

WiBAS



Installation & Cabling

Terminal stations

The information contained in this document is subject to change without prior notice.

© INTRACOM S.A. TELECOM SOLUTIONS, 2022 All rights reserved.

All copyright, intellectual and industrial rights in this document and in the technical knowledge it contains are owned by INTRACOM S.A. TELECOM SOLUTIONS and/or their respective owners.

This document is made available to the end users only for their internal use.
No part of this document nor any data herein may be published, disclosed, copied, reproduced, redistributed by any form or means, electronically or mechanically, or used for any other purpose whatsoever without the prior written approval of INTRACOM S.A. TELECOM SOLUTIONS.
Information as well as drawings and specifications contained in this document are subject to change without prior notice.

All trademarks and copyrights mentioned herein are the property of INTRACOM S.A. TELECOM SOLUTIONS and/or their respective owners.

Any rights not expressly granted herein are reserved.

Printed in Greece.

Document Revision History

Revisions

This page shows the main changes effected in relation to the previous edition of the *WiBAS™ / WiBAS™ G5 Terminal Stations Installation & Cabling manual*.

Revisions
Previous Document Edition: 2.0
Current Document Edition: 2.1

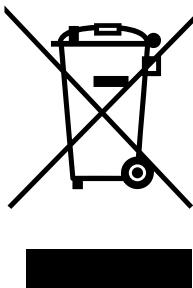
Reasons of change

The table below shows the main reason for the document change effected in relation to the previous document edition:

Chapter or Paragraph	Changes
Statement: Information to the User (page 6)	Paragraph updated.
Radio Units & Antennas Compatibility Matrix (page 16)	Paragraph added.
Safety Precautions (page 17)	RF exposure assesment updated.
Antennas (page 31)	List of antennas updated (values).
WiBAS G5 Connect+ (page 36)	Pics of unit updated (label).

(Page intentionally left blank)

Equipment Disposal



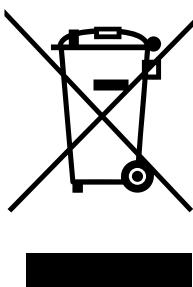
Disposal of old electrical and electronic equipment (applicable through the European Union and other European countries with separate waste collection systems).

This symbol, found on this product and any of its parts or on its operating instructions or on its packaging, indicates that electrical and electronic equipment may not be disposed of as unsorted municipal waste. Instead, this product should be handed over to applicable collection points for the recycling of electrical and electronic equipment.

By ensuring the correct disposal of this product, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product.

By recycling, reusing and other forms of recovery of old electrical and electronic equipment you are making an important contribution to the conservation of natural resources and to the protection of the environment.

For more information about the recycling of this product, please contact your local municipal authorities, municipal waste disposal service or the store where you purchased this product.



Απόρριψη παλαιών ηλεκτρικών και ηλεκτρονικών συσκευών (ισχύει στην Ευρωπαϊκή Ένωση και άλλες Ευρωπαϊκές χώρες με συστήματα χωριστής συλλογής απορριμμάτων).

Το σύμβολο αυτό, που απεικονίζεται πάνω στο προϊόν και σε τυχόν εξαρτήματα του ή στο εγχειρίδιο οδηγιών του ή στη συσκευασία του, δείχνει ότι οι ηλεκτρικές και ηλεκτρονικές συσκευές, μετά το πέρας της λειτουργίας τους, δεν θα πρέπει να απορρίπτονται μαζί με τα αστικά απόβλητα. Αντίθετα θα πρέπει να παραδίδονται σε κατάλληλα σημεία συλλογής για την ανακύκλωση των ηλεκτρικών και ηλεκτρονικών συσκευών.

Διασφαλίζοντας τη σωστή απόρριψη αυτού του προϊόντος, συνεισφέρετε στην πρόληψη πιθανών αρνητικών συνεπειών στο περιβάλλον και την ανθρώπινη υγεία, οι οποίες θα μπορούσαν να προκληθούν από την μη ενδεδειγμένη απόρριψη του προϊόντος.

Η ανακύκλωση, επαναχρησιμοποίηση και άλλες μορφές αξιοποίησης των παλαιών ηλεκτρικών και ηλεκτρονικών συσκευών βοηθούν στη διαφύλαξη των φυσικών πόρων και στην προστασία του περιβάλλοντος.

Για περισσότερες πληροφορίες σχετικά την ανακύκλωση αυτού του προϊόντος, παρακαλούμε επικοινωνήστε με τις τοπικές δημοτικές αρχές, την υπηρεσία αποκομιδής αστικών αποβλήτων ή το κατάστημα από το οποίο αγοράσατε το συγκεκριμένο προϊόν.

Για περισσότερες πληροφορίες, μπορείτε να επικοινωνείτε με το Συλλογικό Σύστημα Εναλλακτικής Διαχείρισης Αποβλήτων Ηλεκτρικού και Ηλεκτρονικού Εξοπλισμού “Ανακύκλωση Συσκευών Α.Ε.” (www.electrocycle.gr).

Statement: Information to the User

Concerned equipment

The statement hereinafter concerns the following equipment:

- WiBAS™ G5 Connect+ Terminal Station (auto polarization)
- WiBAS™-Connect Terminal Station
- WiBAS™-Connect Terminal Station (auto polarization)
- WiBAS™ OSDR-Terminal Station
- Outdoor DC power injector (order code: **PONE-OD-DC**)
- Outdoor AC power injector (order code: **PONE-OD67-AC**)
- Outdoor DC power injector (order code: **POE-HP-OD67-DC**)

Continued on next page

Statement: Information to the User, Continued

WiBAS G5 Connect+
(auto polarization)

WiBAS-Connect

WiBAS-Connect
(auto-polarization)

Class B equipment

FCC Part 15.19 Statement: Information to the User

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.

FCC Part 15.21 Statement: Information to the User

Changes or modifications made to this equipment, not expressly approved by the party responsible for compliance, could void the user's authority to operate the equipment.

FCC Part 15.105 Statement: Information to the User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the 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.

RF Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, this equipment should be installed and operated with minimum distance **440 cm** between the antenna and your body during normal operation. Users must follow the specific operating instructions for satisfying RF exposure compliance.

Continued on next page

Statement: Information to the User, Continued

WiBAS OSDR-TS

Class A equipment

EN 55022 / EN 55032:

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.

Warning: This is a Class A product according to EN 55022/EN 55032.

Operation of this equipment in a residential environment could cause radio interference in which case the user may be required to take adequate measures.

FCC Part 15.19:

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.

FCC Part 15.21:

Changes or modifications made to this equipment, not expressly approved by the party responsible for compliance, could void the user's authority to operate the equipment.

FCC Part 15.105:

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 radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful 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.

Continued on next page

Statement: Information to the User, Continued

PONE-OD-DC

Class B equipment

EN 55022 / EN 55032:

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.

FCC Part 15.19:

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.

FCC Part 15.21:

Changes or modifications made to this equipment, not expressly approved by the party responsible for compliance, could void the user's authority to operate the equipment.

FCC Part 15.105:

This equipment has been tested and found to comply with the limits for a **Class B digital device**, pursuant to part 15 of the 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.

PONE-OD67-AC
POE-HP-OD67-DC

Class B equipment

EN 55022 / EN 55032:

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.

Declaration of Conformity

English

Hereby, Intracom S.A. Telecom Solutions declares that the product **WiBAS™** is CE marked in compliance with the essential requirements of the Radio Equipment Directive **2014/53/EU**, Eco Design Directives **2009/125/EC, 2017/1369/EU**, RoHS directive **2011/65/EU, 2015/863/EU** and relevant amendments of the above directives.

The full text of the EU declaration of conformity is available at the following URL: <http://emc.intracom-telecom.com/en/start.htm>

Δήλωση Συμμόρφωσης

Greek

Με την παρούσα, η Intracom A.E. Τηλεπικοινωνιακών Λύσεων δηλώνει ότι το προϊόν **WiBAS™** συμμορφώνεται με τις απαιτήσεις της οδηγίας Ραδιοεξοπλισμού **2014/53/EU**, Οικολογικού Σχεδιασμού **2009/125/EK, 2017/1369/EU**, οδηγίας RoHS **2011/65/EU, 2015/863/EU** και λοιπών τροποποιήσεων των παραπάνω οδηγιών.

Το πλήρες κείμενο της δήλωσης συμμόρφωσης (ΕU) είναι διαθέσιμο στην ακόλουθη διεύθυνση URL: <http://emc.intracom-telecom.com/en/start.htm>

Table of Contents

1. Introduction	13
About this Document	13
About WiBAS Terminal Stations	15
Radio Units & Antennas Compatibility Matrix.....	16
Safety Precautions	17
2. Materials	30
3. Before Starting the Installation	35
3.1. Radio Unit Connection Points.....	35
WiBAS G5 Connect+.....	36
WiBAS-Connect	39
WiBAS OSDR-TS.....	46
3.2. Radio Unit Cabling Overview.....	49
Gigabit ETH cable for service Traffic, Inband Management and Powering	50
3.3. Site Prerequisites	58
3.4. Recommended Installation Tools	61
4. Installation Procedures.....	63
4.1. Installing Radio Units and Antennas	64
WiBAS G5 Connect+ Combo	65
WiBAS-Connect Combo	74
WiBAS-Connect and Low Profile 0.3 m / 0.5 m.....	97
WiBAS-Connect and Parabolic 0.3 m with Adaptation Plate / 0.6 m with Clamps	110
WiBAS-Connect and Panel.....	124
WiBAS OSDR-TS and Parabolic 0.3 m	140
WiBAS OSDR-TS and Panel	144
4.2. Installing Radio Units Cables.....	157
Grounding Cable	158
ETH Cable.....	162
Cable Holder	170
Appendix A - Installing Power Injectors	173
POE-AC75-ID / POE-ID-AC72 / POE-AC56-IDH / POE-ID-AC35.....	174
PONE-OD67-AC	181
PONE-OD-DC	188
POE-HP-OD67-DC.....	198
Appendix B – Terminating Cables	203
Ethernet (S-FTP)	204
Grounding	209
Power	212

(Page intentionally left blank)

1. Introduction

About this Document

Scope of document

The scope of this document is to provide detailed instructions to the installation and cabling of the following wireless **PtMP / PtP** Terminal Station products:

- **WiBAS™ G5 Connect+** (auto polarization)
- **WiBAS™ – Connect** (single & auto polarization)
- **WiBAS™ OSDR-TS**



OSDR is an **Outdoor Software-Defined Radio** platform. The same radio unit, based on software running **is capable** to operate, as follows:

- **PtMP** Terminal Station: WiBAS™ OSDR-TS.
- **PtMP** Base Station: WiBAS™ OSDR-HUB.
- **PtP** Node: OmniBAS™ OSDR.



WiBAS™ G5 Connect+ can operate as follows:

- **PtMP** Terminal Station
- **PtP** Node

Continued on next page

About this Document, Continued

Target audience	<p>This document is addressed to certified technicians with wireless equipment knowledge and skills concerning the following:</p> <ul style="list-style-type: none">• Outdoor Radio Unit pole / tower / wall installation.• Antenna with mounting kit installation.• Preparation & Termination of: Ethernet & Grounding cables.• Laying and Installation of: Ethernet, Fiber Optic & Grounding cables.• Testing Ethernet cables using Ethernet testers.
Reference manuals	<p>The listed reference manuals in the table below maybe are useful during installation process:</p> <ul style="list-style-type: none">• WiBAS™ / WiBAS™ System Description.• WiBAS™ / WiBAS™ G5 Product Catalog.• WiBAS™ / WiBAS™ Startup & Commissioning.• Lightning & Surge Protection for Intracom Telecom Radios – Installation Practices.• Lightning & Surge Protector (LSP) Datasheet.
Document conventions	<p>This document applies to the following conventions:</p> <ul style="list-style-type: none">• Bold blue fonts are used for order codes.• <u>Blue underline</u> fonts are used for references.• Bold black fonts are used for indicating important information or paragraph header. <p> This symbol means DANGER. The purpose of this symbol is to warn you that any wrong action can cause bodily injury or even death.</p> <p> This symbol means CAUTION. The purpose of this symbol is to prevent you from performing an action that might result in damage of the equipment.</p> <p> The purpose of this symbol is to protect you from unauthorized entry to the site and damage your equipment.</p> <p> A note calls your attention to important supplementary information.</p> <p> A hint denotes helpful piece of advice or practical suggestion.</p>

About WiBAS Terminal Stations

Product installation overview

WiBAS™ solution provides high flexibility and with zero-footprint installation, through a wide variety of compact Terminal Station radio unit and smart-design antenna options, as shown below:

WiBAS™-G5 Connect+



WiBAS™-Connect



Automatic Polarization



Panel

10.5 GHz

WiBAS™ OSDR-TS



Radio Units & Antennas Compatibility Matrix

Product installation overview

WiBAS™ solution provides high flexibility, through a wide variety of compact Terminal Station radio units combined with multiple antenna options facilitating demanding coverage scenarios. The following table presents a compatibility matrix between the radio units form factors and the available antennas.

		WiBAS™ Terminal Station Form Factors / Frequency (GHz)							
		Single Polarization				Automatic Polarization			
		OSDR-TS				Connect			Connect
		10.5	26	28	32	10.5	26	28	28
Antennas Order Codes	ANT-IS-2628-1F-C	-	-	-	-	-	√	√	-
	ANT-IS-2628-1D6F-C	-	-	-	-	-	√	√	-
	ANT-IS-2628-2F-C	-	-	-	-	-	√	√	-
	ANT-DP-2628-1F-C	-	-	-	-	-	-	-	√
	ANT-DP-2628-1D6F-C	-	-	-	-	-	-	-	√
	ANT-DP-2628-2F-C	-	-	-	-	-	-	-	√
	ANT-IS-11-PL-C	√	-	-	-	√	-	-	-
	ANT-IS-10-1F-C	-	-	-	-	√	-	-	-
	ANT-IS-11-2F	√	-	-	-	√	-	-	-
	ANT-IS-11-3F	√	-	-	-	√	-	-	-
	ANT-IS-11-4F	√	-	-	-	√	-	-	-
	ANT-IS-11-6F	√	-	-	-	√	-	-	-
	ANT-IS-26-1F	-	√	-	-	-	√	-	-
	ANT-IS-26-2F	-	√	-	-	-	√	-	-
	ANT-IS-26-3F	-	√	-	-	-	√	-	-
	ANT-IS-26-4F	-	√	-	-	-	√	-	-
	ANT-IS-28-1F	-	-	√	-	-	-	√	-
	ANT-IS-28-2F	-	-	√	-	-	-	√	-
	ANT-IS-28-3F	-	-	√	-	-	-	√	-
	ANT-IS-28-4F	-	-	√	-	-	-	√	-
	ANT-IS-32-1F	-	-	-	√	-	-	-	-
	ANT-IS-32-2F	-	-	-	√	-	-	-	-
	ANT-IS-32-3F	-	-	-	√	-	-	-	-

Safety Precautions

RF exposure assessment

Introduction

Any Radio Equipment is emitting Radio Frequency (RF) Radiation through its antenna which may be integrated to the equipment or not. It is important to follow any local, national or international regulation during installation and operation of the Radio Equipment to avoid radiation hazards.

Regulations

A lot of countries have issued and follow their own regulations but others adopted European or international regulations, standards or guidelines.

In Europe, some countries follow the recommendations included in 1999/519/EC directive which is based on the guidelines document published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). Other countries have issued their own regulations for this purpose.

The above mentioned European Directive provides the reference levels (limits) for assessment of the human exposure to electromagnetic fields based on health effects. European Union, FCC (US) and Industry Canada Reference Levels for microwave frequencies applied to INTRACOM Telecom equipment are given in the following table ([Table 1](#)).

Table 1: RF Exposure Reference Levels

Regulation	Frequency Range	Power Density	Notes
1999/519/EC	2-300 GHz	10 W/m ²	General Public
FCC 1.1310	1.5-100 GHz	1 mW/cm ² (10 W/m ²)	General Public
FCC 1.1310	1.5-100 GHz	5 mW/cm ² (50 W/m ²)	Occupational
IC RSS-102	6-150 GHz	1 mW/cm ² (10 W/m ²)	General Public
IC RSS-102	6-150 GHz	5 mW/cm ² (50 W/m ²)	Occupational

Continued on next page

Safety Precautions, Continued

RF exposure assessment, continued

RF Exposure General Guidelines for equipment installation

As a general rule it is expected that the highest level of emission would be in line of sight and in close vicinity of the antenna. Additional requirements for the installation of equipment shall be as follows:

- The equipment should be located in such a way to prevent the public from accessing the area where the RF Radiation exceeds the regulation limits. For this, a compliance boundary is determined, based on its radio characteristics. Outside this area the RF radiation levels are below the reference levels (limits).
- Operation and maintenance personnel, which have to work within the RF radiation compliance boundary area, should be informed about the source of radiation and should have the capability to power off the radio equipment before entering the compliance boundary area.
- The compliance boundary area should be defined by a relevant warning sign or physical barrier.

Radiation Exposure Assessment – Compliance Boundary Calculation

In order to calculate the RF exposure compliance boundary around a Radio Equipment and its antenna, a theoretical approach is described below. As the installation environment could be complex, i.e. obstacles causing reflections or scattering, soil conditions etc., this approach may be used to provide a rough estimation of the expected exposure in power flux density on a certain point. More precise estimations can be feasible if detailed knowledge of the installation environment is available. In some cases a safety factor can be used to increase the level of confidence.

The power flux density S can be calculated using the following formula:

$$S = P * G_{num} / (4 * r^2 * \pi)$$

where,

- P = is the maximum power at the antenna port of the Radio Equipment,
- G_{num} = is the numerical gain of the antenna,
- r = is the distance between the antenna and the point of interest.

