

# Classic IP Style SSB

## Installation Manual

*Version \*60*

P/N 10039422



## Classic IP Style SSB Installation Manual

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Released 03/16/2012.

Published by:

Checkpoint Systems Inc.

101 Wolf Drive

Thorofare, NJ 08086

### *Document revision information*

Classic IP Style SSB Installation Manual, version \*60

Rev	Description	Date	Author
*60	CR2637A	03/16/2012	Andy Mei, Chris Zheng

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Checkpoint Systems, Inc., offers Electronic Article Surveillance (EAS) or Radio Frequency Identification Products that have been FCC certified or verified to 47 CFR Part 15 Subparts B/C and/or 47 CFR Part 18. Appropriately, one of the following labels will apply to the approval:

NOTE: 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 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 own expense.

- OR -

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) including this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation, which may include intermittent decreases in detection and/or intermittent increases in alarm activity.

- OR -

NOTE: This equipment has been tested and found to comply with the limits for a miscellaneous type ISM device, pursuant to Part 18 of the FCC Rules. 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio communications reception, which can be determined by turning the equipment off and on, please contact Checkpoint Systems, Inc., at 1 (800) 257-5540 for further assistance.

## Industry Canada

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

# Industrie Canada

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur

Le fonctionnement de l'appareil est soumis aux deux conditions suivantes:

1. Cet appareil ne doit pas perturber les communications radio, et
2. cet appareil doit supporter toute perturbation, y compris les perturbations qui pourraient provoquer son dysfonctionnement.

Pour réduire le risque d'interférence aux autres utilisateurs, le type d'antenne et son gain doivent être choisis de façon que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas celle nécessaire pour une communication réussie.

## Equipment Safety Compliance Statement

Checkpoint Systems' EAS or Radio Frequency Identification products have been designed to be safe during normal use and, where applicable, certain components of the system or accessory sub-assemblies have been certified, listed or recognized in accordance with one or more of the following Safety standards: UL 1012, UL 1037, UL 1310, UL 60950-1, CSA C22.2 No. 205, CSA C22.2 No. 220, CSA C22.2 No. 223, CSA C22.2 No. 60950-1. Additional approvals may be pending.

**WARNING:** Changes or modifications to Checkpoint's EAS or Radio Frequency Identification (RFID) equipment not expressly approved by the party responsible for assuring compliance could void the user's authority to operate the equipment in a safe or otherwise regulatory compliant manner.

## Important Information to our Users in Europe CE Regulatory Compliance Statement

Where applicable, Checkpoint Systems, Inc., offers certain Electronic Article Surveillance (EAS) products that have CE Declarations of Conformity according to R&TTE Directive 99/5/EC.



System Electromagnetic Compatibility (EMC), has been tested and notified through Spectrum Management Authorities if necessary, using accredited laboratories, whereby, conformity is declared by voluntarily accepted European Telecommunications Standards Institute (ETSI) standards EN 301489-3 and EN 300330-2.

NOTE: Certain Electronic Article Surveillance (EAS) equipment have been tested and found to conform with the CE emission and immunity requirement in Europe. 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. Under unusual circumstances, interference from external sources may degrade the system performance, which may include intermittent decreases in detection and/or intermittent increases in alarm activity. However, there is no guarantee that interference will not occur in a particular installation. If this equipment experiences frequent interference from external sources or does cause harmful interference to radio communications reception, which can be determined by turning the equipment off and on, please contact a Checkpoint Systems representative for further assistance.

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Checkpoint Systems Electronic Article Surveillance products have been designed to be safe during normal use and, where applicable, certain components of the system or accessory sub-assemblies have been declared safe according to the European Low Voltage Directive (LVD) by being certified, listed, or recognized in accordance with one or more of the following European safety standards; EN 60950, EN 50364, EN 60742.

WARNING: Changes or modifications to Electronic Article Surveillance equipment not expressly approved by the party responsible for assuring compliance could void the user's authority to operate the equipment in a safe or otherwise regulatory compliant manner additional approvals may be pending

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# CHAPTER

# 1

## INTRODUCTION

This Installation Manual details the steps necessary for the proper installation and configuration of the Classic IP Style SSB systems.

In this manual, most illustrations and pictures will show the Style Facelift as a place of reference, but it is to be understood that each antenna would be installed in the same manner (unless otherwise noted).



Classic IP Style SSB front view

Classic IP Style SSB side view

**Figure 1 Classic IP Style SSB front and side view**

# CHAPTER

# 2

## INSTALLATION OVERVIEW

### Overview

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This chapter is an overview of the installation process:

1. Requirements: Tool and part requirements for a typical installation.
2. Installation Outline: Lists the basic installation steps in sequence.

