ALCATEL 9400 AWY Rel.2.0
Installation Handbook

ED	DATE	CHANGE NOTE	APPRAISAL AUTHORITY	ORIGINATOR
02	09/ 11/ 2005	0000023752	A. BESTETTI	C.NAVA
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HANDBOOK APPLICABILITY, PURPOSE AND HISTORY

THIS HANDBOOK DESCRIBES 9400AWY REL.2 EQUIPMENT FROM SYSTEM POINT OF, TAKING INTO ACCOUNT ALL SYSTEM FEATURES THAT ARE MADE AVAILABLE BY FIRST SWP VERSION V2.0.0, AS WELL AS BY SUCCESSIVE SWP RELEASES-VERSIONS. FOLLOWING SUMS-UP THE MAJOR ADDITIONAL FEATURES (MAINLY RELATED TO NEW HW ITEMS AND RELEVANT PERFORMANCE) THAT ARE AVAILABLE STARTING FROM A CETRTAIN SWP-VERSION SUCCESSIVE TO FIRST VERSION V2.0.0..

ADDITIONAL FEATURE AVAILABLE FROM SWP-VERSION V2.0.2

- ANSI VERSION (DS1/DS3 INTERFACES)
- ANSI TYPE ODU
- 7-8 GHZ ODU (NEW 9470 PRODUCT)
- FREQUENCY SHIFTER MANAGEMENT

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1. INSTALLATION RULES

ATTENTION **EMC NORMS**

WHEN CARRYING OUT THE GIVEN OPERATIONS OBSERVE THE NORMS STATES IN RELATIVE CHAPTER IN TECHNICAL HANDBOOK COD 3DB 06687 BAAA

1.1. Safety Rules

The **Safety Rules** describe the operations and/or precautions to observe to safeguard operating personnel during the working phases and to guarantee equipment safety.
Please read them with accuracy before to start every action on the equipment.

SAFETY RULES

Carefully observe the front-panel warning labels prior to working on optical connections while the equipment is in-service.

1.2. General Rules

- Check that the equipment is operating with all the shields properly positioned (dummy covers, ESD connector protections, etc.)
- Carefully observe the front-panel warning labels prior to working on optical connections while the equipment is in-service
- In order to reduce the risk of damage the electrostatic sensitive devices, is mandatory to use the elasticized band (around the wrist) and the coiled cord joined connect with the ground rack during the touching of the equipment.
- All the measures must be done at the **MDF/CDF** points (MDF= Mini Distributor Frame, CDF= Customer Distributor Frame).
- The equipment may be installed only in “RESTRICTED ACCESS LOCATIONS”, and be permanently connected to a PROTECTIVE EARTHING CONDUCTOR as described in the Installation section.

  Equipotential bonding must be applied for all equipments in the location.

1.2.1. Safety instruction

Equipment emitting RF power (Reminder from site preparation procedure):

- The site must be compliant with ICNIRP guidelines or local regulation if more restrictive.
- The following rules should be strictly applied by Customer:
  - Non authorized persons should not enter the compliance boundaries, if any, for the general public.
  - Compliance RF boundaries, if any, related to Electro Magnetic Field exposure must be marked.
  - Workers should be allowed to switch-off the power if they have to operate inside compliance boundaries.
  - Assure good cable connection.
  - Install the antenna as high as possible from floor or area with public access (if possible the cylinder delimitating the compliance boundaries, if any, or the cylinder corresponding to the transmission area directly in front of antenna with the same diameter as the antenna, more than 2 meters high).
  - Install the antenna as far as possible from other existing equipment emitting RF power.

- **Anyway remind that someone standing in front of the 9400 AWY antenna may cause traffic shutdown**

Place the relevant stickers:

EMF EMISSION

WARNING SIGN

On the site when applicable (when people can cross the compliance boundaries and/or the transmission area of the antenna, i.e. roof top installation)

- Warning label **«Do not stand on the antenna axis»**

On the mast (front side)

- EMF emission warning sign (Yellow and black) to be placed at bottom of antenna, visible by someone moving in front of the antenna (roof top installation)

On the antenna (rear side)

- EMF emission warning sign, placed on the antenna.