Continued on next page

Safety Precautions, Continued

RF exposure assessment, continued

Specification	Value / Description
Radio Unit	
Type	WiBAS™-Connect
Frequency, GHz	28
Antenna	
Type	Low profile parabolic
Diameter, m	0.3
Gain, dBi	37.5
Parameter	
Power Flux Density Limit, W/m ² (General Public)	10.0
Compliance Boundary, m (General Public)	1.38
Power Flux Density Limit, W/m ² (Occupational)	50.0
Compliance Boundary, m (Occupational)	0.62

Specification	Value / Description
Radio Unit	
Type	WiBAS™-Connect
Frequency, GHz	26
Antenna	
Type	Low profile parabolic
Diameter (m)	0.3
Gain, dBi	37.0
Parameter	
Power Flux Density Limit, W/m ² (General Public)	10.0
Compliance Boundary, m (General Public)	1.20
Power Flux Density Limit, W/m ² (Occupational)	50.0
Compliance Boundary, m (Occupational)	0.54

Continued on next page

Safety Precautions, Continued

**RF exposure
assessment,
continued**

Specification	Value / Description
Radio Unit	
Type	WiBAS™-Connect
Frequency, GHz	10.5
Antenna	
Type	Low profile parabolic
Diameter, m	0.3
Gain, dBi	29.5
Parameter	
Power Flux Density Limit, W/m ² (General Public)	10.0
Compliance Boundary, m (General Public)	0.87
Power Flux Density Limit, W/m ² (Occupational)	50.0
Compliance Boundary, m (Occupational)	0.39

Continued on next page

Safety Precautions, Continued

RF exposure assessment, continued

Specification	Value / Description
Radio Unit	
Type	WiBAS™-Connect
Frequency, GHz	10.5
Antenna	
Type	Panel
Dimension, mm (H x W x D)	268 x 268 x 51
Gain, dBi	25.0
Parameter	
Power Flux Density Limit, W/m ² (General Public)	10.0
Compliance Boundary, m (General Public)	0.57
Power Flux Density Limit, W/m ² (Occupational)	50.0
Compliance Boundary, m (Occupational)	0.26
Specification	Value / Description
Radio Unit	
Type	WiBAS™-Connect
Frequency, GHz	28
Antenna	
Type	Parabolic
Diameter, m	0.6
Gain, dBi	43.0
Parameter	
Power Flux Density Limit, W/m ² (General Public)	10.0
Compliance Boundary, m (General Public)	2.60
Power Flux Density Limit, W/m ² (Occupational)	50.0
Compliance Boundary, m (Occupational)	1.16

Continued on next page

Safety Precautions, Continued

RF exposure assessment, continued

Specification	Value / Description
Radio Unit	
Type	WiBAS™-Connect
Frequency, GHz	26
Antenna	
Type	Parabolic
Diameter, m	0.6
Gain, dBi	42.3
Parameter	
Power Flux Density Limit, W/m ² (General Public)	10.0
Compliance Boundary, m (General Public)	2.40
Power Flux Density Limit, W/m ² (Occupational)	50.0
Compliance Boundary, m (Occupational)	1.07
Specification	Value / Description
Radio Unit	
Type	WiBAS™-Connect
Frequency, GHz	10.5
Antenna	
Type	Parabolic
Diameter, m	0.6
Gain, dBi	34.5
Parameter	
Power Flux Density Limit, W/m ² (General Public)	10.0
Compliance Boundary, m (General Public)	1.64
Power Flux Density Limit, W/m ² (Occupational)	50.0
Compliance Boundary, m (Occupational)	0.74

Continued on next page

Safety Precautions, Continued

RF exposure assessment, continued

Specification	Value / Description	
Radio Unit		
Type	WiBAS™ G5 Connect+	
Frequency, GHz	24	
Antenna		
Type	Low profile parabolic	
Diameter, m	0.3	0.5
Actual diameter, m	0.393	0.505
Gain, dBi	36.3	39.5
Parameter		
Compliance Boundary, m (General Public)	1.40	2.0
Compliance Boundary, m (Occupational)	0.70	1.90
 Specification		
Value / Description		
Radio Unit		
Type	WiBAS™ G5 Connect+	
Frequency, GHz	26	
Antenna		
Type	Low profile parabolic	
Diameter, m	0.3	0.5
Actual diameter, m	0.393	0.505
Gain, dBi	37.0	40.0
Parameter		
Compliance Boundary, m (General Public)	1.60	2.30
Compliance Boundary, m (Occupational)	0.80	1.10

Continued on next page

Safety Precautions, Continued

**RF exposure
assessment,
continued**

Specification	Value / Description	
Radio Unit		
Type	WiBAS™ G5 Connect+	
Frequency, GHz	28	
Antenna		
Type	Low profile parabolic	
Diameter, m	0.3	0.5
Actual diameter, m	0.393	0.505
Gain, dBi	37.5	40.5
Parameter		
Compliance Boundary, m (General Public)	3.10	4.40
Compliance Boundary, m (Occupational)	1.40	2.00

Safety Precautions, Continued

RF exposure assessment, continued

RF Radiation Safety Information

This equipment complies with:

Cet équipement est conforme:

- ISED RSS-102
- FCC title 47 part 1.1310
- EMF Exposure Directive (1999/519/EC)

Radiation exposure limits set forth for an uncontrolled environment. This equipment (antenna) should be installed and operated with minimum distance between the radiator & the human body as depicted in the tables below. This distance provides additional safety margin for the product minimizing exposure to microwaves and is calculated as the worst case scenario (maximum transmitter power / antenna with maximum gain).

Limites d'exposition aux rayonnements établies pour un environnement non contrôlé. Cet équipement (antenne) doit être installé et utilisé avec une distance minimale entre le radiateur et le corps humain, comme indiqué dans les tableaux ci-dessous. Cette distance fournit une marge de sécurité supplémentaire pour le produit en minimisant l'exposition aux micro-ondes et est calculée comme le pire des cas (puissance d'émission maximale / antenne avec gain maximal). Ces calculs ont été effectués conformément à :

These calculations were done in accordance with:

Ces calculs ont été effectués conformément à :

- FCC Radio Frequency Exposure Methods & Limits 2.1091, 1.1310
- Health Canada Safety Code 6 / Industry Canada RSS 102
 - <https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/occupational-exposure-regulations/>
 - https://www.ic.gc.ca/eic/site/smt-qst.nsf/eng/h_sf06129.html
- EMF Exposure Directive (99/519/EC)

Continued on next page

Safety Precautions, Continued



General

- Do not install or operate this system in the presence of flammable gases or fumes. Operating any electrical instrument in such an environment is a safety hazard.
- Outdoor units and antennas should be installed ONLY by experienced installation professionals who are familiar with local building and safety codes and, wherever applicable, are licensed by the appropriate government regulatory authorities. Failure to do so may void the product warranty and may expose the end user or the service provider to legal and financial liabilities.
- INTRACOM S.A. TELECOM SOLUTIONS and its resellers or distributors are not liable for injury, damage or violation of regulations associated with the installation of outdoor units, antennas or any other accessory related to the radios.
- Appropriate labeling should exist at points with high risk of contact with hazardous voltage.
- A list with emergency phone numbers (e.g. medical assistance numbers) should be displayed at easy-to-view positions at the installation site.
- Also, recommended are for safety purposes, a fire detection system and fire extinguishers (installed at easy-to-access points) inside the installation premises.
- This equipment must be permanently earthed for protection and functional purposes.
- Changes or modifications to the radio equipment, antennas and installation accessories not expressly approved by INTRACOM S.A. TELECOM SOLUTIONS or the party responsible for compliance could void the user's permission to operate the equipment.

Continued on next page

Safety Precautions, Continued



Working on the Building's Roof

During stormy weather, do not perform any mechanical assembling or antenna installation / alignment works on the building's roof.

The metal structure of towers / masts is prone to lightning.



Proper Grounding Installation

Never power on any equipment unless you have completed the grounding installation.

There is risk of equipment failure and / or electrical shock. Ensure that:

- The grounding system measures an appropriate path resistance as specified by local regulations.
- An appropriate grounding bar (or terminal) exists at the proximity of each equipment installation position.
- The equipment is intended to be installed in location only where the equipotential bonding has been applied.



ESD Protection

When using SFP, then the product is a Class 1 laser product.



Equipment Access

Only trained, authorized personnel should have access to the installed equipment.



Hot Surfaces

Do not touch the outer surface of the equipment during operation without proper personal protection.

Allow unit to cool (after switch off) before servicing.

Continued on next page

Safety Precautions, Continued



Local power Source

- **AC:**

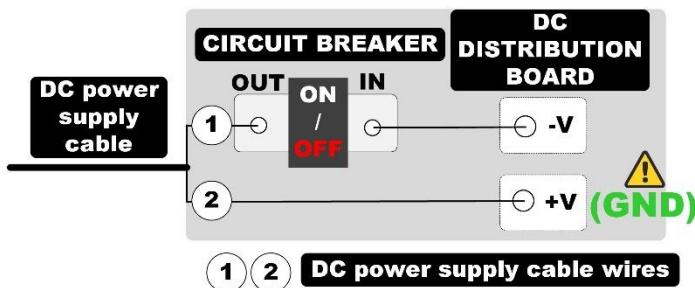
- Safety requirements require a single pole circuit-breaker to be employed between the local AC power source and power injector.
- The circuit breaker⁽¹⁾ must disconnect the mains phase of the AC power source.



If the plug of power supply cord is intended to be the power disconnect device of the equipment (**not recommended**), arrange in the installation to connect the equipment to a socket-outlet installed close to the power injector and easily accessible.

- **DC:**

- Safety requirements require a single pole circuit-breaker⁽²⁾ to be employed between the local DC power source and power injector.
- The positive (+) V pole of the local DC power source must be **grounded**.
- The **circuit breaker** must control (open / close) the negative (-) V pole of the DC power source.



Power Supply Cable

- **AC:**

- Power source cables must be tested for short circuits, open circuit or wrong wiring before installed.
- The **ground wire** of the AC cable must be connected to the protective earth (ground) point of the mains electricity installation.

- **DC:**

- Power source cables must be tested for short circuits, open circuit or wrong wiring before installed
- The **positive wire** of the DC cable must be connected to the protective earth (ground) point of the mains electricity installation (see picture above).

Continued on next page

⁽¹⁾ Single-pole MCB 6 A, 230 V AC (voltage rating), C-curve (for Industrial Applications).

⁽²⁾ Single-pole MCB 6 A, 72 VDC (voltage rating), C-curve (for Industrial Applications).

Safety Precautions, Continued



Power Injector

Ethernet cable:

Connect the OUT receptacle of power injector to the proper receptacle of the radio unit, as described in this manual. Do not connect the power injector's OUT receptacle to network switches / routers / laptops. **There is risk of damaging the network devices** due to potential power that is carried inside the Ethernet cable.



Radio Unit Powering

The radio units powering is performed through power injector only (for details how to power up the radio unit refer to *WiBASTM / WiBASTM G5 Startup & Commissioning manual*).

Do not plug / unplug the Ethernet cable to / from the radio unit when the power injector operates. **There is risk of damaging the radio unit.** Always ensure that the power supply source / power injector is OFF before plugging / unplugging.

2. Materials

Scope This chapter describes the installation materials of **WiBAS™ Terminal Stations**.

 For each material there is an extensive packing list description to the respective installation procedure.

Radio units One of the following radio units, depending on site-specific RF planning requirements:

- WiBAS™G5 Connect+ terminal radio unit, **auto-polarization (WG5-CONN-PLUS-HP-27-29)**.
- WiBAS™-Connect terminal radio unit **(CONN-OB-U-DSDS)**.
- WiBAS™-Connect terminal radio unit **auto-polarization (CONN-OB-U-DSDS-DP)**
- WiBAS™ OSDR-TS (Terminal Station) radio unit **(OSDR-OB-U-DSDS-SB)**.

 The order codes for radio units are indicatives.

The complete list of order codes is available to the respective product catalog (see [Reference manuals](#)).

Continued on next page

Materials, Continued

Antennas	One of the following antennas, depending on site-specific RF planning requirements: <ul style="list-style-type: none">• Panel antenna for WiBAS™-Connect and WiBAS™ OSDR-TS, 10.5 - 10.65 GHz (25 dBi) - rectangular flange (ANT-IS-11-PL-C).• Parabolic Antenna 0.3 m for WiBAS™-Connect⁽¹⁾ and WiBAS™ OSDR-TS, 24.50 - 26.50 GHz (36.8 dBi), - (ANT-IS-26-1F).• Low profile parabolic antenna 0.3 m for WiBAS™-Connect, 10.15 - 10.65 GHz (29 dBi) - rectangular flange (ANT-IS-10-1F-C).• Low profile wideband parabolic antenna 0.3 m for WiBAS™-Connect, 24.25 - 26.50 GHz (36.3 dBi) / 26.50 - 27.50 GHz (37.0 dBi) / 27.50 - 29.50 GHz (37.5 dBi) - rectangular flange (ANT-IS-2628-1F-C).• Low profile wideband parabolic antenna 0.3 m for auto-polarization WiBAS™G5 Connect+ and WiBAS™-Connect, 24.25 - 26.50 GHz (36.3 dBi) / 26.50 - 27.50 GHz (37.0 dBi) / 27.50 - 29.50 GHz (37.5 dBi) - circular flange (ANT-DP-2628-1F-C).• Low profile wideband parabolic antenna 0.5 m for WiBAS™-Connect, 24.25 - 26.50 GHz (39.5 dBi) / 26.50 - 27.50 GHz (40.0 dBi) / 27.50 - 29.50 GHz (40.5 dBi) - rectangular flange (ANT-IS-2628-1D6F-C).• Low profile wideband parabolic antenna 0.5 m for auto-polarization WiBAS™G5 Connect+ and WiBAS™-Connect, 24.25 - 26.50 GHz (39.5 dBi) / 26.50 - 27.50 GHz (40.0 dBi) / 27.50 - 29.50 GHz (40.5 dBi) - circular flange (ANT-DP-2628-1D6F-C).• Low profile wideband parabolic antenna 0.6 m for WiBAS™-Connect, 24.25 - 26.50 GHz (42.1 dBi) / 26.50 - 27.50 GHz (42.0 dBi) / 27.50 - 29.50 GHz (42.8 dBi) - rectangular flange (ANT-IS-2628-2F-C).• Low profile wideband parabolic antenna 0.6 m for auto-polarization WiBAS™G5 Connect+⁽²⁾ and WiBAS™-Connect, 0.6 m, 24.25 - 26.50 GHz (42.1 dBi) / 26.50 - 27.50 GHz (42.0 dBi) / 27.50 - 29.50 GHz (42.8 dBi) - circular flange (ANT-DP-2628-2F-C).
-----------------	---



The order codes for antennas are indicatives.

The complete list of order codes is available to the respective product catalog (see [Reference manuals](#)).

Continued on next page

⁽¹⁾ For WiBAS™-Connect installation the adaptation plate **WCONN-PAR-ANT-KIT** is required.

⁽²⁾ The 0.6 m antenna with WiBAS™ G5 Connect+ combination will be available in future product release.

Materials, Continued

Antenna adaptation kits One of the following adaptation kits, depending on site-specific antenna requirements:

- Hooks ([OSDR-PL-ANT-KIT](#)).
- Adaptation plate ([WCONN-PAR-ANT-KIT](#)).

Mounting kits One of the following pole mounting kits, based on site-specific mounting kit requirements:

- Pole mounting kit - for poles 42 mm to 80 mm ([WG5-WCONN-PL-MNT](#)).
- Pole mounting kit - for poles 42 mm to 80 mm ([WCONN-PL-MNT](#)).
- Pole mounting kit - for poles 42 mm to 80 mm ([WCONN-DP-PL-MNT](#)).
- Wall mounting kit ([WCONN-PL-W-MNT-DP](#)).
- Pole/Wall mounting kit - for poles 48 mm to 60 mm ([OSDR-ANT-MNT](#)).
- Pole adaptation bracket - for poles 80 mm to 100 mm and 104 mm to 120 mm ([INST-ADAPT](#)).
- Pole mounting bracket - for poles 50 mm to 120 mm ([INST-PONE-PL](#)).
- Pole mounting bracket - for poles 50 mm to 120 mm ([INSTPONE-PL2](#)).

Pole hose clamps One of the following pole hose clamps, based on site-specific pole requirements:

- Stainless steel hose clamp – for poles 48 mm to 100 mm ([ST-CL64-140](#)).
- Stainless steel hose clamp – for poles 75 mm to 149 mm ([ST-CL102-178](#)).
- Stainless steel hose clamp – for poles 150 mm to 229 mm ([ST-CL172-248](#)).
- Stainless steel hose clamp – for poles 230 mm to 300 mm ([ST-CL242-318](#)).

Continued on next page

Materials, Continued

Power injectors One of the following power injectors, depending on site-specific powering requirements:

- AC POE injector, indoor, 75 watt ([POE-AC75-ID](#)).
- AC POE injector, indoor, 72 watt ([POE-ID-AC72](#)).
- AC POE injector, indoor, 56 watt ([POE-AC56-IDH](#)).
- AC POE injector, indoor, 35 watt ([POE-ID-AC35](#))
- AC PONE injector, outdoor, 67 watt ([PONE-OD67-AC](#)).
- DC PONE injector, outdoor, 60 watt ([PONE-OD-DC](#)).
- DC PONE injector, outdoor, 114 watt ([POE-HP-OD67-DC](#)).

Grounding kit The following grounding kit, depending on site-specific equipment requirements:

- Grounding kit ([GND-KIT16-OD](#)).

Cables One of the following cables, depending on site-specific cabling requirements:

- Ethernet cable, shielded, Cat5E (S-FTP) ([ETH-CAB-SFTP](#)).
- AC power supply cable - 3 x 0.75 mm² ([AC-PWR-CAB](#)).
- DC power supply cable - 2 x 1 mm² ([DC-PWR-CAB-1](#)).
- DC power supply cable - 2 x 2.5 mm² ([DC-PWR-CAB-2](#)).
- DC power supply cable - 2 x 2.5 mm² ([DC-PWR-CAB-3](#)).
- Grounding cable, indoor use - 6 mm² ([GND-CAB6-ID](#)).

Cables gland One of the following cables gland, depending on site-specific cabling requirements:

- M20 gland for Ethernet cable ([M20-GLAND](#)).