### Requirements

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#### Tools

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The following tools are required for Classic IP Style SSB Antenna installations:

- Arrow T-25 Staple Gun
- Diagonal wire cutter
- Hammer drill with 3/16" and 1/2" bits
- Extension cord
- Tape Measure
- Hammer
- Snap Off
- Marker, Black Felt
- Ratchet driver with 9/16" socket
- Screwdrivers, mini, regular and #2 Phillips
- Hacksaw
- Utility knife
- Wire Snake
- Wire Strippers
- Wrench, combination end 9/16"
- Classic IP Style SSB Installation Manual (This manual)
- Tuning Procedure, TR4210 Checkpoint PN 7102103
- Checkpoint Systems Field Service Diagnostic Management Software (DMS version 1.8.31 or later version) installed on a laptop with the appropriate cables. DMS is an



application developed to install and configure TR4210 boards via serial connections. DMS provides for firmware updates without replacement of microchips.

## Parts

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Quantity will vary according to site.

- 18 AWG 2-conductor (STP)
- CAT5e cable
- 22 AWG 4-conductor (STP) (5594)
- 1/2" Anchor Bolts
- \*DekDuct (wire chase)
- \*Wiremold (1500 or 2600 series)
- \*Wiremold anchor bolts Note:

\*Wire routing methods will vary by installation.

## Installation Outline

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Follow this sequence to successfully install the components:

1. Determine optimal antenna placement based upon antenna type, tag type, and door opening width. (Refer to the TR4210 Product Reference Guide)
2. Determine power supply requirements and the ideal power supply location. (See "Appendix 2 Power Supplies")
3. Physically mount the antennas.
4. Connect the antenna wiring.
5. Install peripherals.
6. Configure the system using DMS.(Refer to test procedure P/N 7251662)

The information covered in steps 1 and 2 is generally used during the survey and planning stage, but it is important for the installer to keep these specifications in mind to ensure that the systems are installed to specification.

# CHAPTER

# 3

## PHYSICAL INSTALLATION

### Overview

---

This chapter covers the physical placement and installation of the TR4210 antennas and power supply in the following sections:

1. Placement: How to determine the proper placement of the antennas.
2. Power Supply: Information on typical power supply placement.
3. Wire Routing: Information on typical wire routing methods.
4. Antenna Mounting: Antenna mounting information.

Note: For details of placement, refer to Evolve installation manual, CKP P/N 7994249.

### Aisle Width

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The maximum aisle width for the Classic IP Style SSB antennas (with 410EP tag) is:

- Style Facelift SSB – 2 m [6.6 ft]

System performance is affected by aisle width and tag type. For aisle width details please refer to the TR4210 Product Reference Guide.

### Power Supply

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Classic IP Style SSB antennas utilize a +24 VDC power supply.

### Placement

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The Classic IP Style SSB antenna is designed to install on a standard 6.6 ft. opening. The minimum distance the chassis box and power supply can be from the antenna is 1.524m [5ft] while the maximum distance is 8m [26.4ft]. This distance should be taken into consideration when determining placement of the antenna, although optimal placement will vary from retail site to retail site.

Placement Requirements:

- The power supply must be within 18m [60ft] of the furthest antenna.
- The power supply must be placed no higher than what is accessible from a store ladder.

- If mounted in a plenum space, proper plenum rated wiring and plenum rated enclosures are required.
- The maximum operation temperature should be no more than 40°C.

Note: For more information about power supplies, please see “Power Supplies” on Appendix 2.

## Antenna Mounting

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Antennas are typically not mounted until after the finished flooring is in place.

### Mounting Hardware

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#### *For mounting on Concrete Floor*

Utilize two (2) 1.3cm [.5in.] anchor bolts per antenna.



**Figure 2 Anchor Bolt (Concrete Mounting)**

#### *Wood Floor*

Utilize two (2) 1.3cm [.5in] lag bolts per antenna.



**Figure 3 Lag Bolt (Wood Mounting)**

## Wire Routing

---

### *Methods of Wire Routing*

- Floor Trench: Typically 1.3cm [.5in.] wide by 3.8cm [1.5in.], but an increase in dimensions is recommended for more than two antennas.
- Wiremold: 1500 or 2600 series wire mold can be utilized. Typically wire mold is not used within customer traffic areas, so a typical placement is from the outside of the antennas to the doorframe.
- Conduit: 2.5cm [1in.] diameter conduit can be utilized in new construction situations. It is recommended that swept 90 degree angles are used, and that pull-strings are provided by the conduit installer.
- Wall / Mullion: Wires can be contained within mullions, and hollow walls for vertical wire runs.
- Dek-Duct / Panduit: Wires can be contained within surface mount Dek-Duct or Panduit for vertical wire runs.

**WARNING:** *Any wiring in plenum areas must be plenum rated. Additionally, ensure that the wire is installed in accordance with applicable (local/national) electrical codes.*

# CHAPTER

# 4

## ANTENNA WIRING

### Overview

---

This chapter describes the Classic IP Style SSB antennas wiring and cabling.

**WARNING:** *This system runs on TR4210<sup>†</sup> electronics with firmware version 3.61 or higher. It is critical to note that ONLY TR4210 electronics can be used in conjunction with this system.* It is also critical that DMS version 1.8.31 or later be used to configure the system.