1.3. Unpacking and Warehousing

1.3.1. General

The following procedures have been issued and must be observed when unpacking the equipment. The reciprocal operation must be done for repacking. In such case it is recommended to use the original packing material.

The following sturdy outer packing material is utilized in order to protect the equipment against mechanical and climatic stresses to which they are subjected:

wooden crates	for transport by ship, air, on road for periods longer than 60 days
ply-wood crates	for transport by ship, air, on road for periods of 30 to 60 days
cardboard boxes	for transport by air or on road for periods of less than 30 days

1.3.2. Unpacking

PRELIMINARY CHECKS

The following information should be printed on the outer crate:

- International symbols


side up :


keep dry


fragile

- trade mark/address of the manufacturing company;
- labels (or templated marks) indicating information on the contract and destination site of the product;
- an envelope holding among others the packing list

Upon receipt check:

- that the final destination of the crates is that indicated on the label;
- that no damage was made to the cases

Report any shipping damages to the Company's representative or the Shipping Agent.

UNPACKING

When having to unpack proceed as follows:

- make sure that the packing has been properly positioned, refer to the  symbol
- open the case;
- remove the shockproof material;
- remove the goods from the case;
- remove prepacking, the polyethylene bag and any other protection;
- remove the plastic bags cello taped to the rack and containing accessories;
- remove the dehydrating bags;
- ascertain that the goods are not damaged and that they correspond to those indicated on the packing list enclosed in the envelope. Conversely, contact the agency's representative.

N.B. When unpacking it is advisable to handle the packing material with care; it might be reused for packing again if it must be reshipped.

1.3.3. Warehousing

If having to store the packed material, the following requirements must be met:

- the cardboard boxes must be placed indoor in airy rooms;
- the wooden or plywood cases can be placed outdoors provided they are protected against rain and direct sunlight.

1.3.4. Pre-Installation Checking

CRATE CONTENTS CHECK

Check the contents of the shipping crates for the following configurations:

1.3.4.1. 1+0 Integrated Antenna

- IDU - BB 1+0 (Telephone Kit if present in site)
- Fixing Installation kit material
- ODU – RTx & solar shield
- Integrated Pole Mounting
- Fixing Installation kit material
- Antenna
- IDU / ODU Cable & Connectors
- Installation kit material
- Subrack for BB Wall / Table installation (if foreseen by Plant Documentation)
- Rx Power Monitoring & Light Service Kit Cable

1.3.4.2. 1+0 NON Integrated Antenna

- IDU - BB 1+0 (Telephone Kit if present in site)
- Fixing Installation kit material
- ODU – RTx & solar shield
- Non Integrated Pole Mounting
- Antenna Support
- Fixing Installation kit material
- Antenna
- Flex Twist / Wave guide and Wave Guide Connectors
- IDU / ODU Cable & Connectors
- Installation kit material
- Subrack for BB Wall / Table installation (if foreseen by Plant Documentation)
- Rx Power Monitoring & Light Service Kit Cable

1.3.4.3. 1+1 Integrated Antenna

- IDU - BB 1+1 (Telephone Kit if present in site)
- Fixing Installation kit material
- N°2 ODU – RTx & solar shield
- RF Coupler
- Integrated Pole Mounting
- Fixing Installation kit material
- Antenna
- IDU / ODU Cable & Connectors
- Installation kit material
- Subrack for BB Wall / Table installation (if foreseen by Plant Documentation)
- Rx Power Monitoring & Light Service Kit Cable

1.3.4.4. 1+1 NON Integrated Antenna

- IDU - BB 1+1 (Telephone Kit if present in site)
- Fixing Installation kit material
- N°2 ODU – RTx & solar shield
- RF Coupler
- Non Integrated Pole Mounting
- Antenna Support
- Antenna
- Flex Twist / Wave guide and Wave Guide Connectors
- IDU / ODU Cable & Connectors
- Installation kit material
- Subrack for BB Wall / Table installation (if foreseen by Plant Documentation)
- Rx Power Monitoring & Light Service Kit Cable

1.3.5. System technical characteristics

1.3.5.1. System temperature condition tolerated

- Storage condition	-	ETS 300 ’19 class 1.3
- Transport condition	-	ETS 300 ’19 class 2.3
- Working condition	-	IDU - from -5°C to +55°C
	-	ODU - from -33°C to +55°C