Materials, Continued

Others	<p>One of the following items, depending on site-specific installation requirements:</p> <ul style="list-style-type: none">• Cable holder for fastening 2 x M20-GLAND with cables (OSDR-HOLD-2).• Alignment tool (set of two) for WiBAS™-Connect terminal station radio unit (both editions) (WCONN-ALT-KIT).• Outdoor lightning surge protector with IP68 ingress protection for Ethernet line (ETH-SRG-OD68).• Hand crimping tool for RJ-45 (ST-RJ45) connector (CRIMP-TOOL-S).• Optional tool for M20 gland (TOOL-M20).
---------------	---

3. Before Starting the Installation

Scope	This chapter describes all the prerequisites that must be considered prior to installing the following wireless equipment:
	<ul style="list-style-type: none">• WiBAS™ G5 Connect+• WiBAS™ -Connect• WiBAS™ -Connect auto-polarization• WiBAS™ OSDR-TS

3.1. Radio Unit Connection Points

Introduction	This section describes all the available connection points of the following radio units:
---------------------	--

Description	Page
WiBAS G5 Connect+	36
WiBAS-Connect	39
WiBAS OSDR-TS	46

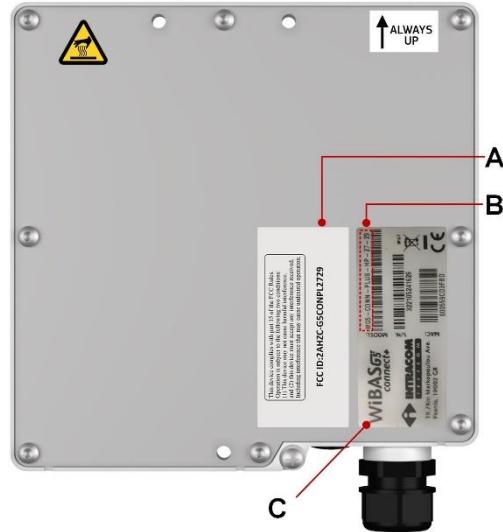
WiBAS G5 Connect+

Receptacles



#	Marking	Description	Use
A	GbE1	Gigabit Ethernet, Electrical R-J45 (100 / 1000 Base-T).	To connect the S-FTP cable for traffic, inband management and power.
B	RSSI	RSSI cable entry with screw-in tap.	To connect the RSSI cable for antenna alignment.

Label



#	Description
A	FCC statement.
B	Order code (27 GHz lower band - 29 GHz upper band).
C	Product description.

Continued on next page

WiBAS G5 Connect+, Continued

Label,
continued

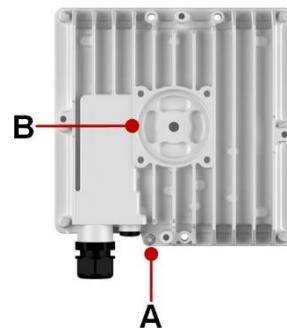


Antennas	Radio Unit Orientation Label
ANT-DP-2628-1F-C ANT-DP-2628-1D6F-C ANT-DP-2628-2F-C	

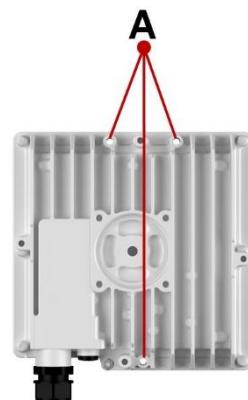
Continued on next page

WiBAS G5 Connect+, Continued

Other points



#	Marking	Description	Use
A	GND	Radio unit grounding screw.	To connect 16 mm ² grounding terminal.
B	-	Wave guide interface.	To connect antenna feeder.

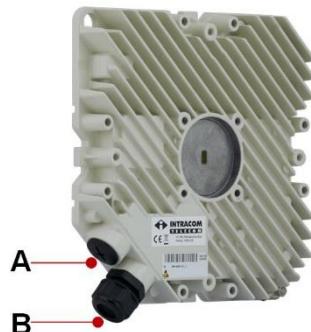


#	Marking	Description	Use
A	-	Radio unit holes for M5 screws.	WG5-WCONN-PL-MNT installation with ANT-DP-2628-1F-C and ANT-DP-2628-1D6F-C antennas.

WiBAS-Connect

Receptacles

WiBAS™-Connect (single / auto polarization)



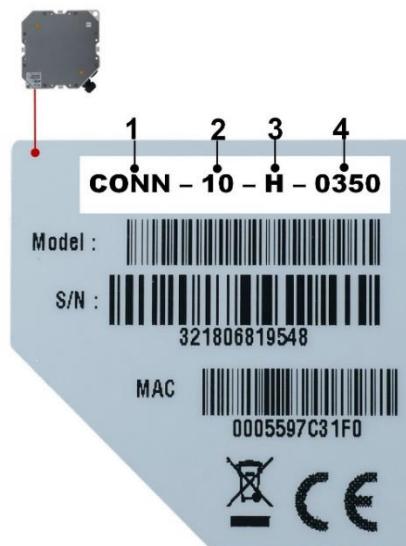
#	Marking	Description	Use
A	RSSI	RSSI cable entry with screw-in tap.	To connect the RSSI cable for antenna alignment.
B	GbE1	Gigabit Ethernet, Electrical R-J45 (100/1000 Base-T).	To connect the S-FTP cable for traffic, inband management and power.

Continued on next page

WiBAS-Connect, Continued

Label

WiBAS™-Connect



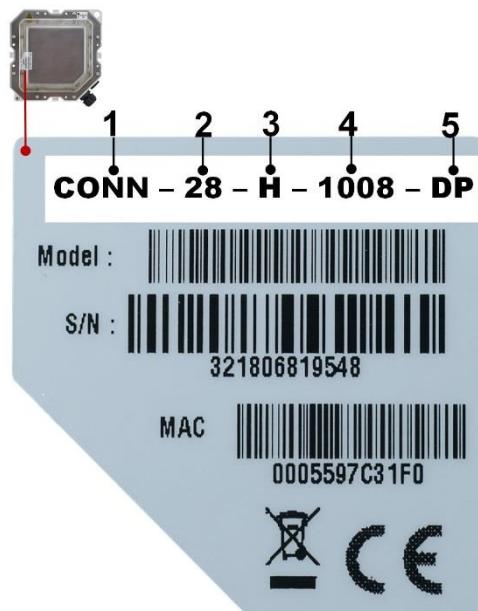
#	Description
1	Product description.
2	Frequency band.
3	L or H = WiBAS™-Connect determination transmit as (L)ow or (H)igh in the link pair.
4	Duplex spacing (MHz).

Continued on next page

WiBAS-Connect, Continued

Label,
continued

WiBAS™-Connect (auto-polarization)



#	Description
1	Product description.
2	Frequency band.
3	L or H = WiBAS™-Connect determination transmit as (L)ow or (H)igh in the link pair.
4	Duplex spacing (MHz).
5	Auto polarization edition.

Continued on next page

WiBAS-Connect, Continued

Label,
continued

WiBAS™-Connect



Antennas	Radio Unit Orientation Label	
	Horizontal	Vertical
ANT-IS-2628-1F-C ANT-IS-2628-1D6F-C ANT-IS-2628-2F-C ANT-IS-26-1F	←	↑
ANT-IS-11-PL-C	↑	←

WiBAS™-Connect (auto-polarization)



Antennas	Radio Unit Orientation Label
ANT-DP-2628-1F-C ANT-DP-2628-1D6F-C ANT-DP-2628-2F-C	↑ ALWAYS UP

Continued on next page

WiBAS-Connect, Continued

Other points

WiBAS™-Connect (both editions)



#	Marking	Description	Use
A	-	Anchor point.	For installation of safety lanyard.
B	-	Wave guide interface.	To connect antenna feeder ⁽¹⁾ .
C	GND	Radio unit grounding terminal.	To connect 16 mm ² grounding cable.

Continued on next page

⁽¹⁾ Circular for WiBAS™-Connect (auto-polarization) / Rectangular for WiBAS™-Connect.

WiBAS-Connect, Continued

Other points,
continued

WiBAS™-Connect



#	Marking	Description	Use
A	-		<ul style="list-style-type: none"> Radio unit (horizontal or vertical polarization) for WCONN-PL-MNT installation with ANT-IS-2628-1F-C, ANT-IS-2628-1D6F-C and ANT-IS-11-PL-C antennas.
A&B	-	Radio unit holes for M5 screws.	<ul style="list-style-type: none"> Radio unit (horizontal or vertical polarization) for installation with WCONN-PAR-ANT-KIT and the following antennas: <ul style="list-style-type: none"> ANT-IS-11-2F / -3F / -4F / -6F ANT-IS-26-1F / -2F / -3F / -4F ANT-IS-28-1F / -2F / -3F / -4F
C		Hook features.	<ul style="list-style-type: none"> Radio unit (horizontal or vertical polarization) for ANT-IS-2628-2F-C antenna installation.

Continued on next page

WiBAS-Connect, Continued

Other points,
continued

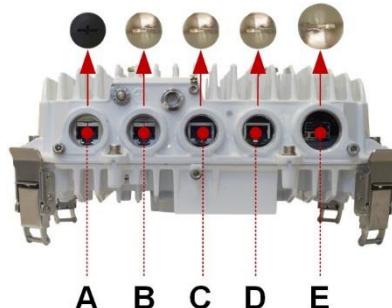
WiBAS™-Connect (auto-polarization)



#	Marking	Description	Use
A	-	Radio unit holes for M5 screws.	<ul style="list-style-type: none">Radio unit for WCONN-DP-PL-MNT installation with ANT-DP-2628-1F-C and ANT-DP-2628-1D6F-C antennas.
B	-	Hook features.	<ul style="list-style-type: none">Radio unit for ANT-DP-2628-2F-C antenna installation.

WiBAS OSDR-TS

Receptacles

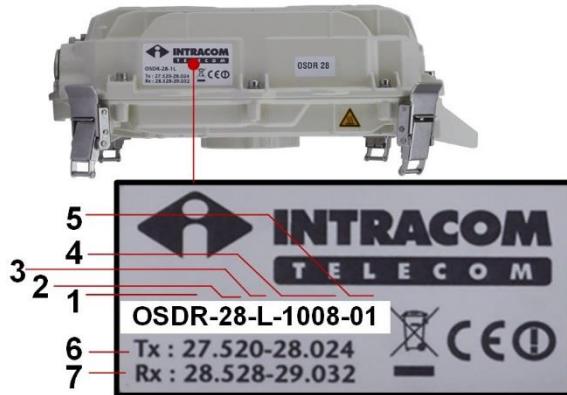


#	Marking	Description	Use
A	GbE2	Gigabit Ethernet, Electrical RJ-45 (100/1000 Base-T).	To connect Ethernet (S-FTP) cable for traffic / inband management and power via power injector.
B	FE	Fast Ethernet, RJ-45 (100 Base-T).	To connect Ethernet (S-FTP) cable for outband management / power via power injector.
C	-	-	Reserved for future use.
D	-	-	Reserved for future use.
E	GbE1	Gigabit Ethernet, SFP cage.	To connect SFP module (electrical / optical) for traffic and inband management.

Continued on next page

WiBAS OSDR-TS, Continued

Label

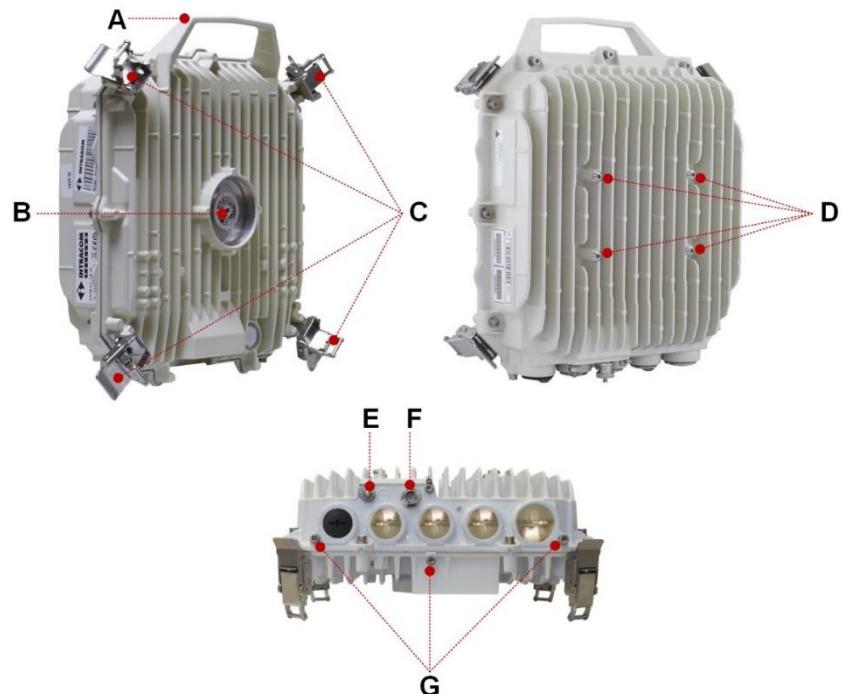


#	Description
1	Product description.
2	Frequency band.
3	OSDR determination as <u>Low</u> or <u>High</u> in the link pair.
4	Duplex spacing (MHz).
5	For 26 / 28 / 32 GHz Sub-band (01 up to 02).
6	Transmit frequencies.
7	Receive frequencies.

Continued on next page

WiBAS OSDR-TS, Continued

Other points



#	Marking	Description	Use
A	-	Anchor point	To fit lanyard for lifting to the pole.
B	-	Wave guide	To install antenna feeder.
C	-	Clamps	To mount antenna.
D	-	Female threads for M5 screws.	To install mounting kit for panel antenna.
E	GND	Enclosure grounding terminal.	To connect 16 mm ² grounding cable.
F	RSSI	Receive signal level indication.	To connect the RSSI cable for measuring receive signal in volts.
G	-	Female threads for screws.	To install cable holder.

3.2. Radio Unit Cabling Overview

Introduction

This section describes all the available cabling connections of **WiBAS™ Terminal Stations**.

The cabling overview described, as follows:

[Gigabit ETH cable for service Traffic, Inband Management and Powering](#)

Precaution



The section describes the cabling overview **without** using any additional device for lightning surge protection.

For additional information regarding surge protection refer to [Lightning and surge protection](#) on page [59](#).

List of power injectors for radio unit powering

The following list shows the power injectors connected to **WiBAS™ Terminal Stations** for powering.

Order Code	Type		WiBAS™ Terminal Station	
	AC	DC	Connect G5 Connect+	OSDR-TS
POE-ID-AC35	✓	-	✓	-
POE-AC56-IDH	✓	-	✓	✓
PONE-OD67-AC	✓	-	✓	✓
POE-ID-AC72	✓	-	✓	✓
POE-AC75-ID	✓	-	-	✓
PONE-OD-DC	-	✓	✓	✓
POE-HP-OD67-DC	-	✓	✓	✓

Gigabit ETH cable for service Traffic, Inband Management and Powering

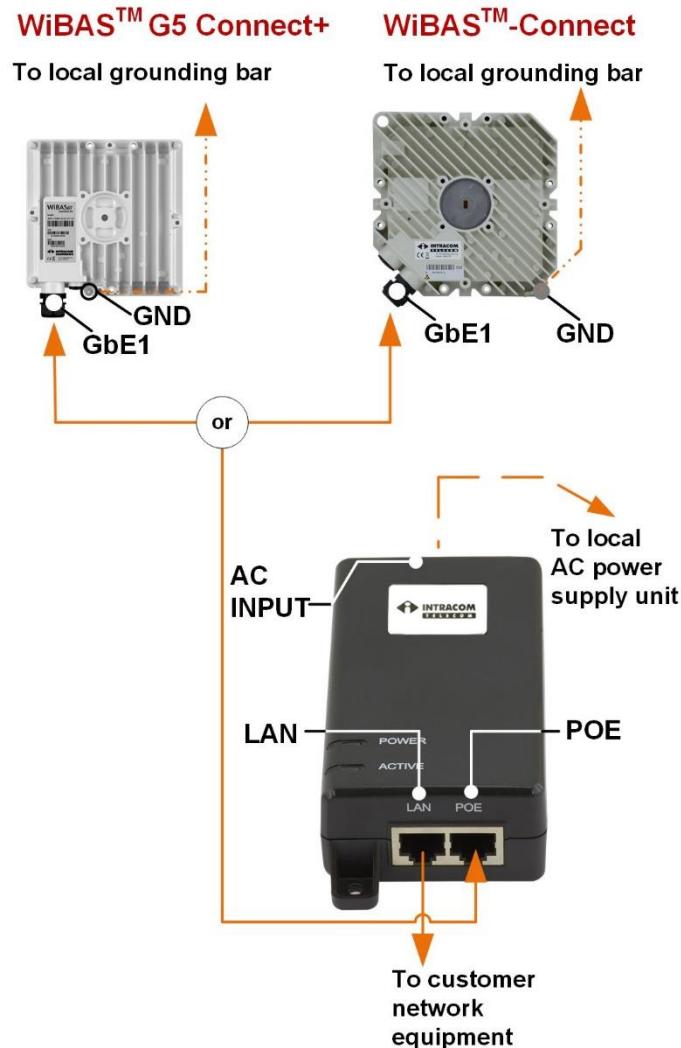
Ethernet cable length restrictions	<p>The Gigabit Ethernet (S-FTP) cable for service traffic, inband management and external powering applies to the following restriction:</p> <p>The maximum length of Gigabit Ethernet (S-FTP) cable (Cat5E or Cat6), between WiBAS™ receptacles and customer network receptacle cannot exceed 100 meters.</p>
---	---

Continued on next page

Gigabit ETH cable for service Traffic, Inband Management and Powering, Continued

AC power injector

The following schematic shows a cabling overview of **WiBAS™ Terminal Stations** when powering is through power injector with order code **POE-ID-AC35**:



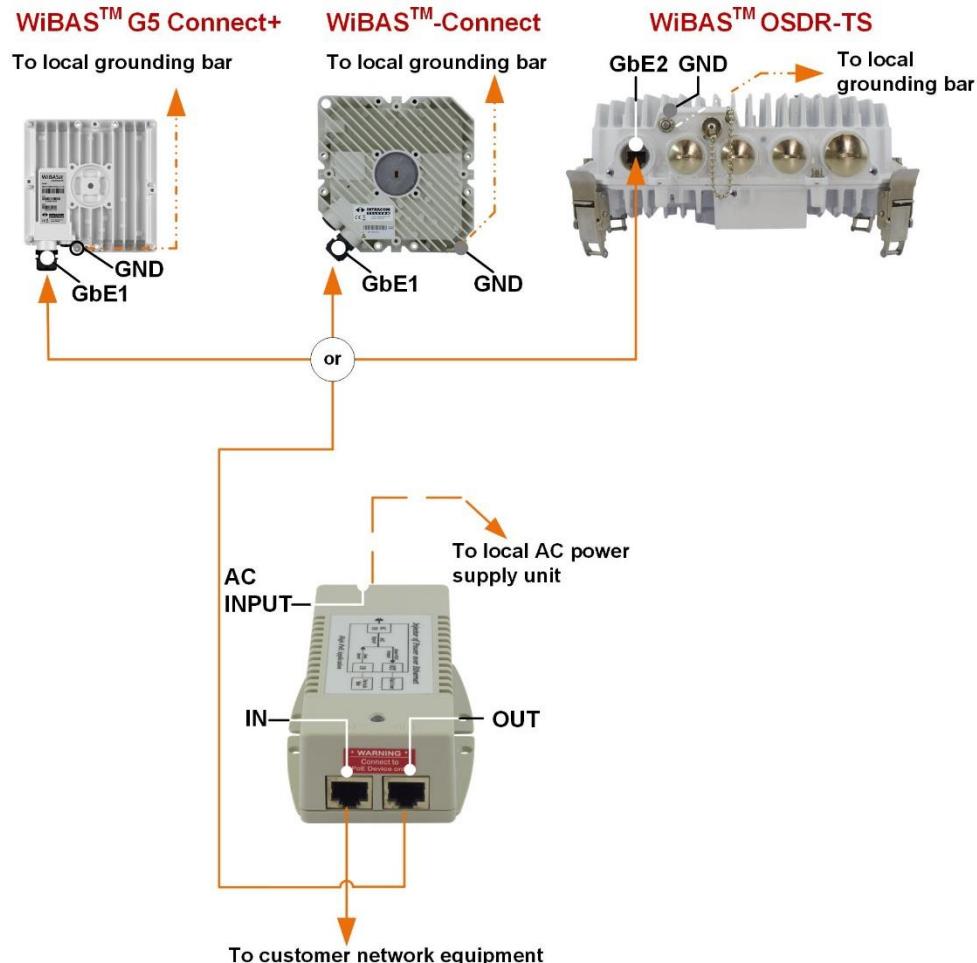
Marking	Cable Type
GbE1 / POE	Gigabit Ethernet (S-FTP) cable for traffic, inband management and superimposed DC power.
LAN	Gigabit Ethernet (S-FTP) cable for traffic and inband management.
AC INPUT	AC power supply cord.
GND	Grounding cable 16 mm ² .