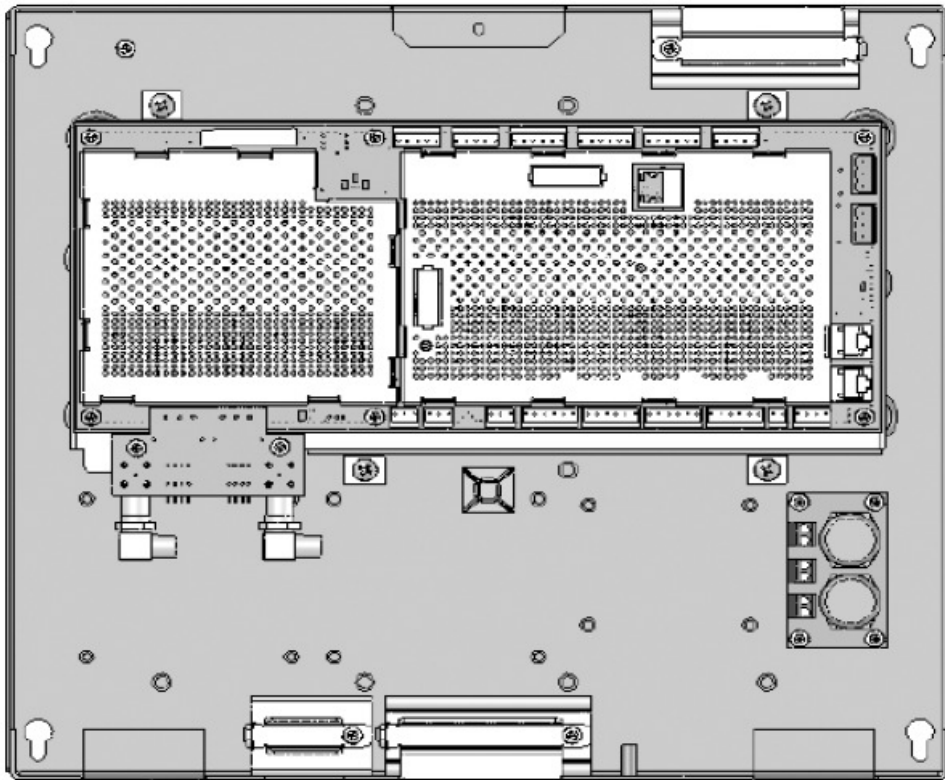
Information is covered in the following sections:

1. General wiring instruction
2. Aisle wiring

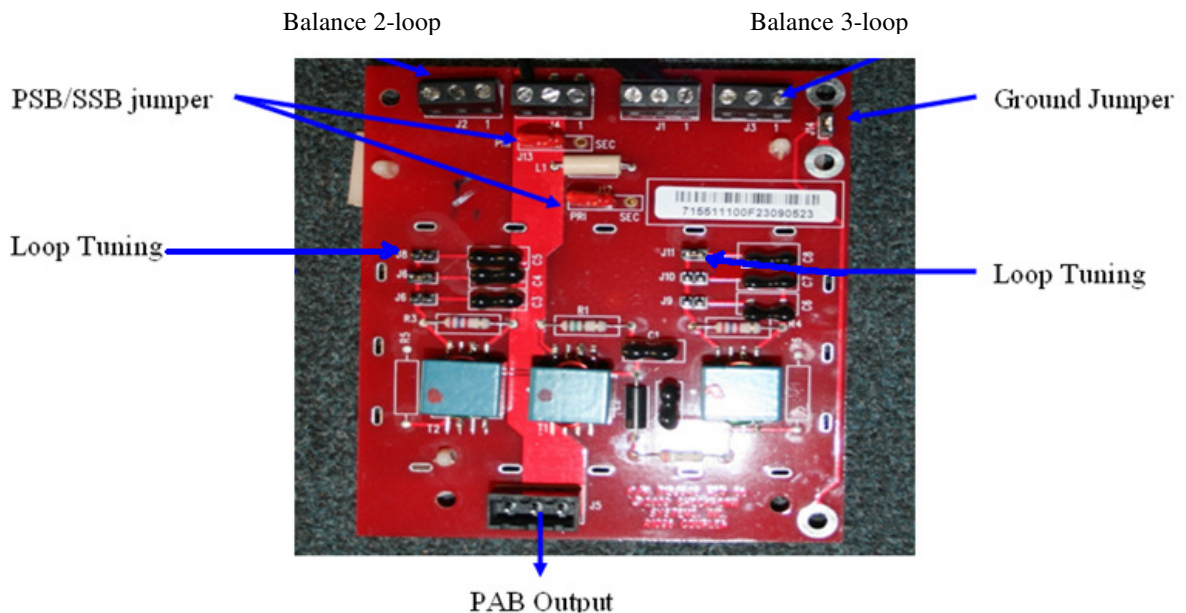
### General Wiring Instruction

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This section describes how to prepare and wire all cables and wires involved in the antenna installation. Wires can be cut to required length. Below is a picture of a TR4210 board with all interfaces labeled.



