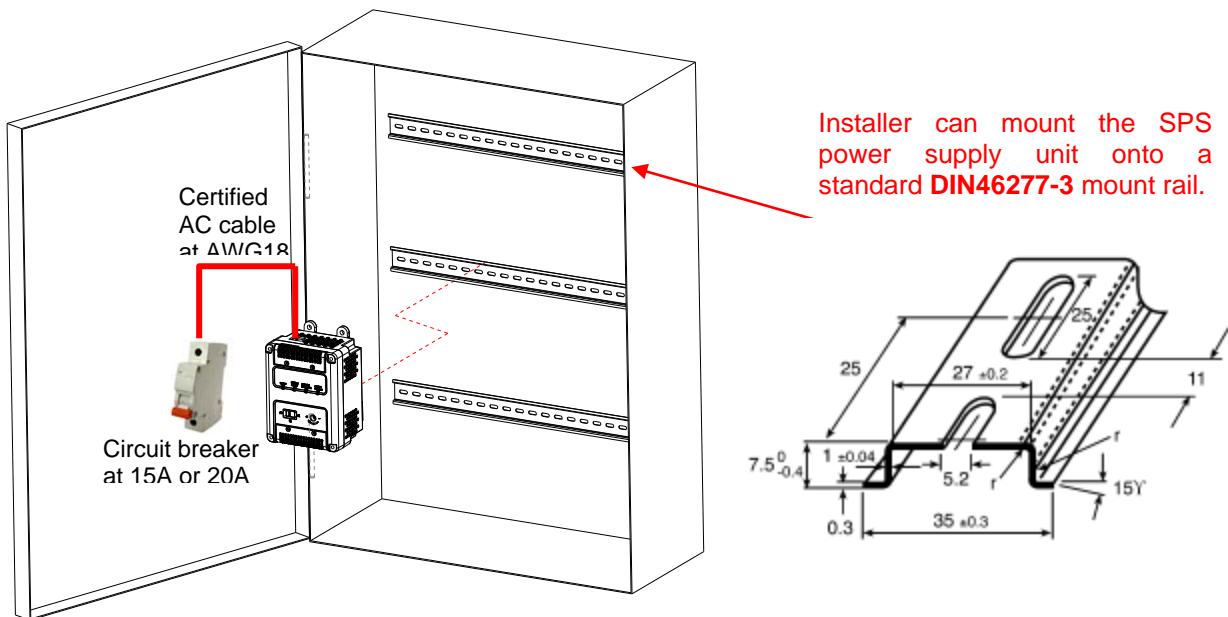
The AC wire into the insulation tube must be no less than 5mm long.

Main AC input Cable Specifications.

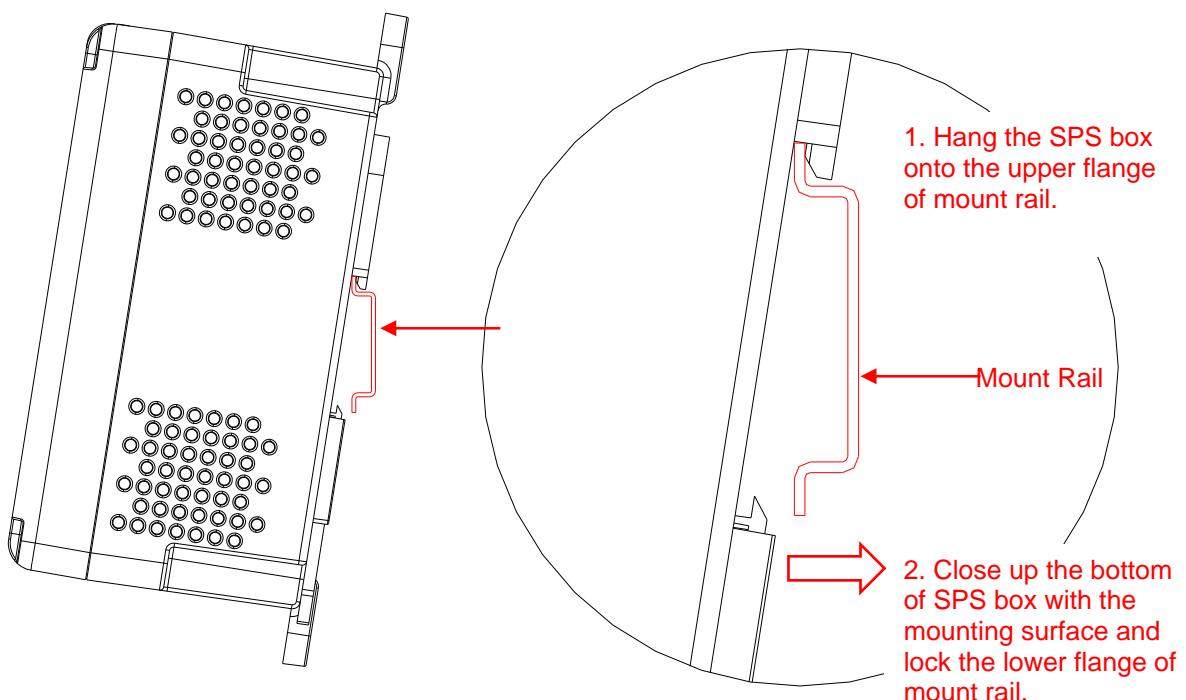
Pin	Conductors	Gauge	AWG	Description
1	Conductor L	0.75 mm ²	18	Main AC Live
2	Conductor N	0.75 mm ²	18	Main AC Neutral
3	Conductor GND	0.75 mm ²	18	Main AC Gnd