1.3.5.2. System Voltage working condition

DC nominal voltage	+/- 48 to +/- 60 Vdc +/-20%
	+/- 24 Vdc -20% +50%
	+/- 24 to +/- 60Vdc +/-20%
Polarity = + or – floating (isolated ground)	
System Consumption	Sys. 1+0 <=40W
	Sys. 1+1 <=80W

1.3.5.3. System Mechanical characteristics

ODU weight	3.9kg	ODU Dimension	235X 235X 72 mm
IDU 1+0 weight	2.5 kg	IDU 1+0 Dimension	44,45X 210X443 mm
IDU 1+1 weight	4.0.kg	IDU 1+1 Dimension	89,9X210X443 mm

OUTDOOR UNITS CHECK

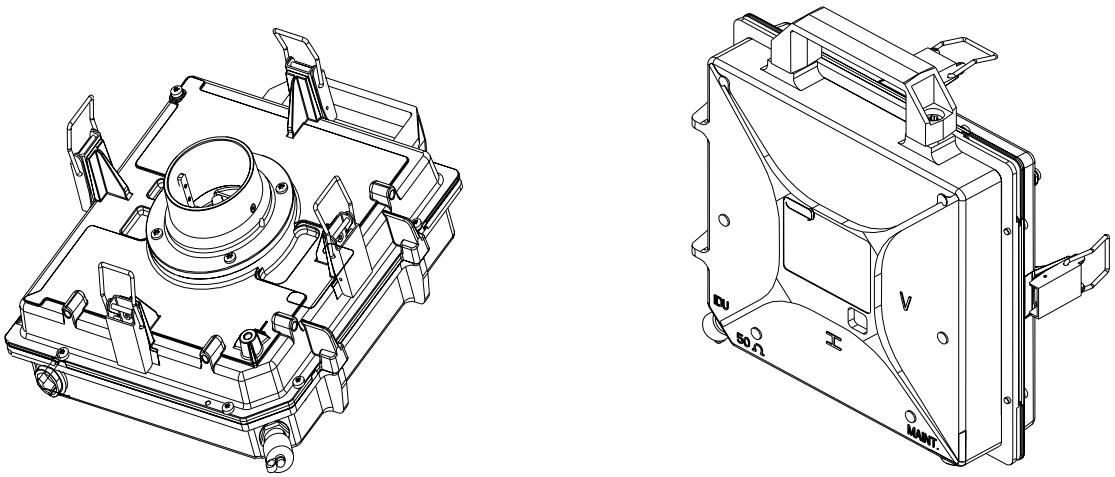


Figure 1 - ODU rear and front views

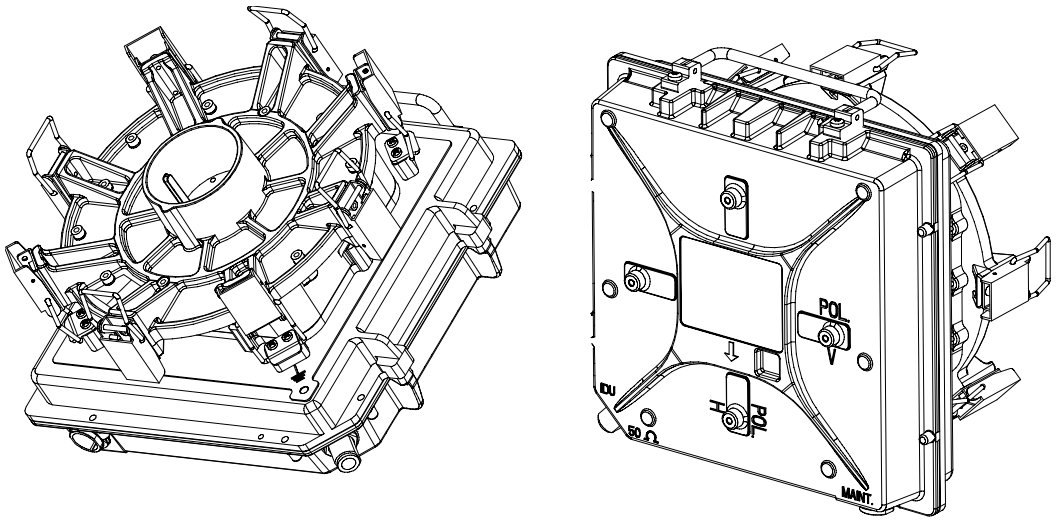
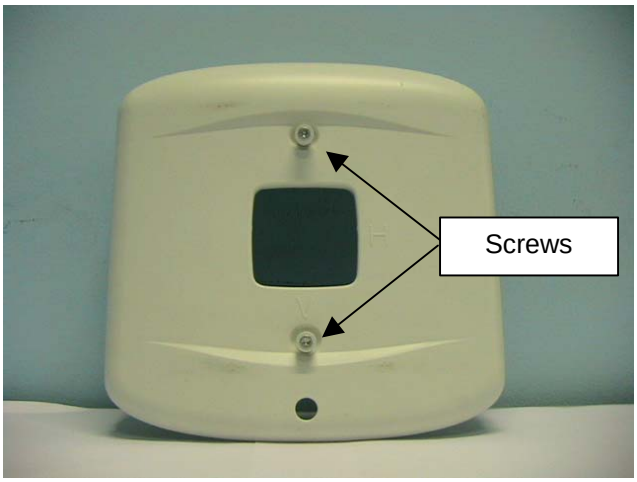
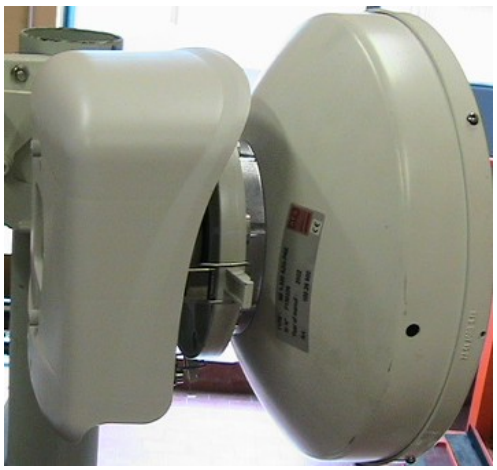


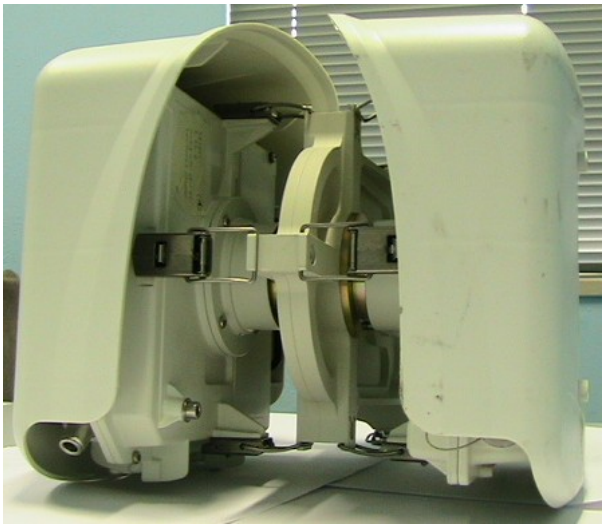
Figure 2 - ODU 7-8 GHz rear and front views