**Figure 4 TR4210 Reader Board**



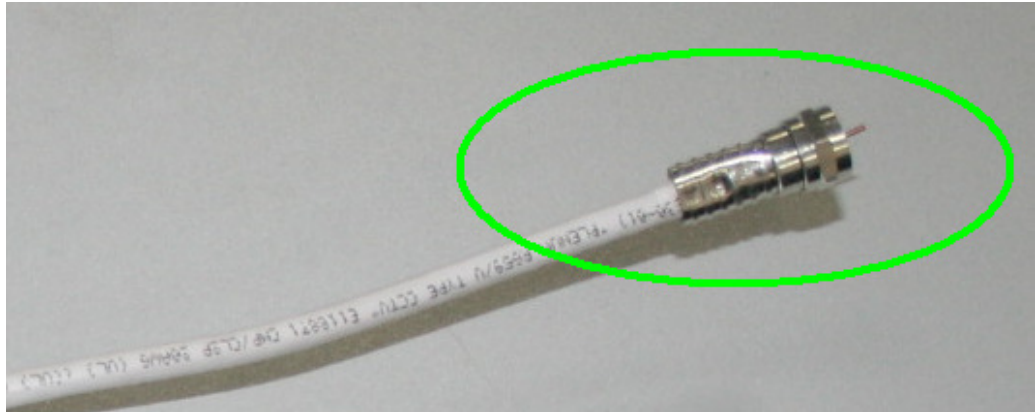
**Figure 5 Passive Coupler Board**

## Wiring between Chassis Box /SSB

There are only two (2) wires connected Chassis and SSB. They are 1) RG59 coax cable and 2) SSB Light/Sounder cable (22 AWG 4-conductors (STP) (5594)/2-conductors 22 AWG B 8442

### **RG59 Coax Cable:**

A 26ft long, two end pre-terminated RG59 coaxial cable is packed with SSB antenna. It connects the Chassis Box antenna (SSB). It is recommended to leave the one pre-terminated end with 3-pin Connector at the SSB, another pre-terminated shield end to Chassis Box. (Refer to *Figure 6 metal-shield end*)



**Figure 6 metal-shield end**

### **SSB Light/Sounder Cable**

It is recommended to use CKP standard 4-conductor wire(7102900) and 2-conductor wire(7045353). For details connection , please refer to the table below :

Primary SSB Light/Sounder Cable Wiring Table		
4 conductor wire		
Wire Color	Chassis Box	Classic IP Style SSB 1
WHITE	J42-LTS+	LT Blue
GREEN	J41-LTS+	LT Red
RED	J18 Power +	LT Power +
BLACK	J18 Power -	LT Power -
2 conductor wire		
RED	J11 SND 1+	SD +
BLACK	J11 SND 1-	SD -

Secondary SSB Light/Sounder Cable Wiring Table		
4 conductor wire		
Wire Color	Chassis Box	Classic IP Style SSB 2
WHITE	J42-LTS+	LT Blue
GREEN	J41-LTS+	LT Red
RED	J18 Power +	LT Power +
BLACK	J18 Power -	LT Power -
2 conductor wire		
RED	J54 SND 2+	SD +
BLACK	J54 SND 2-	SD -

**Table 1 SSB Light/Sounder Cable Wiring Table**

## Wiring 24VDC power supply

A Checkpoint certified 24VDC power supply can power up to Chassis Box. It is recommended to wire the 24VDC power supplier to the nearer TR4210 filter board input, then, connect wire from this filter board to J18 connector on the reader. 24VDC power cable uses AWG18 two (2) conductor cable.

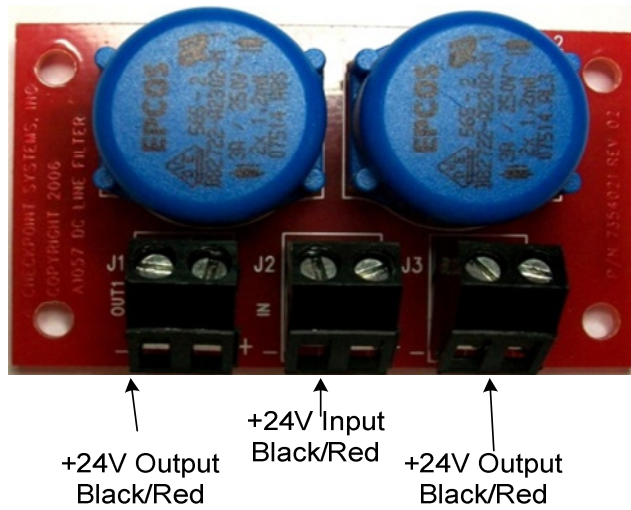
Wire Color	Description
Black	GND
Red	+24 V

**Table 2 Power Cable Wiring Table**



**Figure 7 24 VDC Power Supply Cable**

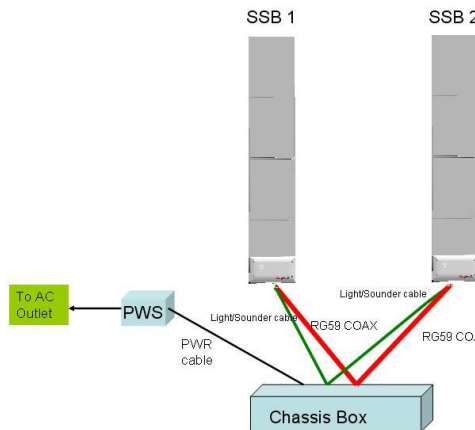




**Figure 8 24 VDC power filter**

## Single Aisle Wiring

The single aisle installation is the most common Classic IP Style SSB application which best utilizes the SSB-SSB configuration (see *Figure 9 Single Aisle*). A typical single aisle installation consists of a Chassis Box, two secondary antennas (SSB), a power supply and a cable kit (packaged with secondary antenna). It is recommended to start SSB wiring first, then connect Chassis Box. Connect the power cable last.