Continued on next page

Gigabit ETH cable for service Traffic, Inband Management and Powering, Continued

AC power injector, continued

The following schematic shows a cabling overview of **WiBAS™ Terminal Stations** when powering is through power injector with order code **POE-AC56-IDH**:



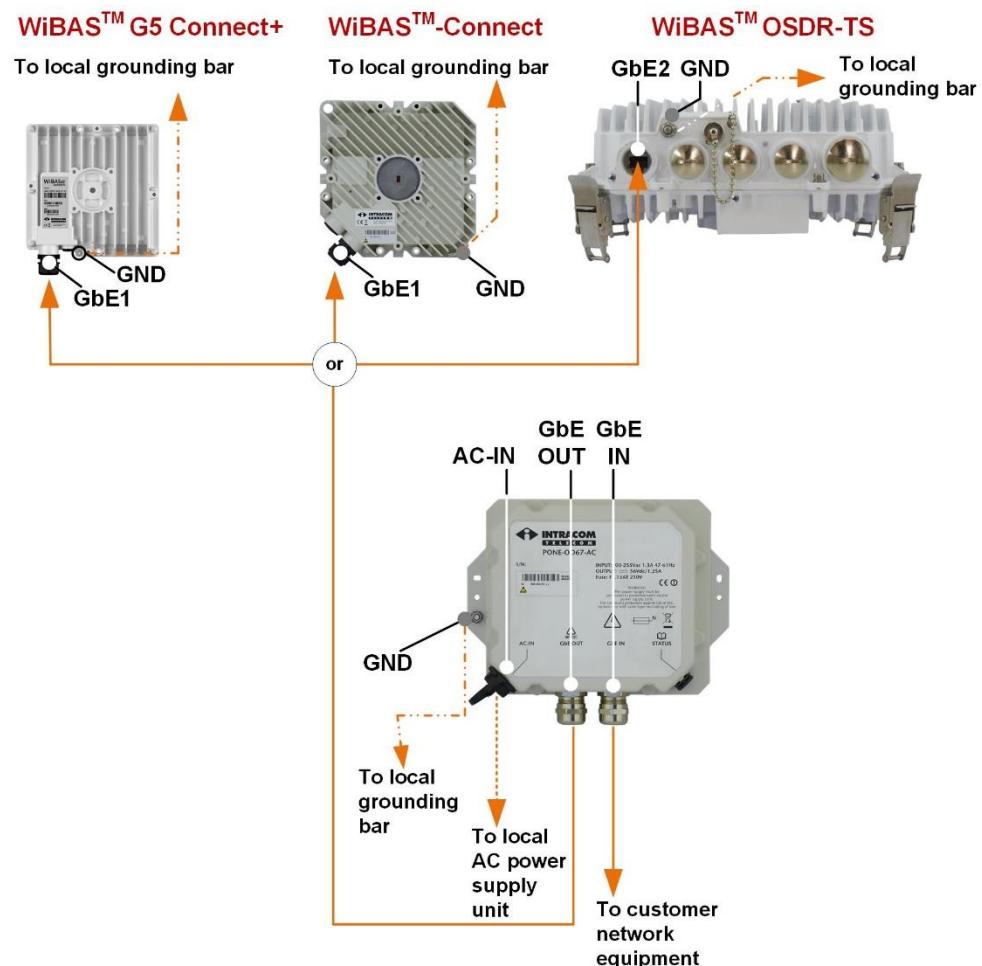
Marking	Cable Type
GbE1, GbE2, OUT	Gigabit Ethernet (S-FTP) cable for traffic, inband management and superimposed DC power.
IN	Gigabit Ethernet (S-FTP) cable for traffic and inband management.
AC INPUT	AC power supply cord.
GND	Grounding cable 16 mm ² .

Continued on next page

Gigabit ETH cable for service Traffic, Inband Management and Powering, Continued

AC power injector, continued

The following schematic shows a cabling overview of **WiBAS™ Terminal Stations** when powering is through power injector with order code **PONE-OD67-AC**:



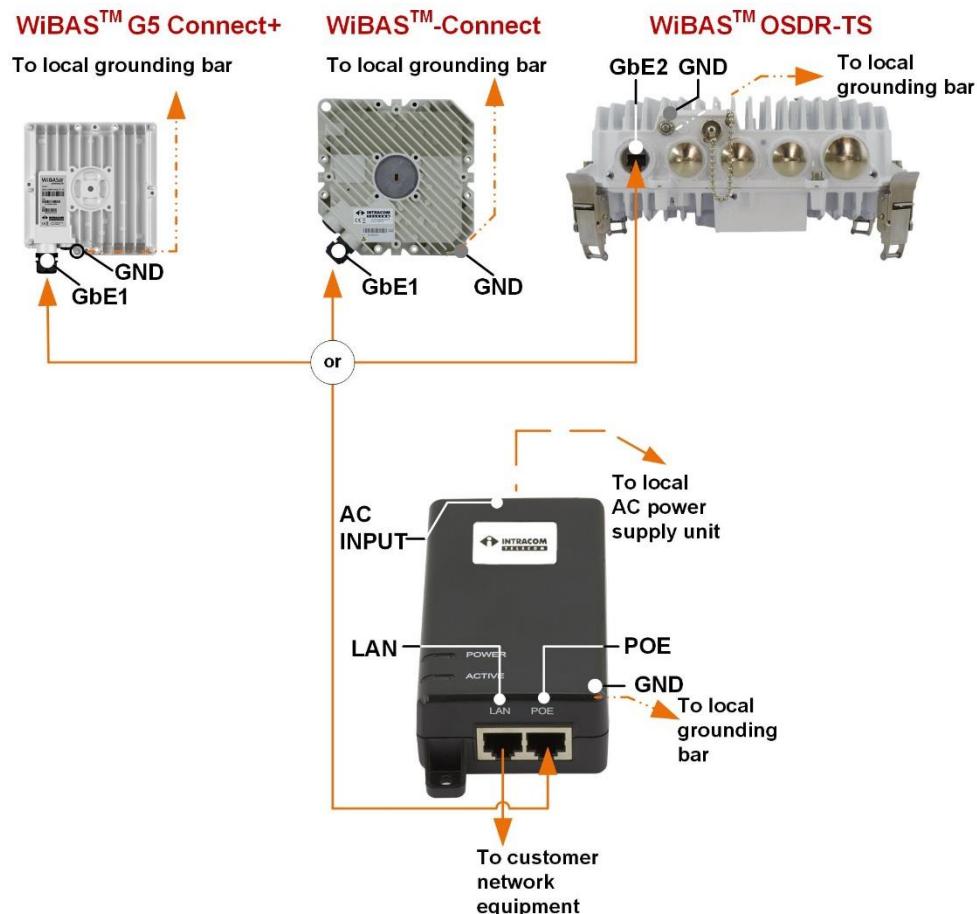
Marking	Cable Type
GbE1, GbE2, GbE OUT	Gigabit Ethernet (S-FTP) cable for traffic, inband management and superimposed DC power.
GbE IN	Gigabit Ethernet (S-FTP) cable for traffic and inband management.
AC-IN	AC power supply cable.
GND	Grounding cable 16 mm ² .

Continued on next page

Gigabit ETH cable for service Traffic, Inband Management and Powering, Continued

AC power injector, continued

The following schematic shows a cabling overview of **WiBAS™ Terminal Stations** when powering is through power injector with order code **POE-ID-AC72**:



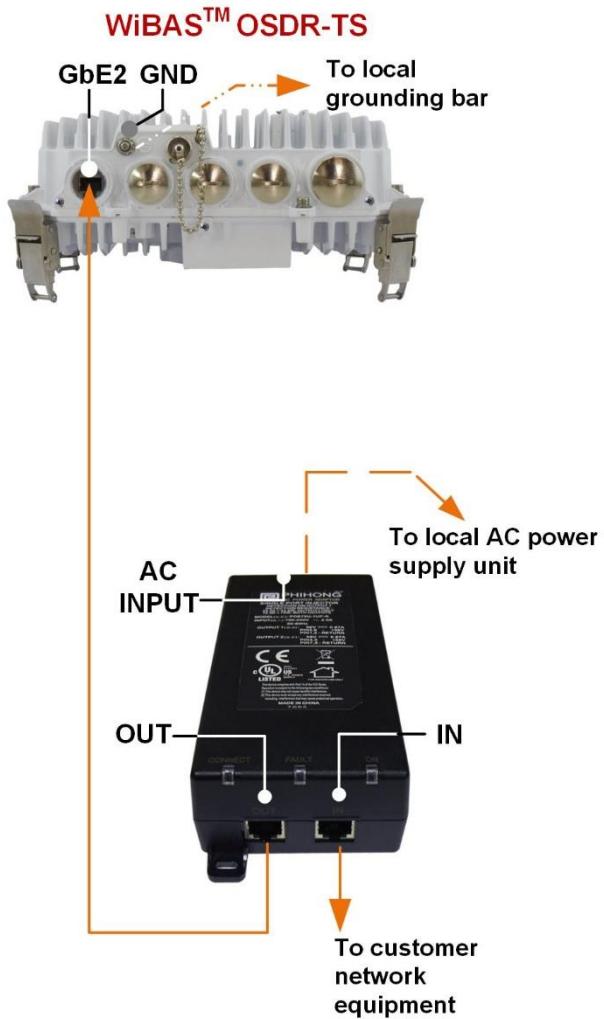
Marking	Cable Type
GbE1, GbE2, POE	Gigabit Ethernet (S-FTP) cable for traffic, inband management and superimposed DC power.
LAN	Gigabit Ethernet (S-FTP) cable for traffic and inband management.
AC INPUT	AC power supply cord.
GND	Grounding cable 16 mm ² for radio unit and 6 mm ² for POE-ID-AC7 .

Continued on next page

Gigabit ETH cable for service Traffic, Inband Management and Powering, Continued

AC power injector, continued

The following schematic shows a cabling overview of **WiBAS™ Terminal Stations** when powering is through power injector with order code **POE-AC75-ID:**



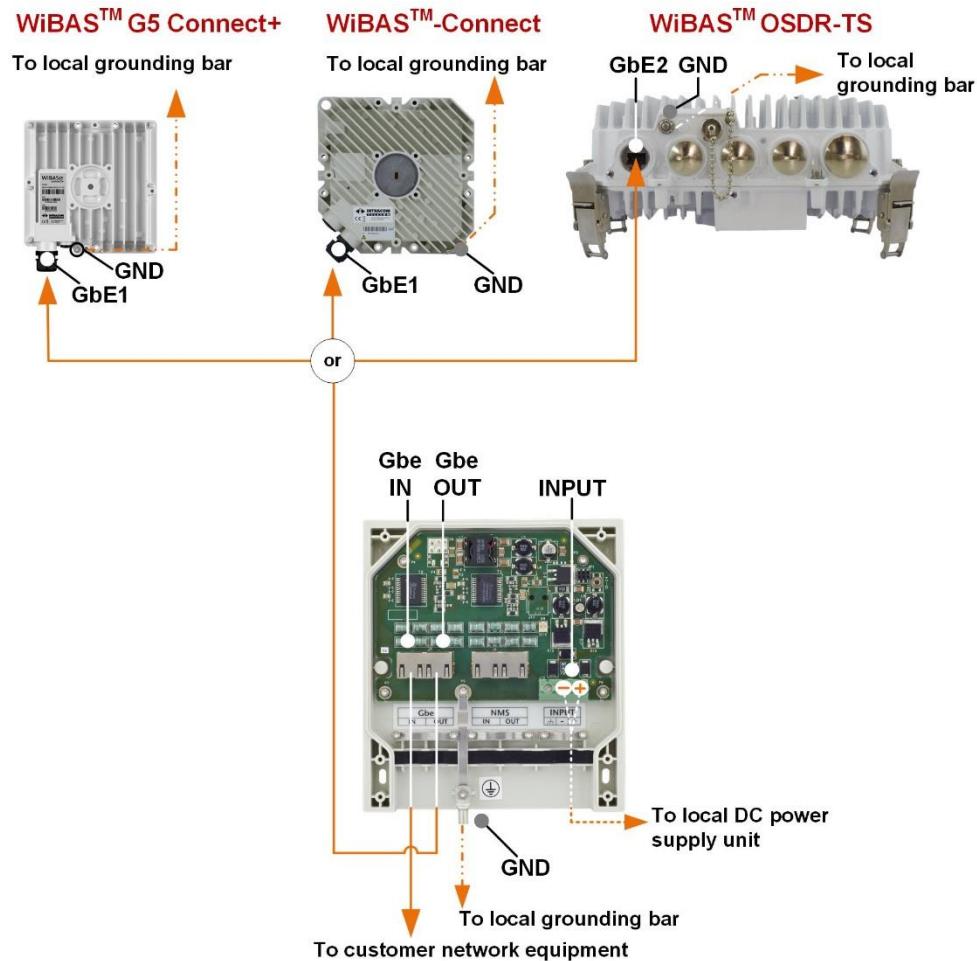
Marking	Cable Type
GbE2, OUT	Gigabit Ethernet (S-FTP) cable for traffic, inband management and superimposed DC power.
IN	Gigabit Ethernet (S-FTP) cable for traffic and inband management.
AC INPUT	AC power supply cord.
GND	Grounding cable 16 mm ² .

Continued on next page

Gigabit ETH cable for service Traffic, Inband Management and Powering, Continued

DC power injector

The following schematic shows a cabling overview of **WiBAS™ Terminal Stations** when powering is through power injector with order code **PONE-OD-DC:**



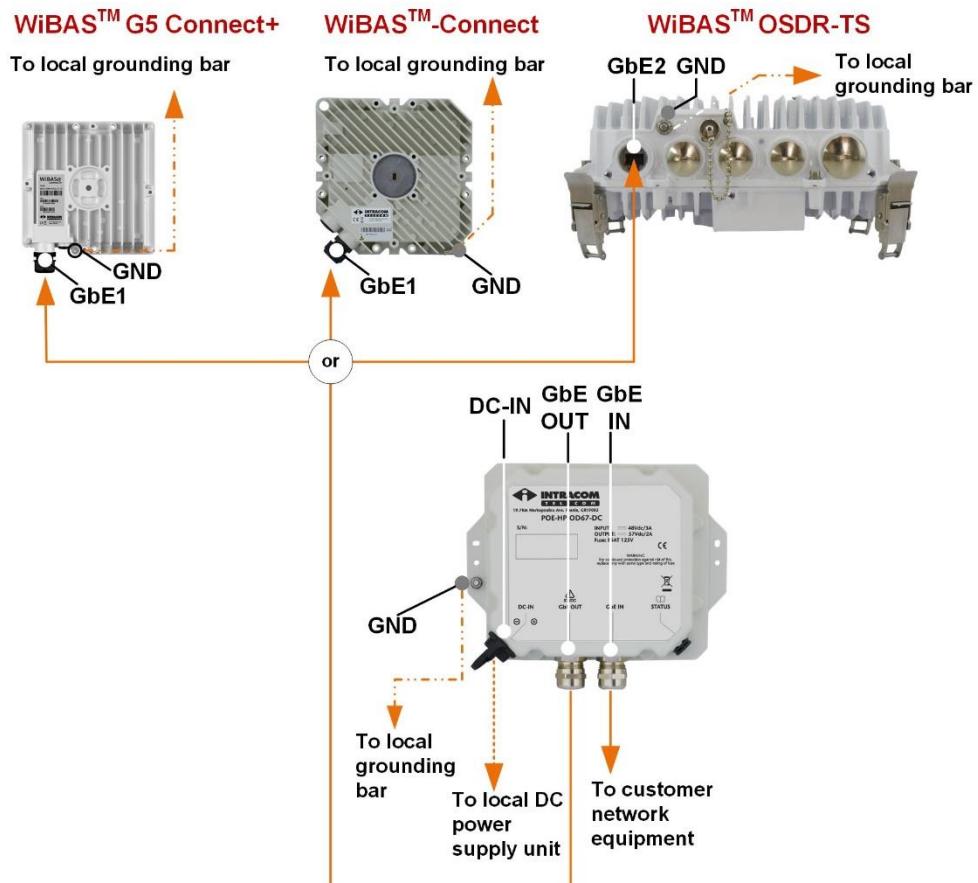
Marking	Cable Type
GbE1, GbE2, Gbe OUT	Gigabit Ethernet (S-FTP) cable for traffic, inband management and superimposed DC power.
Gbe IN	Gigabit Ethernet (S-FTP) cable for traffic and inband management.
INPUT	DC power supply cable.
GND	Grounding cable 16 mm ² for radio unit and 6 mm ² for PONE-OD-DC .