ODU Solar Shield P/N - 3CC13476AAAA





1+0 ODU solar shield view



1+1 ODU solar shields view

Figure 3 - ODU solar shields views

RF COUPLER UNIT CHECK

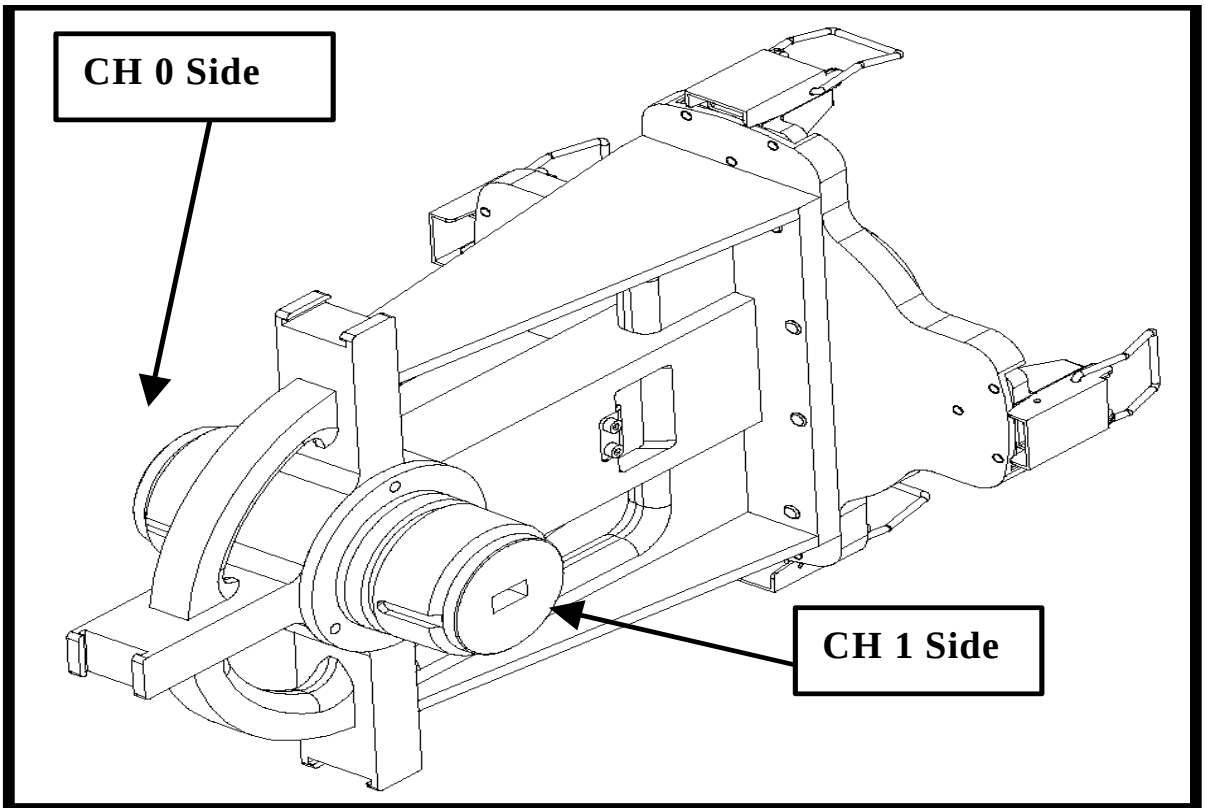


Figure 4 - ODU RF coupler view

ODU RF coupler Reference P/N

3DB05365AAXX	7.1-7.7 GHz **3dB Coupler**
3DB05366AAXX	7.7-8.5 GHz **3dB Coupler**
3DB06767AAXX	7.1-8.5 GHz 10Db Coupler
3CC14140AAXX	11 GHz **3db Coupler**
3CC14140ABXX	11 GHz 10db Coupler
3CC13472AAAA	13/15 GHz **3db Coupler**
3CC13472ABAA	13/15 GHz 10db Coupler
3CC13473AAAA	18/23/25 GHz **3db Coupler**
3CC13473ABAA	18/23/25 GHz 10db Coupler
3CC13474AAAA	28/32/38 GHz **3db Coupler**
3CC13474ABAA	28/32/38 GHz 10db Coupler

NB : 3dB Coupler is not present in this version
ODU RF coupler 7-8GHz (TBD)