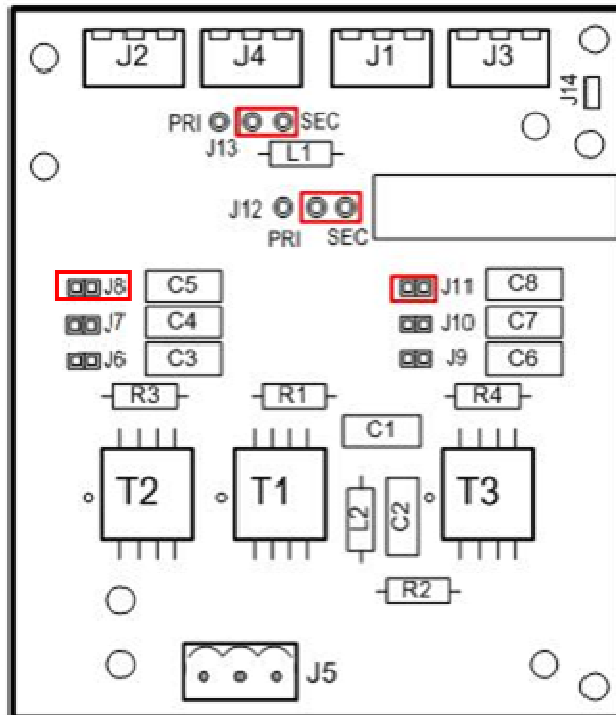


**Figure 9 Single Aisle**

## Secondary antenna (SSB) wiring

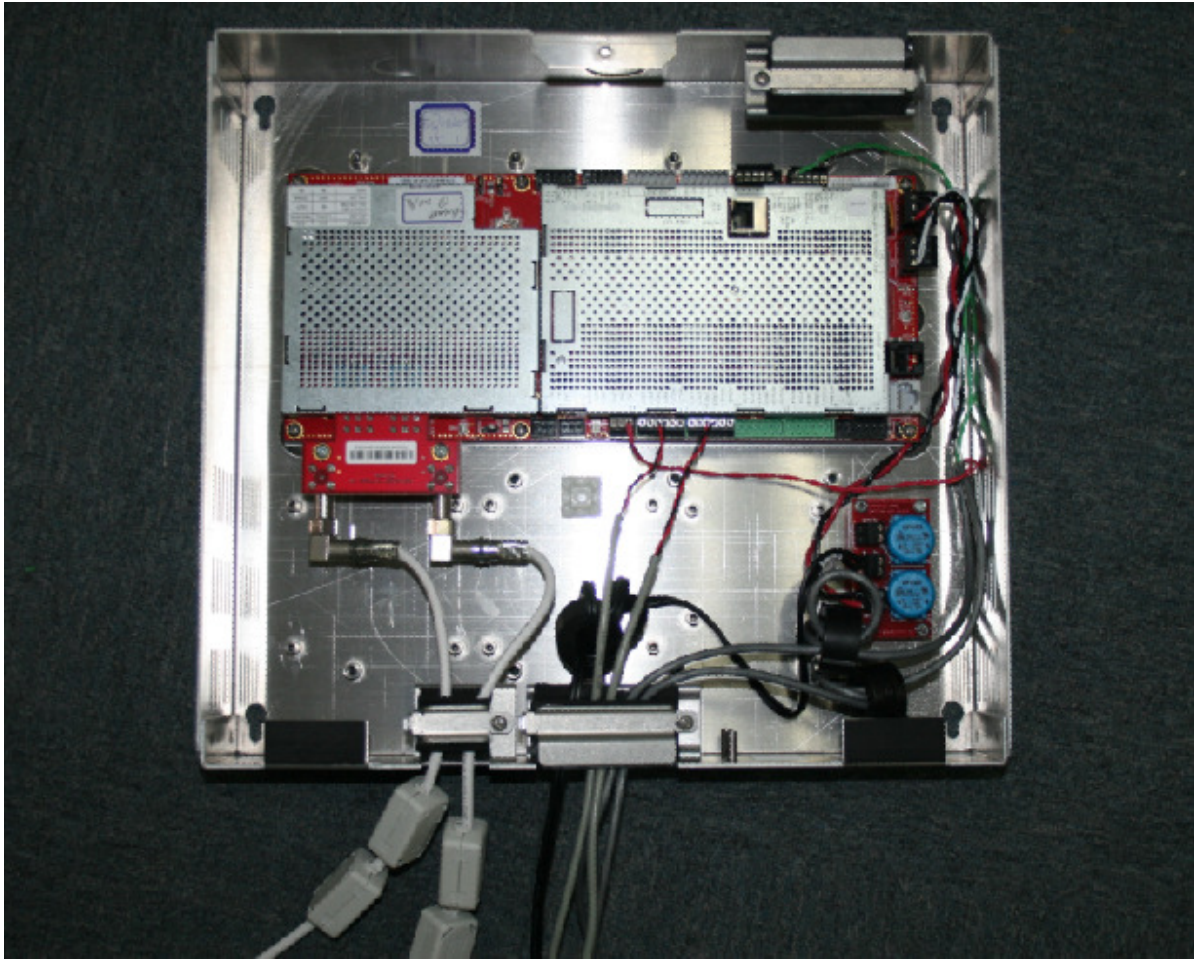
- Step 1:** Open the base cover.
- Step 2:** Plug the pre-terminated RG59 coax cable onto coupler board J5.