Continued on next page

Gigabit ETH cable for service Traffic, Inband Management and Powering, Continued

DC power injector, continued

The following schematic shows a cabling overview of **WiBAS™ Terminal Stations** when powering is through power injector with order code **POE-HP-OD67-DC**:



Marking	Cable Type
GbE1, GbE2, GbE OUT	Gigabit Ethernet (S-FTP) cable for traffic, inband management and superimposed DC power.
GbE IN	Gigabit Ethernet (S-FTP) cable for traffic and inband management.
DC-IN	DC power supply cable.
GND	Grounding cable 16 mm ² .

3.3. Site Prerequisites

Site survey

Site survey should be done before start the installation taking in consideration the following:

Premises information

- Site details (address, contact persons, GPS and/or map co-ordinates, etc.).
- Site access and storage information (means of transport, equipment storage and lifting information, etc.).
- Site location maps.

Network planning

- Site Coordinates.
- LOS verification (between WiBAS™ Base stations and WiBAS™ Terminal stations).
- Rooftop information (height, status, access, dimensions, layout, etc.).
- Information about pre-existing indoor/ outdoor equipment.
- Available mounting space (on the buildings' roofs) to reserve for the installation of the outdoor equipment.

Site-specific information

- Mechanical specifications of masts/ towers (type, dimensions/ diameter, material, exterior finishing, etc.).
- Location of appropriate grounding points (bar or terminals).
- Location of appropriate power supply distribution points.
- Location of cable conduits available for routing the cables.
- Location of the network port distributors.
- Total length of the cables required.

Preparation of the installation premises

- Access to the installation premises must be facilitated during the installation period.
- Entrances must be large enough to enable the easy transportation of the new equipment.
- The floor must be level, smooth and able to bear the load of the equipment.
- The roof must be engineered to bear the weight of the service personnel and the outdoor equipment.

Continued on next page

Site Prerequisites, Continued

Network port distributors

- Suitable electrical network port distributor should be available.
- The exact location of the network port distributor, as well as the network ports to reserve, should be known prior to installing the equipment.
- Also, all the reserved ports on the network port distributors should be qualified and tested before realizing the network connections with the equipment.

Power supply cable routing

Routing of AC or DC power supply power cable should be implemented as prescribed by the local regulations regarding outdoor electrical installations.

Cable conduits

Appropriate cable conduits should exist for the routing of installed cables.

Grounding

Ensure the following:

- To make a protective earth connection, use the grounding point located close to the radio unit.
- A grounding point (designated GND) should be located close to the mounting position of the radio unit (0 to 2 m max).
- The grounding point must be connected to grounding cable at least 16 mm² diameter.
- An appropriate, low-resistance grounding system as specified by the local regulations is required.
- The equipment will be connected to this grounding point, via the supplied grounding cable. This can also provide partial protection against Lightning-induced current. For additional protection against lightning LSPs required to be used. For more information regarding the installation of LSP/PSP please refer to item 1 of [Reference manuals](#) on page 14.

Lightning and surge protection

In case additional protection against lightning is required for the radio the following should be applied:

A: For Ethernet (S-FTP) Cables:

Lighting surge protection device (LSP) is required to minimize equipment damage from lightning induced surges.

B: Power Supply Cables (for power injectors):

A power surge protection device (PSP) is required to avoid equipment damage from lightning induced surges or power supply surges.

For more information regarding the installation of LSP/PSP please refer to item 1 of [Reference manuals](#) on page 14.

Continued on next page

Site Prerequisites, Continued

Circuit breakers

The following table provides the circuit breakers characteristics for powering of power injectors:

Order Code	Required Circuit Breaker
<ul style="list-style-type: none"> • POE-AC75-ID • POE-ID-AC72 • POE-AC56-IDH • PONE-OD67-AC • POE-ID-AC35 	<ul style="list-style-type: none"> • single-pole MCB 6 A • 230 V AC (voltage rating) • C-curve (for Industrial Applications)
<ul style="list-style-type: none"> • PONE-OD-DC • POE-HP-OD67-DC 	<ul style="list-style-type: none"> • single-pole MCB 6 A • min 72 V DC (voltage rating) • C-curve (for Industrial Applications)

Equipment installation

- The outdoor equipment, inclusive of the radio transceiver(s) and antenna(s), should be mounted on a mast or on a tower.
- The radio/antenna mounting kit should roughly point to the direction of the opposite unit (based on the site survey data).
- Each radio and antenna unit must be installed according to the radio planning data (height, degrees e.t.c).

Tower or monopole installation

- The pole construction should be rust free and strong enough to handle the weight and restrict movement due to air pressure.
- Should be perfectly perpendicular to allow correct alignment of the antenna.
- The antenna mounting kit should roughly point to the direction of the opposite unit (based on the site survey data).
- Each radio and antenna unit must be installed according to the radio planning data for pole installation (height, degrees e.t.c).
- The outdoor equipment, inclusive of the radio transceiver(s) and antenna(s), should be mounted on a mast or on a tower.

3.4. Recommended Installation Tools

Introduction	This section describes all the recommended tools for installation of WiBAS™ Terminal Stations .																
Prerequisites	It is installer responsibility to provide the tools for equipment installation.																
Equipment installation tools	<table border="1"><thead><tr><th>Item</th><th>Tool / Photo</th><th>Description</th></tr></thead><tbody><tr><td>1</td><td></td><td>Adjustable torque U-wrench tool (up to 29 mm opening and supporting max tightening torque 40 Nm). Used for tightening screws and nuts.</td></tr><tr><td>2</td><td> HEXAGON male TORX HEXAGON female CROSS</td><td>Adjustable torque wrench tool with bits (supporting max tightening torque 20 Nm). Used for tightening screws and nuts.</td></tr><tr><td>3</td><td></td><td>Set of allen keys. Used for WiBAS™ OSDR-TS radio unit polarization change (1.5 mm) and cable holder installation (2.5 mm).</td></tr><tr><td>4</td><td></td><td>Cross head and Flat head slotted tip screwdrivers (PH2 / PH3). Used for general works.</td></tr></tbody></table>		Item	Tool / Photo	Description	1		Adjustable torque U-wrench tool (up to 29 mm opening and supporting max tightening torque 40 Nm). Used for tightening screws and nuts.	2	 HEXAGON male TORX HEXAGON female CROSS	Adjustable torque wrench tool with bits (supporting max tightening torque 20 Nm). Used for tightening screws and nuts.	3		Set of allen keys. Used for WiBAS™ OSDR-TS radio unit polarization change (1.5 mm) and cable holder installation (2.5 mm).	4		Cross head and Flat head slotted tip screwdrivers (PH2 / PH3). Used for general works.
Item	Tool / Photo	Description															
1		Adjustable torque U-wrench tool (up to 29 mm opening and supporting max tightening torque 40 Nm). Used for tightening screws and nuts.															
2	 HEXAGON male TORX HEXAGON female CROSS	Adjustable torque wrench tool with bits (supporting max tightening torque 20 Nm). Used for tightening screws and nuts.															
3		Set of allen keys. Used for WiBAS™ OSDR-TS radio unit polarization change (1.5 mm) and cable holder installation (2.5 mm).															
4		Cross head and Flat head slotted tip screwdrivers (PH2 / PH3). Used for general works.															

Continued on next page

Recommended Installation Tools, Continued

Termination of cables

Type of cables to be terminated:

- Ethernet (S-FTP) ([ETH-CAB-SFTP](#)).
- Power supply cable ([AC-PWR-CAB](#), [DC-PWR-CAB-1 / 2 / 3](#)).
- Grounding ([GND-CAB6-ID](#), [GND-KIT16-OD](#)).

Item	Tool / Photo	Description
1		Blade.
2		Cable cutter.
3		Pliers (long nose).
4		CRIMP-TOOL-S
5		Ethernet cable tester.
6		Crimping tool for 6 mm ² and 16 mm ² grounding cable.
7		Hot air gun.
8		Soldering iron.
9		Solder.

Specific works

Item	Tool / Photo	Description
1		Drill machine with 5 mm bit. Used for wall installation of power injectors.
2		TOOL-M20 Used for cable gland installation of power injectors (PONE-OD67-AC - POE-HP-OD67-DC).

4. Installation Procedures

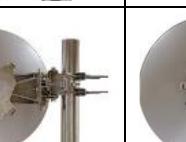
Scope

This chapter describes the main installation procedures of **WiBAS™ Terminal Stations**, as follows:

Description	Page
Installing Radio Units and Antennas	64
Installing Radio Units Cables	157

4.1. Installing Radio Units and Antennas

Overview This section describes the installation procedures for radio unit and antenna, as follows:

#	Description	Overview	
1	WiBAS G5 Connect+ Combo		
2	WiBAS-Connect Combo		
3	WiBAS-Connect and Low Profile 0.3 m / 0.5 m		
4	WiBAS-Connect and Parabolic 0.3 m with Adaptation Plate / 0.6 m with Clamps		
5	WiBAS-Connect and Panel		
6	WiBAS OSDR-TS and Parabolic 0.3 m		
7	WiBAS OSDR-TS and Panel		

WiBAS G5 Connect+ Combo

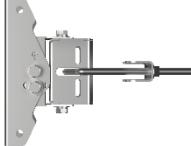
Introduction Apply this procedure for installing the following wireless equipment:

- WiBAS™ G5 Connect+ Combo
 - Terminal radio unit **WG5-CONN-PLUS-LB-UB** with pre-mounted antenna **0.3 m (ANT-IS-2628-1F-C)**.
- Mounting kit
 - Pole Mounting kit **WG5-WCONN-PL-MNT** for installing WiBAS™ G5 Connect+ Combo.

Continued on next page

WiBAS G5 Connect+ Combo, Continued

Pole installation overview

WiBAS™ G5 Connect+ / Antenna / Mounting Kit
WG5-CONN-PLUS-LB-UB and ANT-IS-2628-1F-C 
WG5-CONN-PLUS-LB-UB and ANT-IS-2628-1D6F-C 
WG5-WCONN-PL-MNT 
Pole Installation Overview with 0.3 m Antenna 
Pole Installation Overview with 0.5 m Antenna 

Continued on next page

WiBAS G5 Connect+ Combo, Continued

Mounting kits packing materials

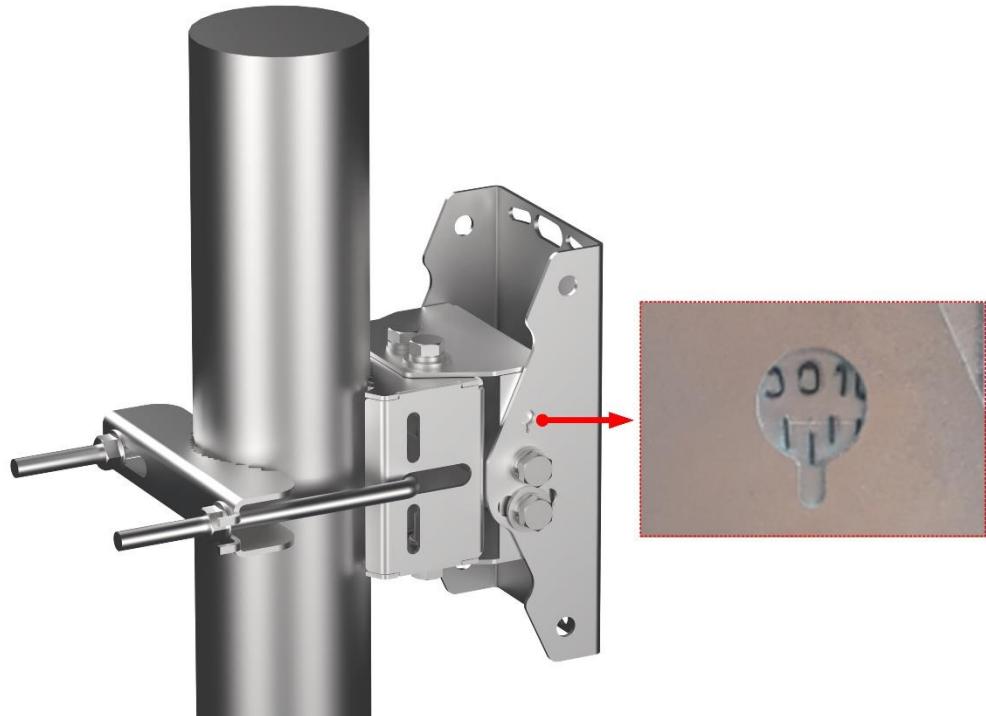
WiBAS™ G5 Connect+ WG5-WCONN-PL-MNT	Details
	<ul style="list-style-type: none"> • Azimuth bracket (A). • Elevation bracket (B). • Pole bracket (C). • U-BOLT, M8 x 100 mm (D). • U-BOLT bracket and M5 nuts flange serrated (x2) (E).
	<ul style="list-style-type: none"> • Set-A: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers steel (x4). – M8 lock washers (x4). • Set-B: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers (x4). – M8 lock washers (x4). • Set-C: <ul style="list-style-type: none"> – M5 x 30 mm screws (x3). – M5 nuts flange serrated (x3). – M5 washers (x3).
	<ul style="list-style-type: none"> • Mounting kit assembly leaflet.

Continued on next page

WiBAS G5 Connect+ Combo, Continued

Prerequisites

For elevation adjustment there is an elevation degrees indicator at both sides of the mounting kit, as shown below. The bracket during installation should be installed in 0 degrees. During commissioning the proper elevation degrees will be applied.



Continued on next page

WiBAS G5 Connect+ Combo, Continued

Precautions

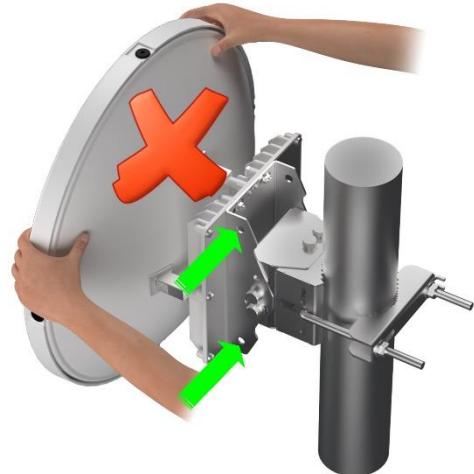
- Do not grab, nor touch the antenna during lifting, turning or any handling of the terminal while the terminal is mounted on the pole, it may lead to damage of the antenna.



**DO NOT USE YOUR
HANDS TO ALIGN THE
ANTENNA !**

Antenna will be damaged !

**Use a set of screwdrivers at
these points to align the
antenna. How to align the
antenna please refer to
commissioning manual.**

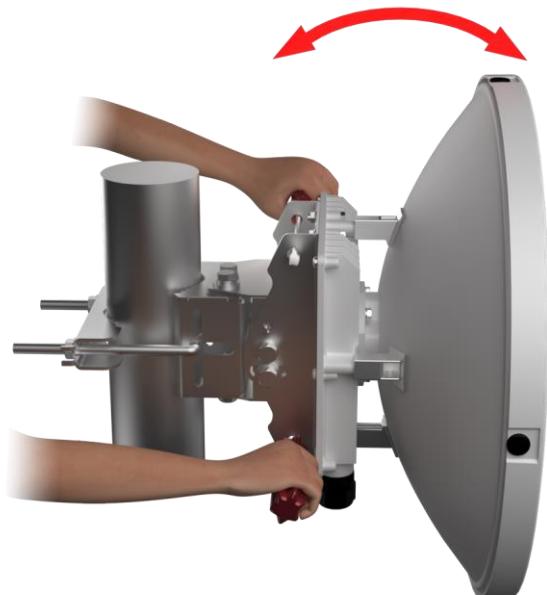


ANTENNA ALIGNMENT using a set of screwdrivers

AZIMUTH AXIS



ELEVATION AXIS

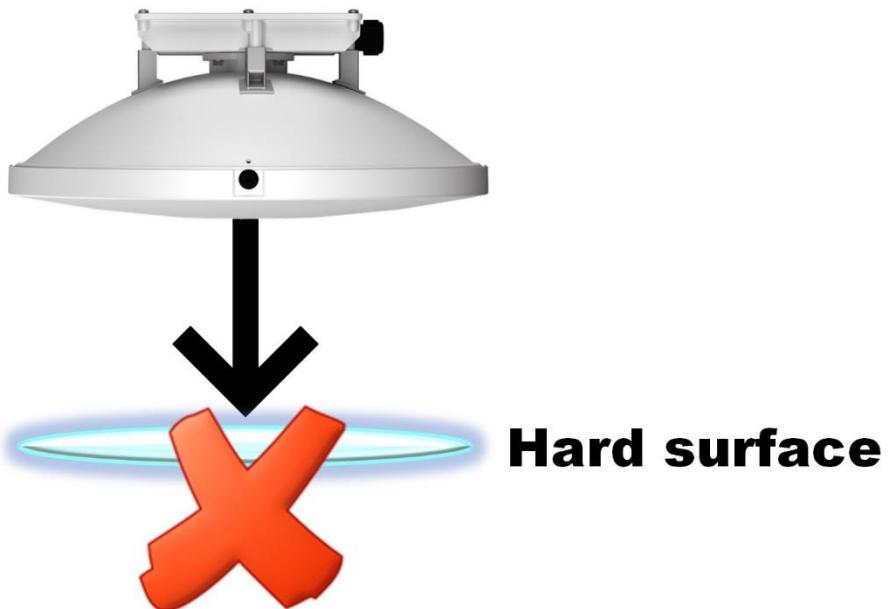


Continued on next page

WiBAS G5 Connect+ Combo, Continued

Precautions, continued

- The parabolic low profile antenna should NEVER be placed on a hard surface. Handle the antenna with care and avoid the application of pressure on the antenna cover as this may lead to breakage of the antenna dipole.