INDOOR UNIT TYPES CHECK

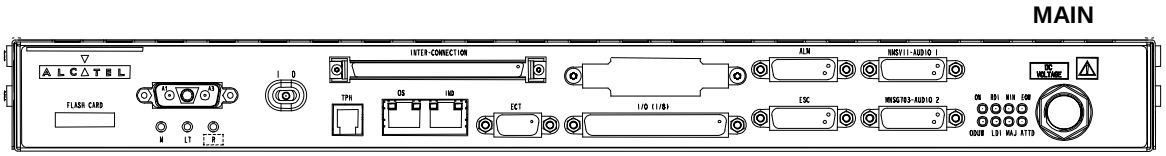


Figure 5 - IDU 9400 AWY 1+0

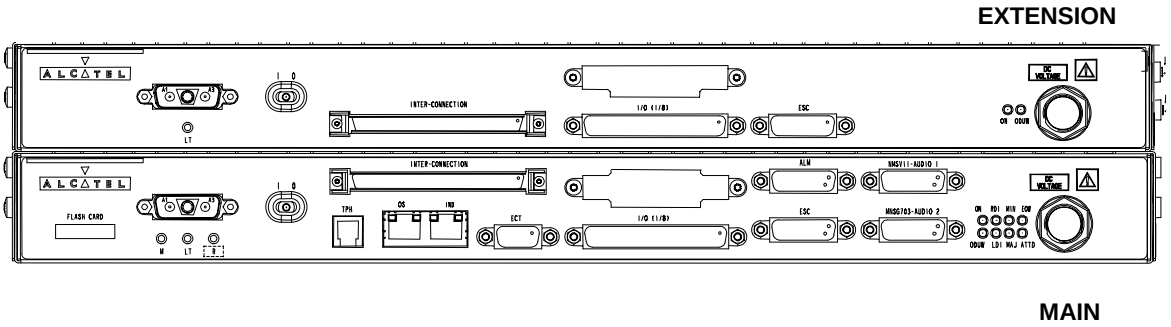


Figure 6 - IDU 9400 AWY 1+1

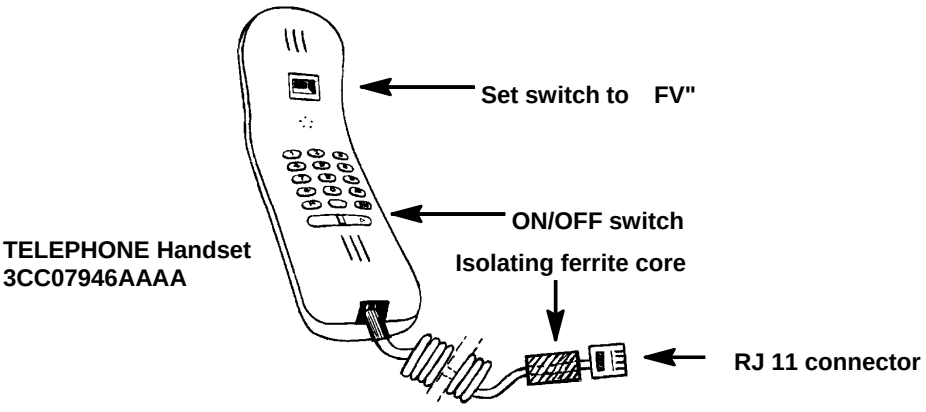


Figure 7 - Telephone set

INTEGRATED POLE MOUNTING INSTALLATION HARDWARE KIT CHECK

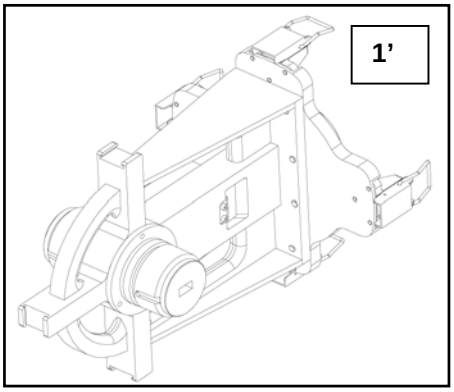
Check contents of all hardware bags according to the following Hardware installation Kits:

- 1+0 Integrated Antenna and ODU Mounting Hardware Installation Kit
- 1+1 Integrated Antenna and ODU Mounting Hardware Installation Kit