- Note:** It is recommended to leave the pre-terminated coax cable end at SSB location where the cable was laid out.
- Step 3:** Connect the SSB Lights/Sounder cable to 6 pin connector as Figure 11 shown, colorful line show the cable that need on site assemble by field servers engineering team .
- Step 4:** Inspect wiring and connections, confirm coupler board jumper settings (see *Figure 10 SSB Coupler Board Jumper Settings*).
- Step 5:** Put the base cover back and secure.

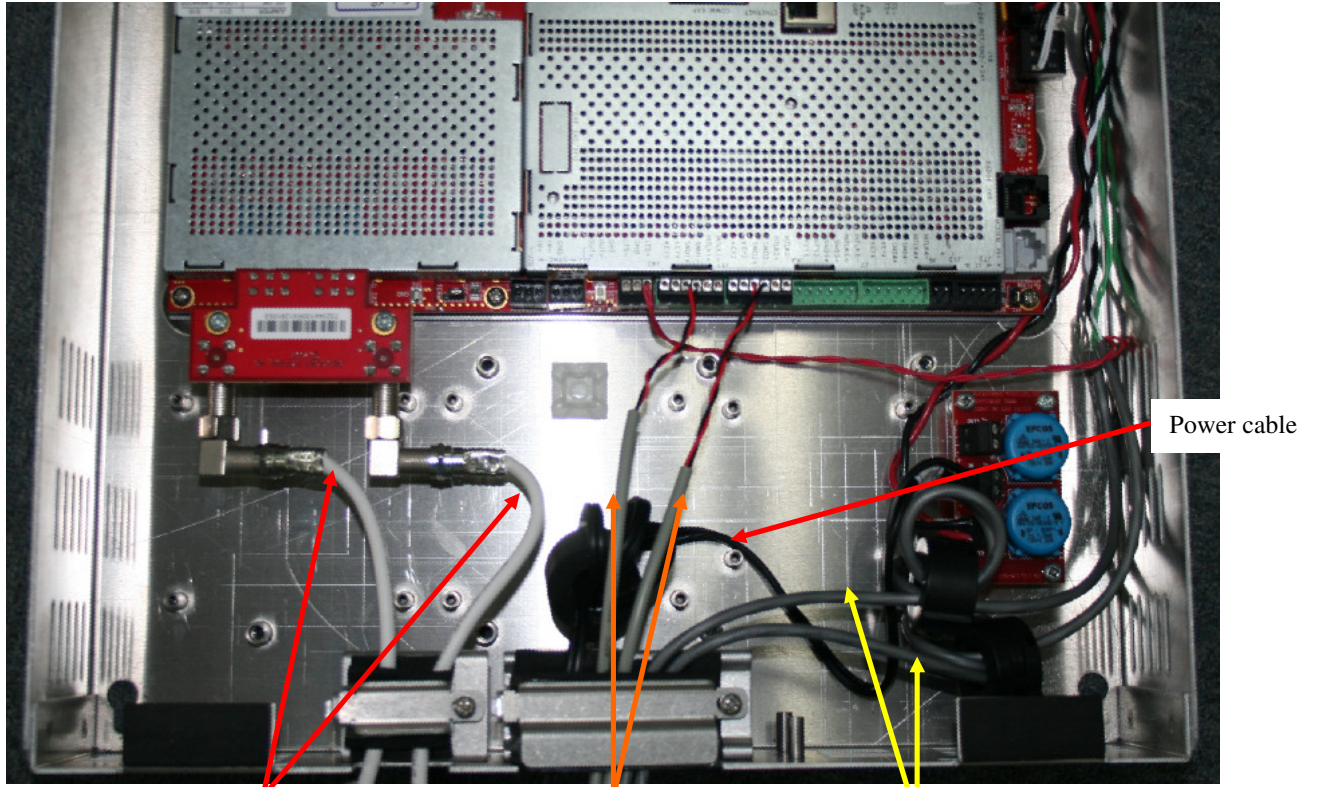


**Figure 10 SSB Coupler Board Jumper Settings**





**Figure 12 Chassis Box wiring**



The R59 cable to SSB

2 Conductor wiring for sounder

4 conductor wiring for dual color light

Power cable

**Figure 13 Coax cable and 4/2 conductor wiring connection**

# CHAPTER

# 5

## ELECTRONICS SETTING

### Overview

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All electronics setting here aimed for on site configurations based on compliance and performance test result, if it still can not illuminate fundamental noise; please refer to tuning procedure of TR4210.