- Never leave unoccupied receptacles without cover. Covering receptacles is necessary to protect against humidity penetration.

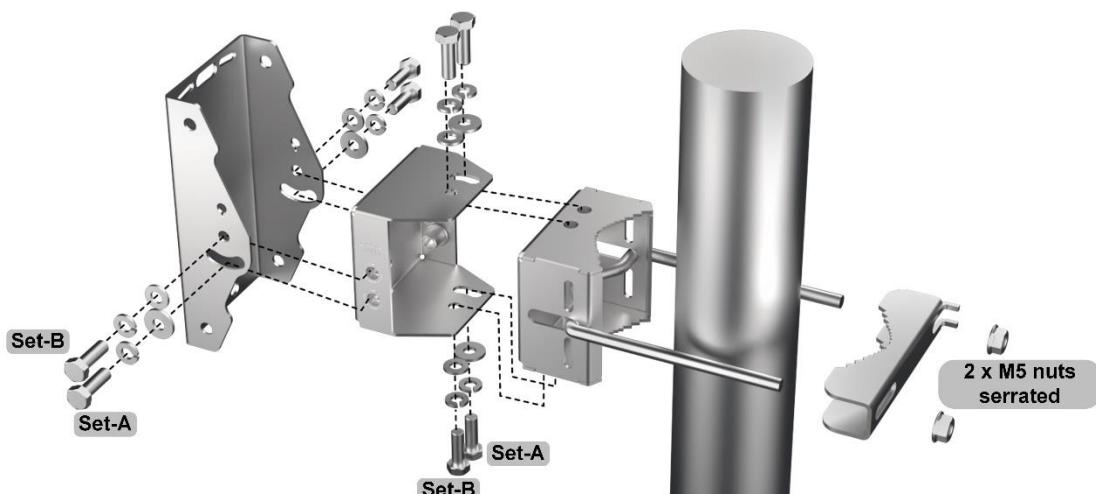
Tools

- Adjustable torque U-wrench.
- Drilling machine (fitted with a 13 mm drill bit) for wall mount installation.

Continued on next page

WiBAS G5 Connect+ Combo, Continued

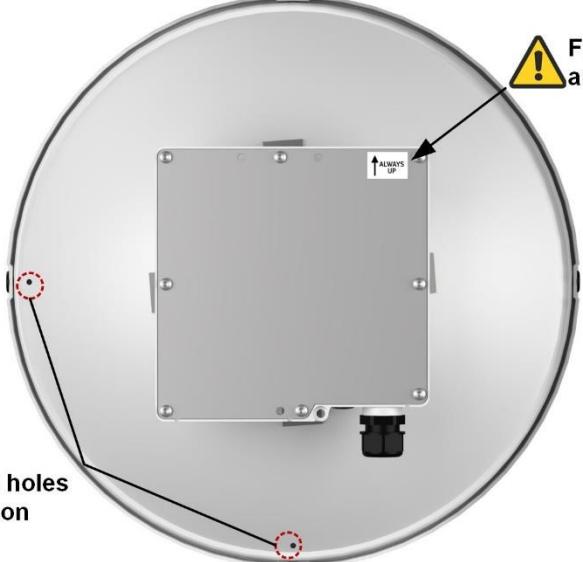
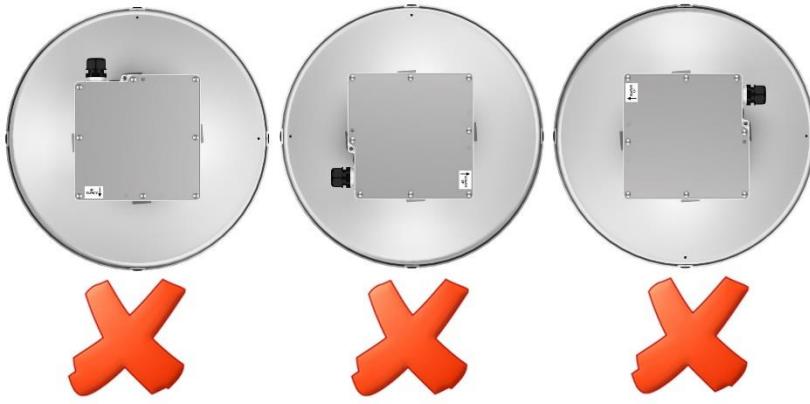
**Procedure for
WiBAS G5
Connect+
Combo** How to install the WiBAS™ G5 Connect+ Combo to pole mounting kit
(WG5-WCONN-PL-MNT), proceed as follows:

Step	Action
1	<p>Mount the azimuth bracket onto the pole bracket and then install the respective set of mounting kit packing materials, as shown below:</p>  <p>! Do not over tighten the screws (Set-A and Set-B). Adjust the tool for applying max tightening torque 15 Nm.</p> <p>Do not over tighten the M5 serrated nuts. Overtightening will cause deformation of the support clamp.</p>

Continued on next page

WiBAS G5 Connect+ Combo, Continued

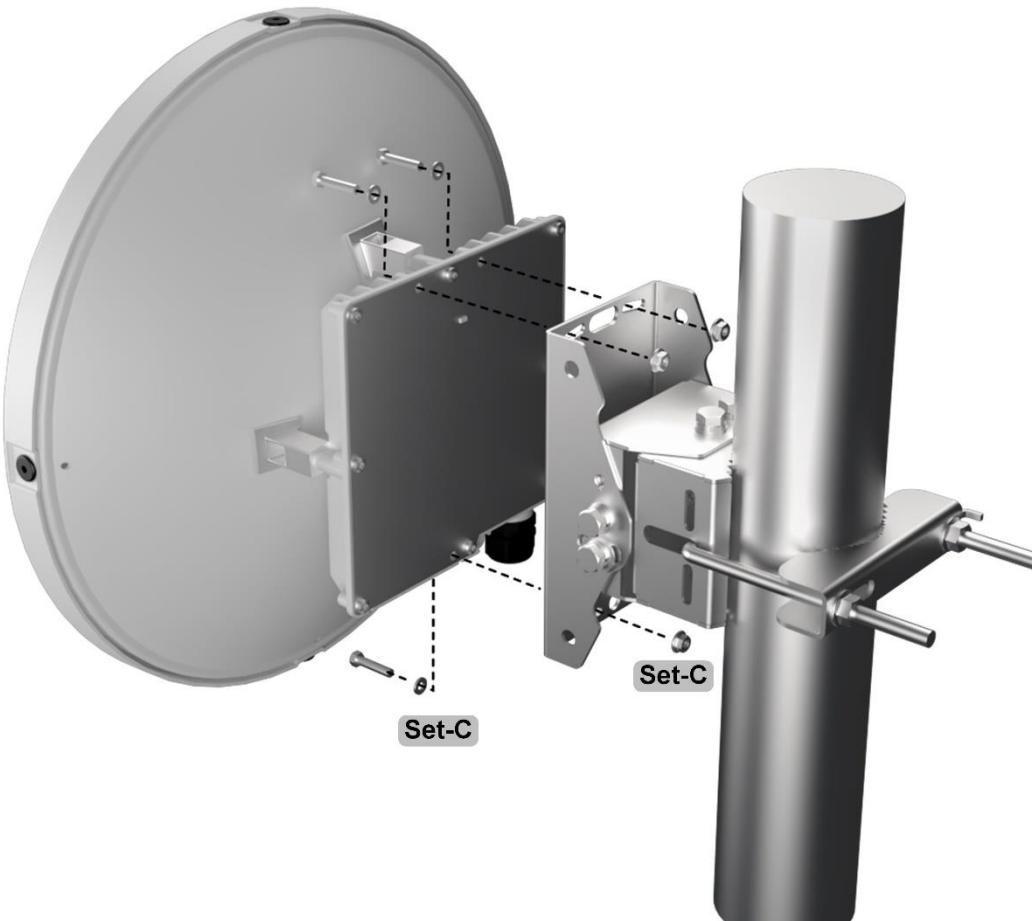
Procedure for
WiBAS G5
Connect+
Combo
continued

Step	Action
2	<p>Set the antenna position as shown below:</p>  <p>DO NOT TURN the ANTENNA, as shown below:</p> 

Continued on next page

WiBAS G5 Connect+ Combo, Continued

Procedure for WiBAS G5 Connect+ Combo continued

Step	Action
3	<p>Mount the elevation bracket onto the radio unit and then install the respective set of mounting kit packing materials, as shown below:</p>  <p>⚠️ Do not over tighten the screws. Adjust the tool for applying max tightening torque 5.5 Nm for M5 screws.</p>
4	For cables installation refer to Installing Radio Units Cables .

End of procedure.

WiBAS-Connect Combo

Introduction

Apply this procedure for installing the following wireless equipment:

- WiBAS™-Connect Combo
 - Terminal radio unit **CONN-OB-U-DSDS** with pre-mounted antenna **0.3m (ANT-IS-2628-1F-C)** or **0.5 m (ANT-IS-2628-1D6F-C)**.
 - Terminal radio unit **CONN-OB-U-DSDS-DP** with pre-mounted antenna **0.3 m (ANT-DP-2628-1F-C)** or **0.5 m (ANT-DP-2628-1D6F-C)**.
- Mounting kits
 - Pole Mounting kit **WCONN-PL-MNT** for WiBAS™-Connect Combo.
 - Pole Mounting kit **WCONN-DP-PL-MNT** for WiBAS™-Connect (auto-polarization) Combo.
 - Wall mounting kit **WCONN-PL-W-MNT-DP** for WiBAS™-Connect (auto-polarization) Combo.

Continued on next page

WiBAS-Connect Combo, Continued

Pole installation overview

WiBAS™-Connect / Antenna / Mounting kit	WiBAS™-Connect (auto-polarization) / Antenna / Mounting Kit
CONN-OB-U-DSDS and ANT-IS-2628-1F-C	CONN-OB-U-DSDS-DP and ANT-DP-2628-1F-C
	
CONN-OB-U-DSDS and ANT-IS-2628-1D6F-C	CONN-OB-U-DSDS-DP and ANT-DP-2628-1D6F-C
	
WCONN-PL-MNT	WCONN-DP-PL-MNT
	
Pole Installation Overview with 0.3 m Antenna	
	
Pole Installation Overview with 0.5 m Antenna	
	

Continued on next page

WiBAS-Connect Combo, Continued

Wall installation overview

CONN-OB-U-DSDS-DP and ANT-DP-2628-1F-C	WCONN-PL-W-MNT-DP
	
CONN-OB-U-DSDS-DP and ANT-DP-2628-1D6F-C	
	

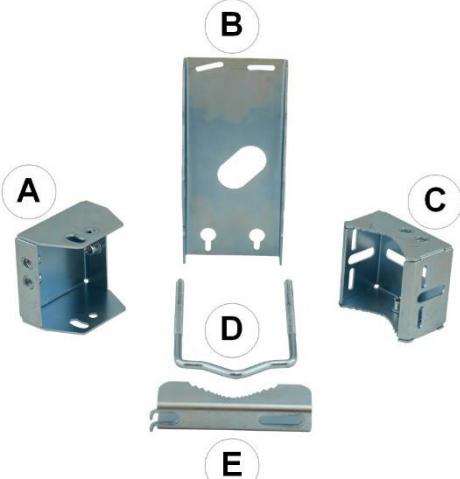
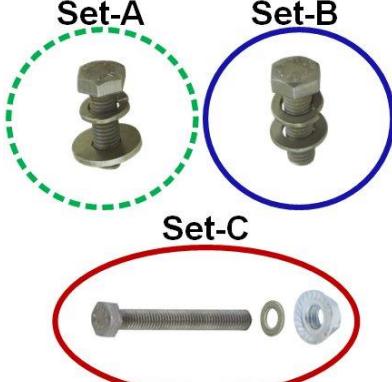
Overview with 0.3 m antenna



Continued on next page

WiBAS-Connect Combo, Continued

Mounting kits packing materials

WiBAS™-Connect	Details
<p>WCONN-PL-MNT</p> 	<ul style="list-style-type: none"> • Azimuth bracket (A). • Elevation bracket (B). • Pole bracket (C). • U-BOLT, M8 x 100 mm (D). • U-BOLT bracket (E).
	<ul style="list-style-type: none"> • Set-A: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers steel (x4). – M8 lock washers (x4). • Set-B: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers (x4). – M8 lock washers (x4). • Set-C: <ul style="list-style-type: none"> – M5 x 40 mm screws (x4). – M5 nuts flange serrated (x4). – M5 washers (x4).
	<ul style="list-style-type: none"> • Mounting kit assembly leaflet.

Continued on next page

WiBAS-Connect Combo, Continued

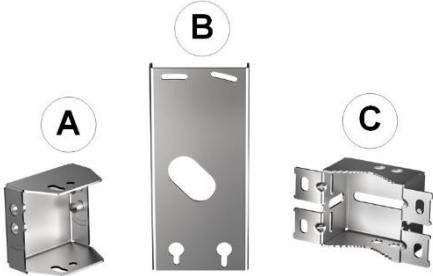
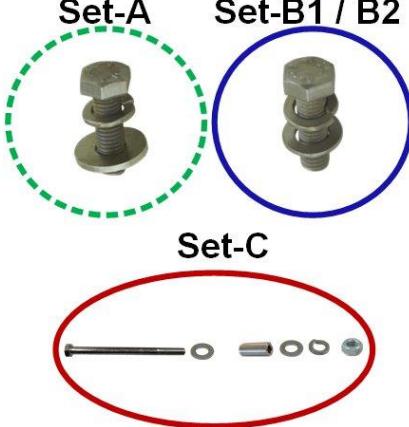
**Mounting kits
packing
materials,
continued**

WiBAS™-Connect (auto-polarization) WCONN-DP-PL-MNT	Details
	<ul style="list-style-type: none"> • Azimuth bracket (A). • Elevation bracket (B). • Pole bracket (C). • U-BOLT, M8 x 100 mm (D). • U-BOLT bracket (E).
	<ul style="list-style-type: none"> • Set-A: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers steel (x4). – M8 lock washers (x4). • Set-B: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers (x4). – M8 lock washers (x4). • Set-C: <ul style="list-style-type: none"> – M5 x 70 mm screws (x4). – M5 nuts (x4). – M5 lock washers (x4). – M5 washers (x8). – Spacers 25 mm (x4) - aluminum
	<ul style="list-style-type: none"> • Mounting kit assembly leaflet.

Continued on next page

WiBAS-Connect Combo, Continued

Mounting kits
packing
materials,
continued

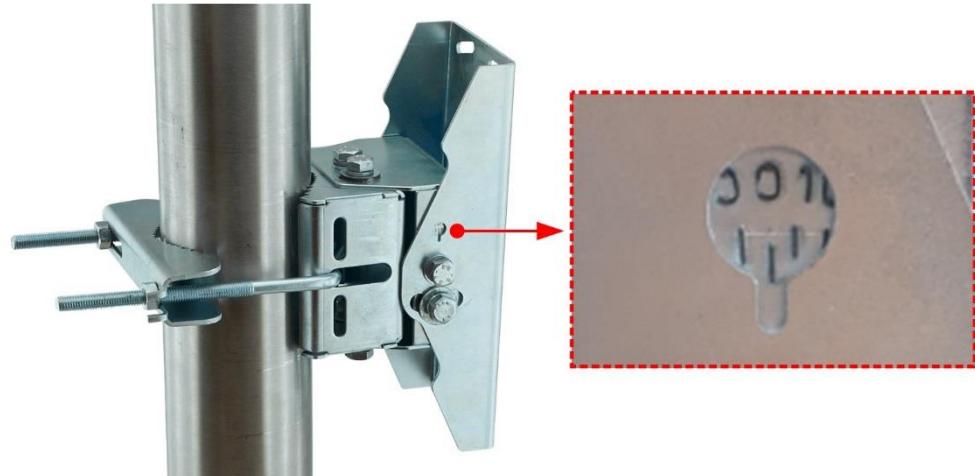
WiBAS™-Connect (auto-polarization)	Details
<p>WCONN-PL-W-MNT-DP</p> 	<ul style="list-style-type: none"> • Azimuth bracket (A). • Elevation bracket (B). • Wall bracket (C).
<p>Set-A Set-B1 / B2</p> 	<ul style="list-style-type: none"> • Set-A: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers steel (x4). – M8 lock washers (x4). • Set-B1 / B2: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers (x4). – M8 lock washers (x4). • Set-C: <ul style="list-style-type: none"> – M5 x 70 mm screws (x4). – M5 nuts (x4). – M5 lock washers (x4). – M5 washers (x8). – Spacers 25 mm (x4) - aluminum
	<ul style="list-style-type: none"> • Mounting kit assembly leaflet.

Continued on next page

WiBAS-Connect Combo, Continued

Prerequisites

For elevation adjustment there is an elevation degrees indicator at both sides of the mounting kit, as shown below. The bracket during installation should be installed in 0 degrees. During commissioning the proper elevation degrees will be applied.



Continued on next page

WiBAS-Connect Combo, Continued

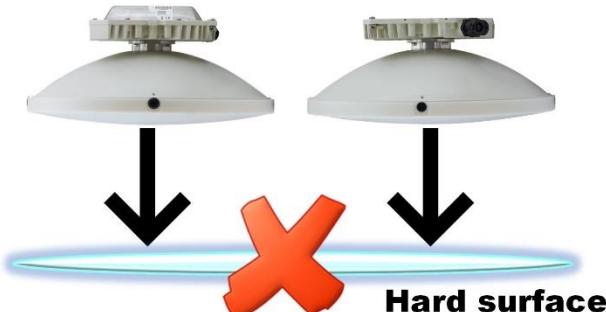
Precautions

- Do not grab, nor touch the antenna during lifting, turning or any handling of the terminal while the terminal is mounted on the pole, it may lead to damage of the antenna.



Use the alignment tools [WCONN-ALT-KIT](#)
at these points to align the antenna, as
instructed in the commissioning manual!

- The parabolic low profile antenna should NEVER be placed on a hard surface. Handle the antenna with care and avoid the application of pressure on the antenna cover as this may lead to breakage of the antenna dipole.



- Never leave unoccupied receptacles without cover. Covering receptacles is necessary to protect against humidity penetration.