SPS Box Mounting Instructions

For installation safety and security, the SPS power supply box shall be mounted into local certified electric distribution box. Installer must use local certified AC cable at AWG18 and a **certified circuit breaker at 15A or 20A** to disconnect main power from the SPS unit. And then from distribution box, installer can direct the output cable from each SPS to local pedestal at different sites. (find reference in **Interconnection between Smart Power Supply and Pedestal** section.)

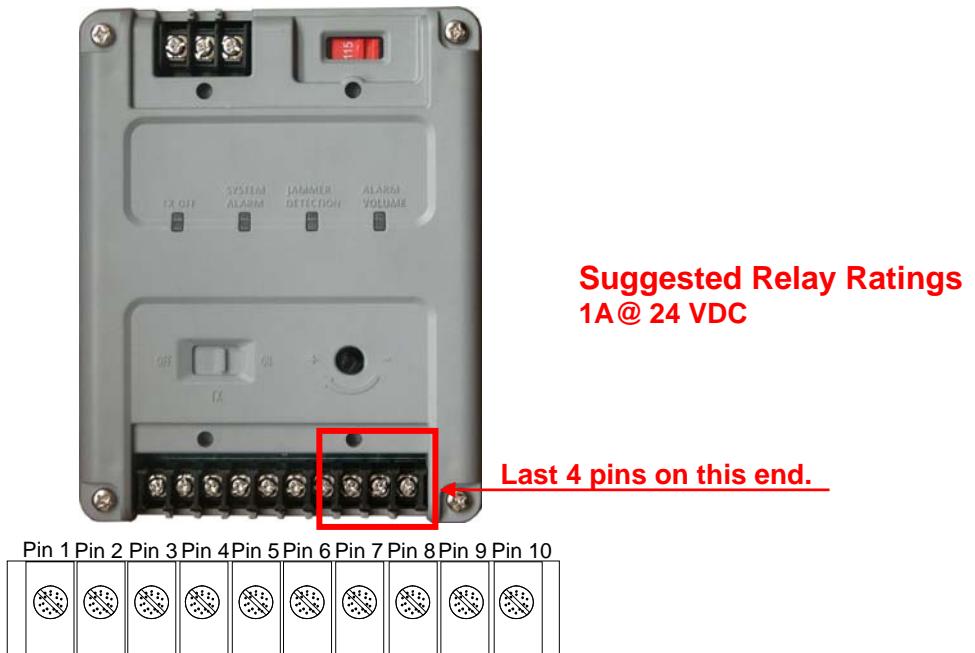


Reliable ground must be provided to the local certified electric distribution box contains Power Supply, by AWG 18, according to electric code.



SPS Box External Relay interface

The external relay interface is located at Output side of the SPS.



SPS Output Terminal Layout (10 pins)

Pin #	SPS to Pedestal Cable (6 wires)						Alarm Relay		Jammer Relay	
	1	2	3	4	5	6	7	8	9	10
Function	GND	24VAC	TX OFF	Alarm	Anti-Jammer	Alarm Volume				
Electrical							1A Contact Rating		1A Contact Rating	

Notes:

1. Wire length to the dry contact circuit is limited to 20 feet.
2. To prevent high voltage noise from being introduced into the transceiver and degrading the system's performance, it is highly recommended that you use a 24vdc output relay.