#### The Jumper setting for coupler aiming to antenna tuning

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Antenna Type	Jumper Settings
Classic IP Style SSB	J8, J11

Table 3 Coupler Board Jumper Settings

#### The maximum TX settings allowable for compliance

---

Region		FCC/IC	CE
TX Band		8.2 (8.2 MHZ only)	8.2 (8.2 MHZ only)
Antenna	Configuration	fw3.61	fw3.61
Classic IP Style SSB	Dual (master + sub)	29	29

Table 4 TX setting for compliance

## List of Ferrites for Classic IP Style SSB

Classic IP Style SSB						
CKP P/N	MFR	MFR & MFR P/N	# Turns	Cable installed on	Install location	Qty
<u>221412</u>	<u>Fair Rite</u>	<u>FAIR RITE</u> <u>2861000202</u>	1	2Loop cable	<u>Close to coupler board</u>	2
<u>221412</u>	<u>Fair Rite</u>	<u>FAIR RITE</u> <u>2861000202</u>	1	3Loop cable	<u>Close to coupler board</u>	2
7784420	Würth	WURTH 74271111	1	RG-59 COAX cable (both ends)	exit point of cable from coupler	2
284760	Fair Rite	FAIR RITE 0443806406	3	LED cable	close to 6-pin connector	1
<u>221412</u>	<u>Fair Rite</u>	<u>FAIR RITE</u> <u>2861000202</u>	1	Sounder cable	close to 6-pin connector	1
Classic IP Style SSB Electronics Chassis						
CKP P/N	MFR	MFR & MFR P/N	# Turns	Cable installed on	Install location	Qty
7784420	Würth	WURTH 74271111	1	RG-59 COAX cable (Primary)	exit point of cable from chassis	2
7784420	Würth	WURTH 74271111	1	RG-59 COAX cable (Secondary)	exit point of cable from chassis	2
284760	Fair Rite	FAIR RITE 0443806406	1	LED cable Primary	exit point of cable from chassis	1
284760	Fair Rite	FAIR RITE 0443806406	1	LED cable Secondary	exit point of cable from chassis	1
284760	Fair Rite	FAIR RITE 0443806406	3	Pwr supply - dc cable	next to exit point of cable from chassis	1

**Table 5 Ferrites list for Classic IP Style SSB**

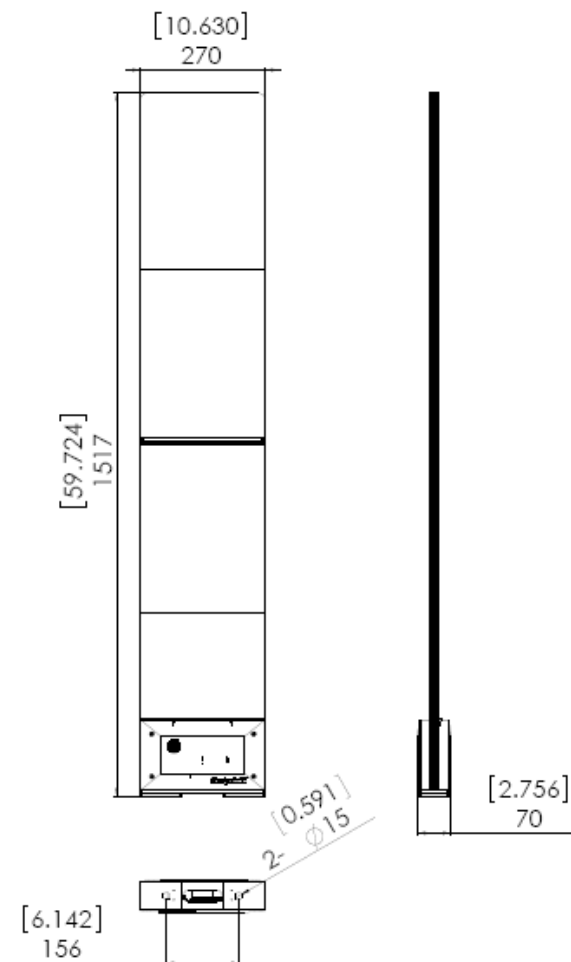
# APPENDIX

# 1

## ANTENNA DIMENSIONS

### Classic IP Style SSB

The weight of the antenna is 15.3kg, The weight of Chassis Box is 3kg.  
The antenna dimension as following





# APPENDIX

# 2

## POWER SUPPLIES

### Overview

---

This appendix covers all available (US and EU) TR4210 Style compatible power supplies.

#### Details

Power supplies have an output of +24 VDC.

#### Requirements

In the US, if the power supply is to be installed in a plenum (HVAC ventilation) area, the Globtek GS-599ES(R) and the Globtek GS-599MC-KIT(R) must be installed.