Continued on next page

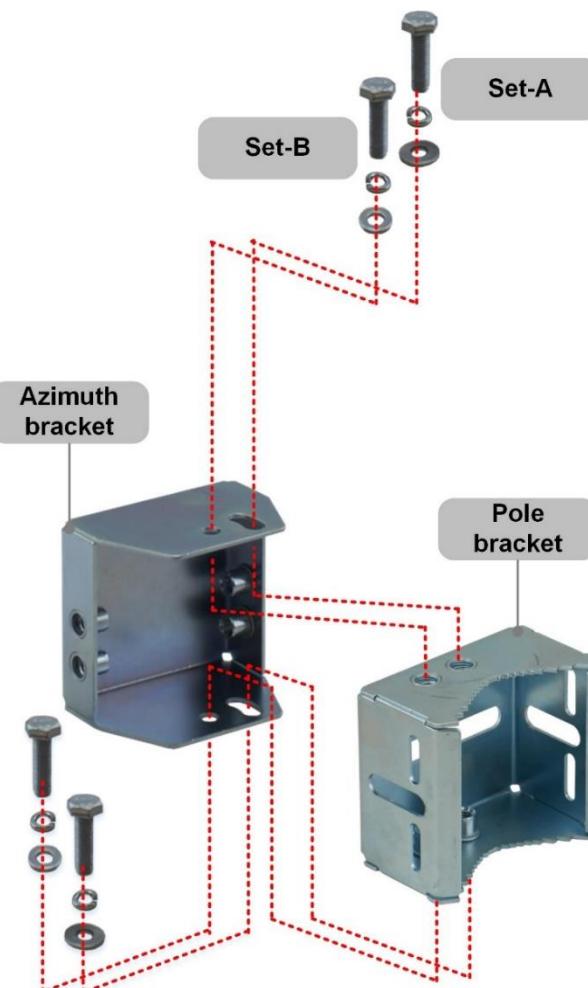
WiBAS-Connect Combo, Continued

Tools

- Adjustable torque U-wrench.
- Drilling machine (fitted with a 13 mm drill bit) for wall mount installation.

Procedure for WiBAS- Connect Combo

How to install the WiBAS™-Connect Combo to pole mounting kit ([WCONN-PL-MNT](#)), proceed as follows:

Step	Action
1	<p>Mount the azimuth bracket onto the pole bracket and then install the respective set of mounting kit packing materials, as shown below:</p>  <p>Do not over tighten the screws. Adjust the tool for applying max tightening torque 15 Nm.</p>

Continued on next page

WiBAS-Connect Combo, Continued

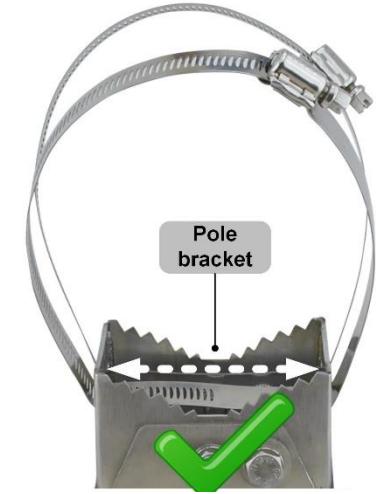
Procedure for
WiBAS-
Connect
Combo,
continued

Step	Action
2a	<p>For installing the pole bracket onto the pole perform the respective actions A, B, C and D, as shown below.</p> <p>For installing the pole bracket onto the pole using hose clamps go to the next step.</p> <p>A Place the u-bolt into the bracket opening as show in the picture.</p> <p>B Install the nut</p> <p>C</p> <p>D Install the nut</p> <p>! Do not over tighten the nuts. Overtightening will cause deformation of the support clamp.</p>

Continued on next page

WiBAS-Connect Combo, Continued

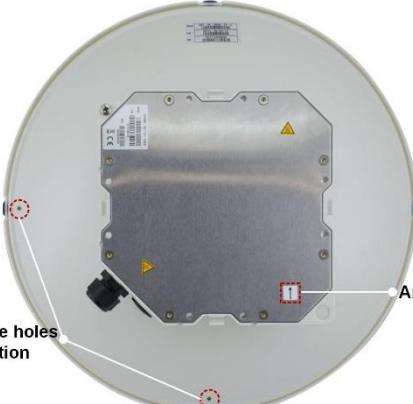
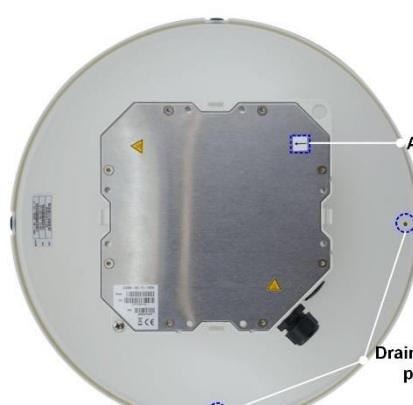
**Procedure for
WiBAS-
Connect
Combo,
continued**

Step	Action
2b	<p>Pass through both clamps to pole bracket openings and then install the whole assembly onto the pole (taking into the account the caution below):</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p>Do not over tighten the warm screws. Adjust the tool for applying min / max tightening torque 5.5 / 7 Nm.</p>

Continued on next page

WiBAS-Connect Combo, Continued

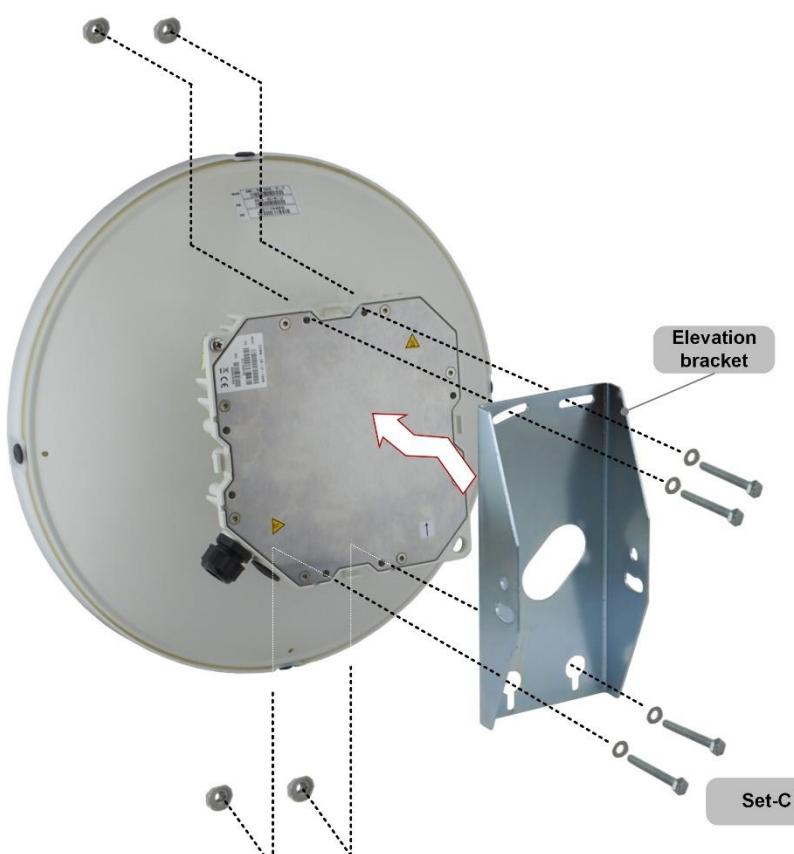
Procedure for
WiBAS-
Connect
Combo,
continued

Step	Action
3	<p>Turn the antenna to determine the desirable polarization, as shown below.</p> <p>VERTICAL</p>  <p>HORIZONTAL</p> 

Continued on next page

WiBAS-Connect Combo, Continued

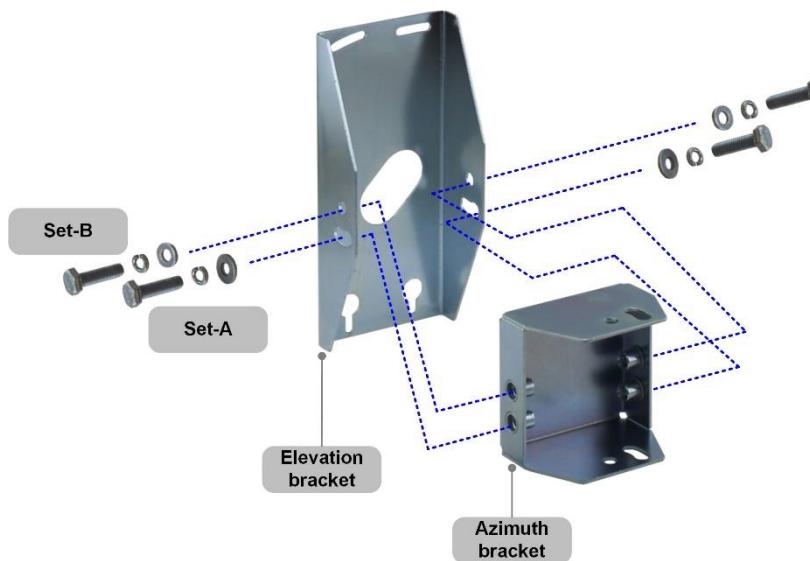
**Procedure for
WiBAS-
Connect
Combo,
continued**

Step	Action
4	<p>Mount the elevation bracket onto the radio unit and then install the respective set of mounting kit packing materials, as shown below:</p>  <p>Do not over tighten the screws. Adjust the tool for applying max tightening torque 5.5 Nm for M5 screws.</p>

Continued on next page

WiBAS-Connect Combo, Continued

Procedure for
WiBAS-
Connect
Combo,
continued

Step	Action
5	<p>Mount the elevation bracket onto the azimuth bracket and then install the respective set of mounting kit packing materials, as shown below:</p>  <p>! Do not over tighten the screws. Adjust the tool for applying max tightening torque 15 Nm.</p>
6	For cables installation refer to Installing Radio Units Cables .

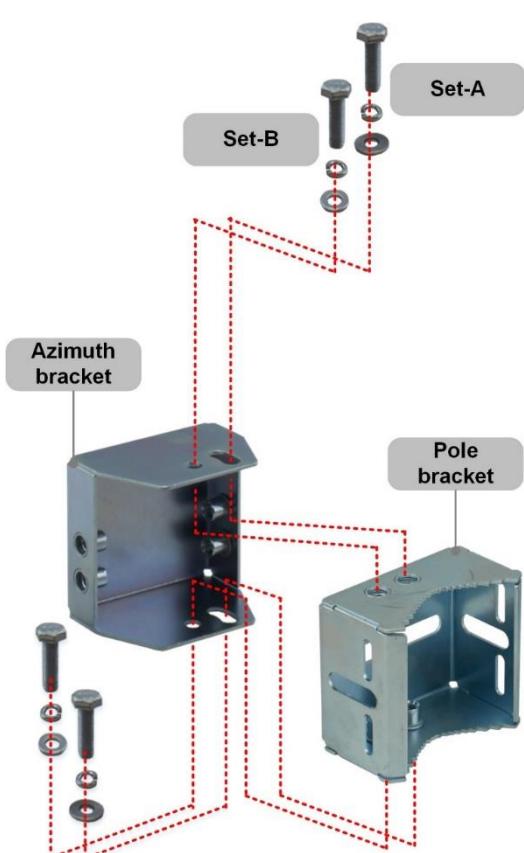
End of procedure.

Continued on next page

WiBAS-Connect Combo, Continued

**Procedure for
WiBAS-
Connect (auto-
polarization)
Combo**

How to install the WiBAS™-Connect auto-polarization Combo to pole mounting kit ([WCONN-DP-PL-MNT](#)) or to wall mounting kit ([WCONN-PL-W-MNT-DP](#)), proceed as follows:

Step	Action
1	<p>For pole mount installation, proceed as follows.</p> <p>For wall mount installation go to step 7.</p> <p>Mount the azimuth bracket onto the pole bracket and then install the respective set of mounting kit packing materials, as shown below:</p>  <p>Do not over tighten the screws. Adjust the tool for applying max tightening torque 15 Nm.</p>

Continued on next page

WiBAS-Connect Combo, Continued

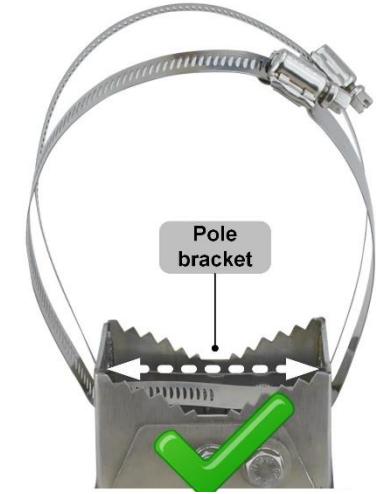
Procedure for
WiBAS-
Connect (auto-
polarization)
Combo,
continued

Step	Action
2a	<p>For installing the pole bracket onto the pole perform the respective actions A, B, C and D, as shown below.</p> <p>For installing the pole bracket onto the pole using hose clamps go to the next step.</p> <p>A Place the u-bolt into the bracket opening as show in the picture.</p> <p>B Install the nut</p> <p>C</p> <p>D Install the nut</p> <p>! Do not over tighten the nuts. Overtightening will cause deformation of the support clamp.</p>

Continued on next page

WiBAS-Connect Combo, Continued

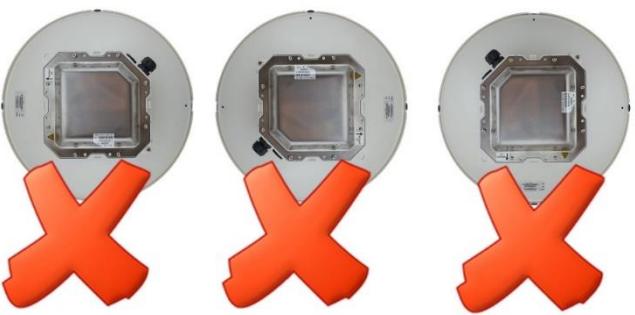
**Procedure for
WiBAS-
Connect (auto-
polarization)
Combo,
continued**

Step	Action
2b	<p>Pass through both clamps to pole bracket openings and then install the whole assembly onto the pole (taking into the account the caution below):</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p>Do not over tighten the warm screws. Adjust the tool for applying min / max tightening torque 5.5 / 7 Nm.</p>

Continued on next page

WiBAS-Connect Combo, Continued

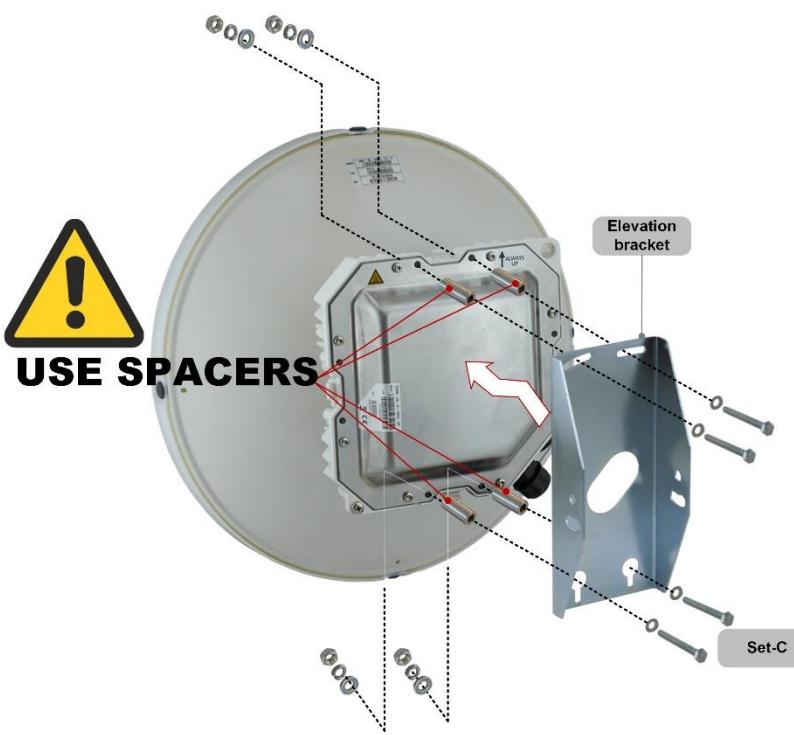
Procedure for
WiBAS-
Connect (auto-
polarization)
Combo,
continued

Step	Action
3	<p>Set the antenna position as shown below:</p>  <p>DO NOT TURN the ANTENNA, as shown below:</p> 

Continued on next page

WiBAS-Connect Combo, Continued

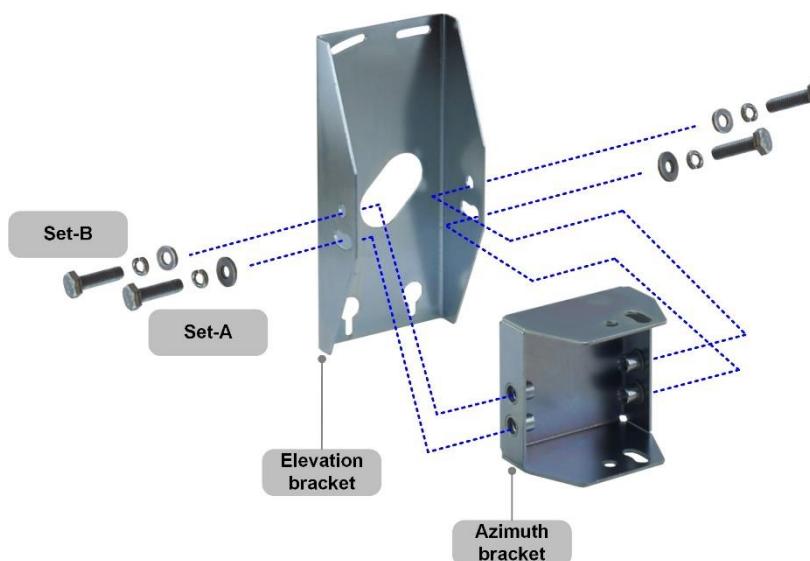
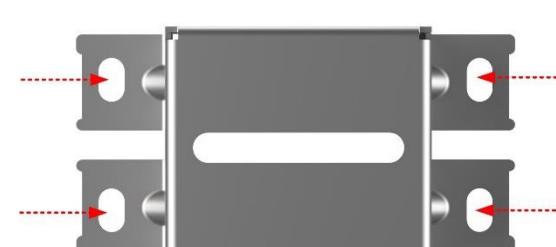
**Procedure for
WiBAS-
Connect (auto-
polarization)
Combo,
continued**

Step	Action
4	<p>Mount the elevation bracket onto the radio and then install the respective set of mounting kit packing materials, as shown below:</p>  <p>USE SPACERS</p> <p>Elevation bracket</p> <p>Set-C</p> <p>Do not over tighten the screws. Adjust the tool for applying max tightening torque 5.5 Nm for M5 screws.</p>

Continued on next page

WiBAS-Connect Combo, Continued

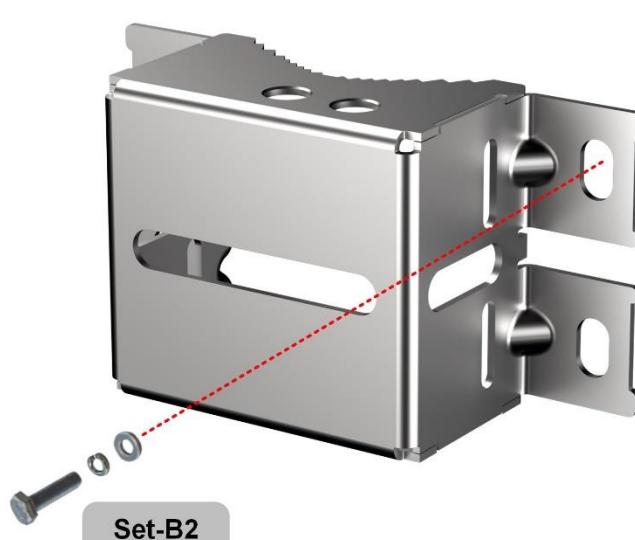
Procedure for
WiBAS-
Connect (auto-
polarization)
Combo,
continued

Step	Action
5	<p>Mount the elevation bracket onto the azimuth bracket and then install the respective set of mounting kit packing materials, as shown below:</p>  <p>Do not over tighten the screws. Adjust the tool for applying max tightening torque 15 Nm.</p>
6	<p>For cables installation refer to Installing Radio Units Cables .</p> <p>End of procedure for pole mount installation.</p>
7	<p>Perform the following actions:</p> <ul style="list-style-type: none"> • Mark with a pencil the holes in the wall surface. • Use the drilling machine (fitted with a 13 mm drill bit) to open the respective holes. 