#### Capacity

The following power supplies can provide power for up to two aisle systems:

- Globtek GS-599 UF
- Globtek GS-599ES(R)
- EOS LFZVC65SG24E
- EOS- LFEVC65NS24PL (PN: 10102495)

The following power supply can provide power for one aisle systems:

- EOS LFZVC36FS24S91

### Power Supply Used in United States

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#### Model

The US market uses the following power supply types:

#### 1. Globtek GS-599ES(R) (PN: 7116509)

Standard power supply rated for use in plenum areas.

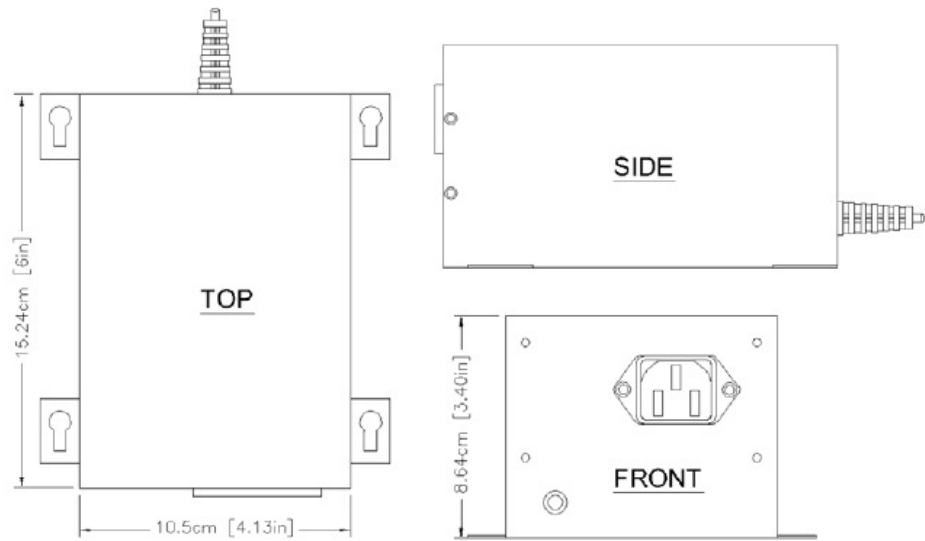
**Note:** *For use in plenum areas, the Globtek GS-599MC-KIT(R) must be used in conjunction with the Globtek GS-599ES(R).*

#### Dimensions

Width: 10.50cm [4.13in]

Length: 15.24cm [6.00in]

Height: 8.64cm [3.40in]



**2. EOS- LFEVC65NS24PL (PN: 10102495)**

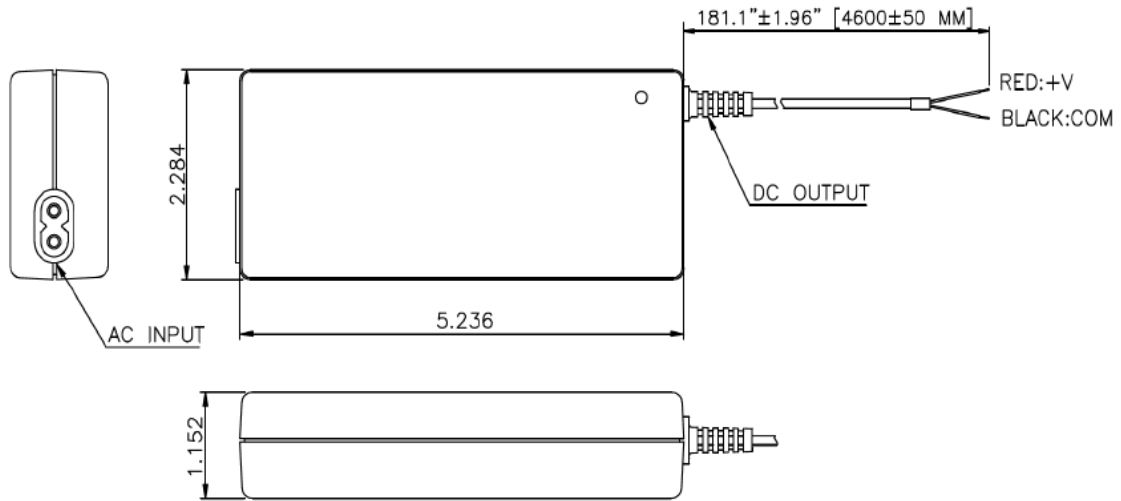
**Note:**

**Dimensions**

- Width: 5.8 cm [2.284in]
- Length: 13.3 cm [5.236in]
- Height: 2.9 cm [1.152in]

**Weight**

350 grams (12.35 ounces)



MECHANICAL OUTLINE DIMENSIONS  
 ALL DIMENSIONS ARE IN INCHES.  
 GEN TOLERANCE :+/-0.02

## Power Supply Used In Europe

### Model

The EU market uses one power supply types:

- EOS LFZVC36FS24S91 (PN: 7683707)

### Dimensions

Length: 8.89cm [3.50in]

Width: 2.42cm [0.95in]

Height: 4.47cm [1.75in]