Continued on next page

WiBAS-Connect Combo, Continued

**Procedure for
WiBAS-
Connect (auto-
polarization)
Combo,
continued**

Step	Action
8	<p>Perform the following actions:</p> <ul style="list-style-type: none">• Attach the wall bracket into the wall surface.• Install the respective set of mounting kit packing materials, as shown below. 

Continued on next page

WiBAS-Connect Combo, Continued

Procedure for
WiBAS-
Connect (auto-
polarization)
Combo,
continued

Step	Action
9	<p>Mount the azimuth bracket onto the wall bracket and then install the respective set of mounting kit packing materials, as shown below.</p> <p>Do not over tighten the screws. Adjust the tool for applying max tightening torque 15 Nm.</p>

Continued on next page

WiBAS-Connect Combo, Continued

**Procedure for
WiBAS-
Connect (auto-
polarization)
Combo,
continued**

Step	Action
10	Set the antenna position, as shown in step 3 .
11	Mount the elevation bracket onto the radio and then install the respective set of mounting kit packing materials, as shown in step-4 .
	 Do not over tighten the screws. Adjust the tool for applying max tightening torque 5.5 Nm for M5 screws .
12	Mount the elevation bracket onto the azimuth bracket and then install the respective set of mounting kit packing materials, as shown in step-5 .
	 Do not over tighten the screws. Adjust the tool for applying max tightening torque 15 Nm .
13	The wall mount installation should appear, as shown below:  For cables installation refer to Installing Radio Units Cables . End of procedure for wall mount installation.

End of procedure.

WiBAS-Connect and Low Profile 0.3 m / 0.5 m

Introduction Apply this procedure for installing the following wireless equipment:

- WiBAS™-Connect terminal radio unit (**CONN-OB-U-DSDS**).
- Low profile antennas **0.3 m** (**ANT-IS-2628-1F-C**) / **0.5 m** (**ANT-IS-2628-1D6F-C**).
- WiBAS™-Connect terminal radio unit auto-polarization edition (**CONN-OB-U-DSDS-DP**).
- Low profile antennas **0.3 m** (**ANT-DP-2628-1F-C**) / **0.5 m** (**ANT-DP-2628-1D6F-C**).
- Pole mounting kits (**WCONN-PL-MNT** and **WCONN-DP-PL-MNT**).

Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

Installation overview

CONN-OB-U-DSDS	CONN-OB-U-DSDS-DP
	
ANT-IS-2628-1F-C	ANT-DP-2628-1F-C
	
ANT-IS-2628-1D6F-C	ANT-DP-2628-1D6F-C
	
WCONN-PL-MNT	WCONN-DP-PL-MNT
	



Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

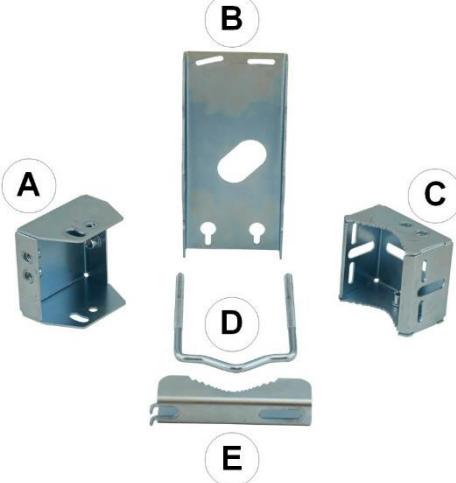
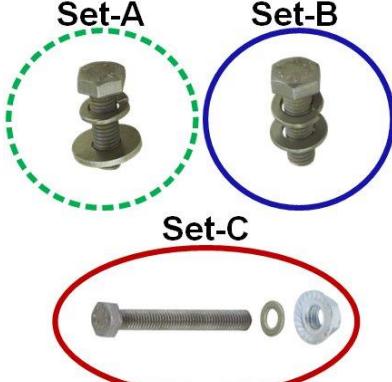
Radio unit and
antenna
packing
materials

CONN-OB-U-DSDS	Details
	WiBAS™-Connect terminal radio unit.
ANT-IS-2628-1F-C	Details
	<ul style="list-style-type: none"> Low profile antenna 0.3 m – rectangular flange. Greasing paste.
ANT-IS-2628-1D6F-C	Details
	<ul style="list-style-type: none"> Low profile antenna 0.5 m – rectangular flange. Greasing paste.
CONN-OB-U-DSDS-DP	Details
	WiBAS™-Connect terminal radio unit auto-polarization edition.
ANT-DP-2628-1F-C	Details
	<ul style="list-style-type: none"> Low profile antenna 0.3 m – circular flange. Greasing paste.
ANT-DP-2628-1D6F-C	Details
	<ul style="list-style-type: none"> Low profile antenna 0.5 m – circular flange. Greasing paste.

Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

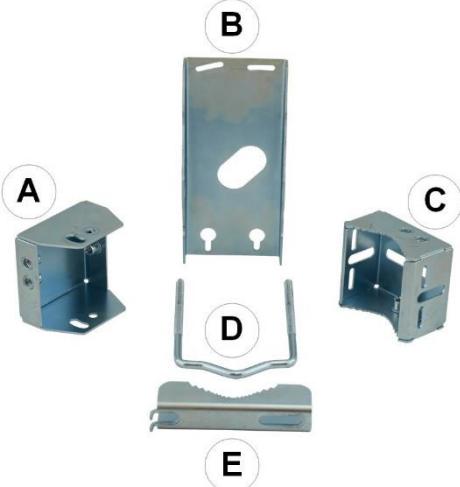
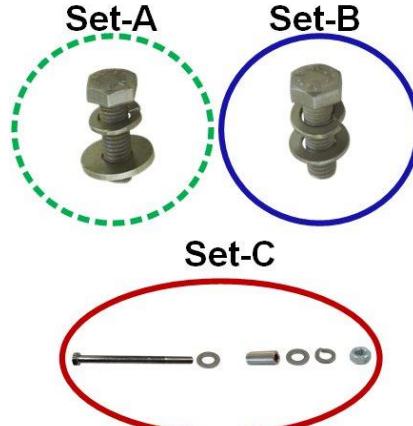
**Mounting kit
packing
materials**

WCONN-PL-MNT	Details
	<ul style="list-style-type: none"> • Azimuth bracket (A). • Elevation bracket (B). • Pole bracket (C). • U-BOLT, M8 x 100 mm (D). • U-BOLT bracket (E).
	<ul style="list-style-type: none"> • Set-A: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers steel (x4). – M8 lock washers (x4). • Set-B: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers (x4). – M8 lock washers (x4). • Set-C: <ul style="list-style-type: none"> – M5 x 40 mm screws (x4). – M5 nuts flange serrated (x4). – M5 washers (x4).
	<ul style="list-style-type: none"> • Mounting kit assembly leaflet.

Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

**Mounting kit
packing
materials,
continued**

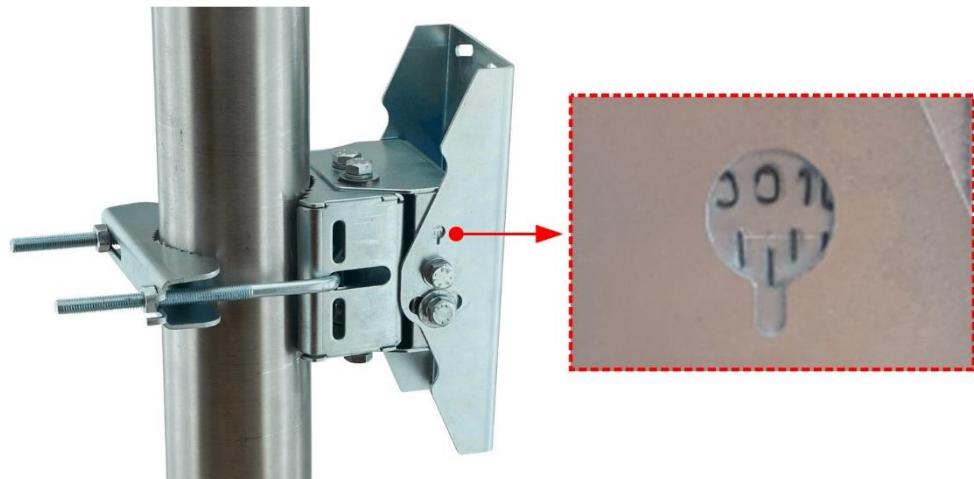
WCONN-DP-PL-MNT	Details
	<ul style="list-style-type: none"> • Azimuth bracket (A). • Elevation bracket (B). • Pole bracket (C). • U-BOLT, M8 x 100 mm (D). • U-BOLT bracket (E).
	<ul style="list-style-type: none"> • Set-A: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers steel (x4). – M8 lock washers (x4). • Set-B: <ul style="list-style-type: none"> – M8 x 25 mm screws (x4). – M8 washers (x4). – M8 lock washers (x4). • Set-C: <ul style="list-style-type: none"> – M5 x 70 mm screws (x4). – M5 nuts (x4). – M5 lock washers (x4). – M5 washers (x8). – Spacers 25 mm (x4) - aluminum
	<ul style="list-style-type: none"> • Mounting kit assembly leaflet.

Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

Prerequisites

For elevation adjustment there is an elevation degrees indicator at both sides of the mounting kit, as shown below. The bracket during installation should be installed in 0 degrees. During commissioning the proper elevation degrees will be applied.



Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

Precautions



- Do not grab, nor touch the antenna during lifting, turning or any handling of the terminal while the terminal is mounted on the pole, it may lead to damage of the antenna.



Use the alignment tools **WCONN-ALT-KIT**
at these points to align the antenna, as
instructed in the commissioning manual!

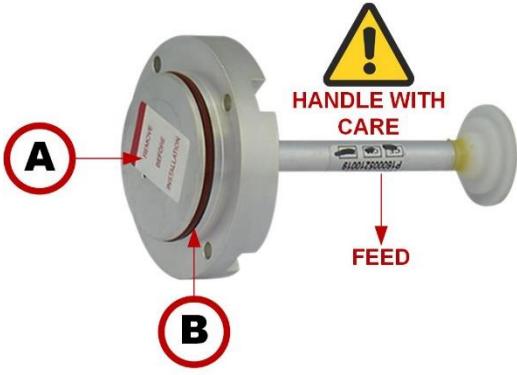
- The parabolic low profile antenna should NEVER be placed on a hard surface. Handle the antenna with care and avoid the application of pressure on the antenna cover as this may lead to breakage of the antenna dipole.



- Never leave unoccupied receptacles without cover. Covering receptacles is necessary to protect against humidity penetration.

Continued on next page

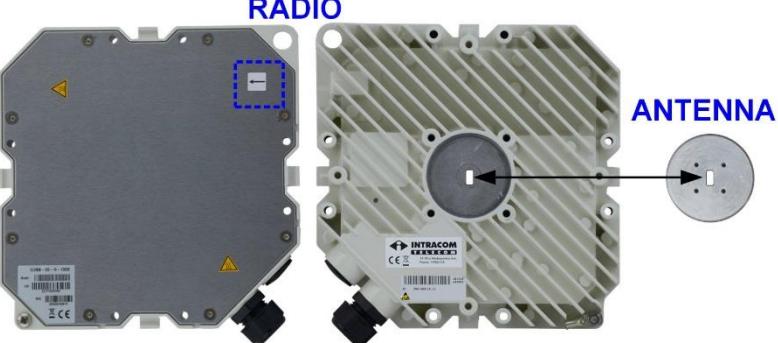
WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

Tools	Adjustable torque U-wrench.
Procedure	<p>How to install the antennas 0.3 m or 0.5 m parabolic low profile to radio unit (CONN-OB-U-DSDS or CONN-OB-U-DSDS-DP) and then to pole mounting kit (WCONN-PL-MNT), proceed as follows:</p>
Step	<p>Action</p>
1	<p>Perform the following actions:</p> <ul style="list-style-type: none"> • Remove the antenna waveguide plastic sticker (A). • Lubricate the O-ring with silicone grease (B). 
2	Remove the plastic sticker from radio unit wave guide.
3	<p>Adjust radio unit with antenna for common polarization.</p> <p>For radio unit with order code CONN-OB-U-DSDS go to next step.</p> <p>For radio unit with order code CONN-OB-U-DSDS-DP go to step (5).</p>

Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

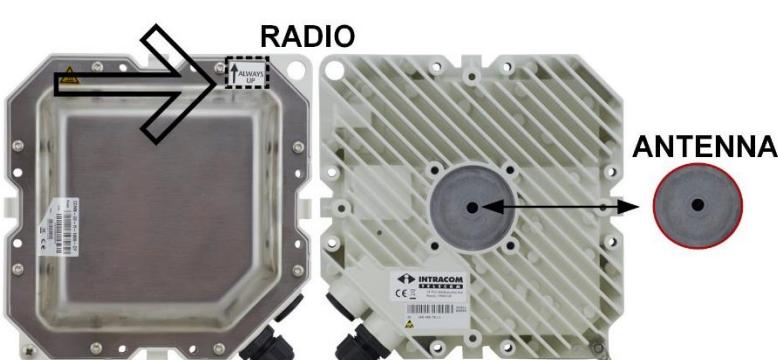
Procedure,
continued

Step	Action
4	<p>Note</p> <p>This step is related to radio unit CONN-OB-U-DSDS and antennas ANT-IS-2628-1F-C / ANT-IS-2628-1D6F-C.</p> <p>If the LINK polarization is VERTICAL then the feeders should be remained, as shown below (radio unit – both sides view):</p>  <p>If the LINK polarization is HORIZONTAL, rotate the radio unit and antenna feeder, as shown below (radio unit – both sides view):</p> 

Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

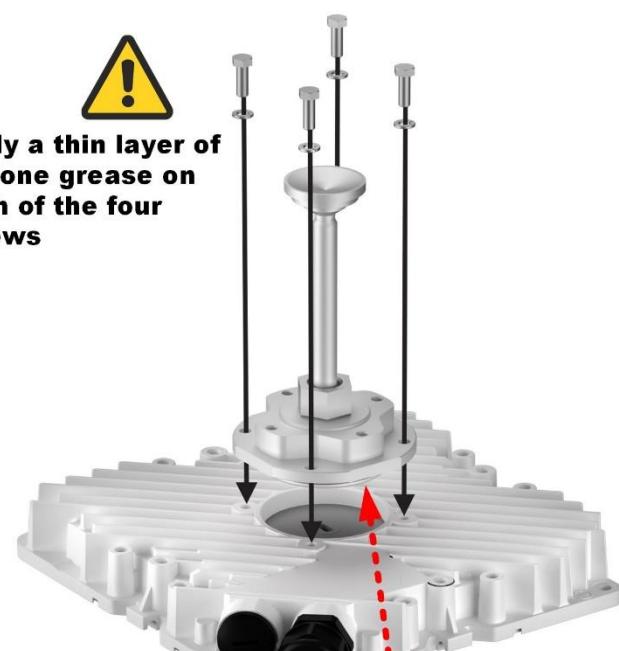
Procedure,
continued

Step	Action
5	<p>Note</p> <p>This step is related to radio unit CONN-OB-U-DSDS-DP and antennas ANT-DP-2628-1F-C / ANT-DP-2628-1D6F-C.</p> <p>Follow the radio unit label, as shown below.</p>  <p>DO NOT TURN the RADIO, as shown below:</p> 

Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

Procedure,
continued

Step	Action
6	<p>Install the feeder onto the radio wave guide, as shown below.</p> <p>Apply a thin layer of silicone grease on each of the four screws</p>  <p>Lubricate the O-Ring with a thin film of silicone grease</p> <p>Use the cross-headed screwdriver to install the four lock washers and screws.</p> <p>Do not over tighten. Adjust the tool for max tightening torque 4.2 Nm.</p>

Continued on next page

WiBAS-Connect and Low Profile 0.3 m / 0.5 m, Continued

Procedure,
continued

Step	Action
7	<p>Install the antenna reflector, as shown below.</p>  <p>Use the cross-headed screwdriver to install the four lock washers and screws. Fully tighten.</p> <p>Do not over tighten.</p>

Continued on next page