1' RF coupler - No Installation Hardware Kit is required for RF Coupler

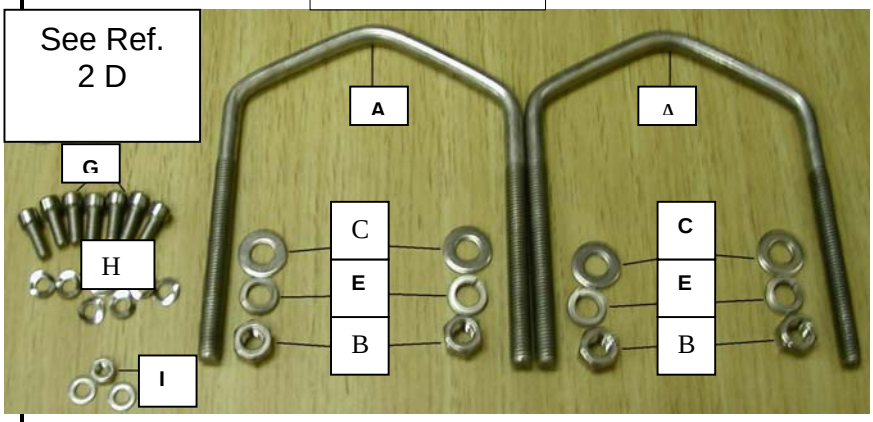
2' Integrated Pole Mounting

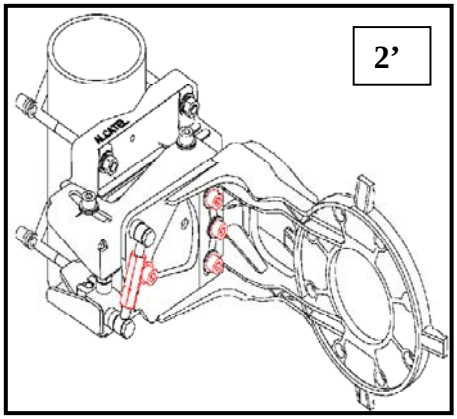
2 Integrated pole mounting Installation Hardware Kit



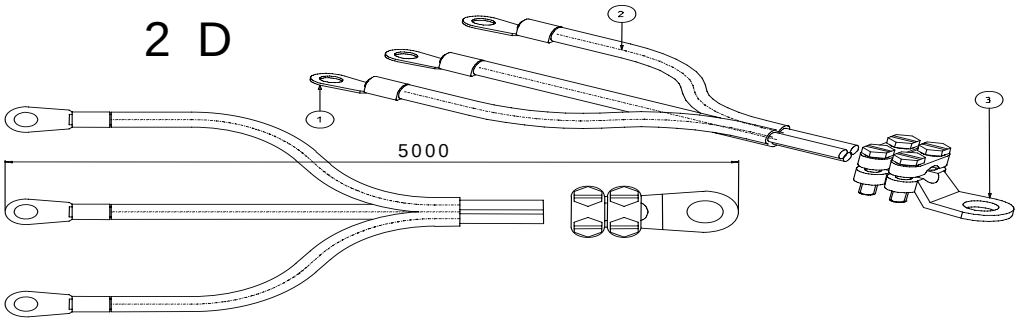
2

See Ref. 2 D





2 D



Cabinet Grounding 3DB05971AAAA

Figure 8 – Integrated Antenna and ODU Mounting Hardware Installation Kit view

Table 1 - ODU Mounting Hardware Installation Kit Listing

DESCRIPTION	PHOTO REF	INTEG. ANT. 1+0 quantity	INTEG. ANT. 1+1 quantity
ODU RF coupler	1’		1
ODU / Integrated Antenna /pole mount assy	2’	1	1
U Bolts M10 (3CC06029AAAA)	2 A	2	2
Hex Nut M 10 (1AD001970046)	2 B	4	4
Flat Washer 10.5 X 22 (1AD002290005)	2 C	4	4
Cabinet Grounding (3DB05971AAAA)	2D		
Split Washer 10.5 (1AD011670004)	2 E	4	4
Bolt M6 X 16 Din 933 (1AD002150071)	2 G	7	7
Washer 6.5 Din 125 (1AD002290017)	2 H	7	7
Nut M6 Din 934 (1AD001970033)	2 I	1	1

See Table 1 - ODU Mounting Hardware Installation Kit Listing on page 19 for a description of the items shown in the photograph. The attaching hardware for the steerable support unit is shown in the photograph as items N through S, but other than the steerable support, are not listed in the table. All parts shown should be received packed together in the same carton. The steerable support is wrapped and the remaining hardware is in two plastic bags, the large pieces in a large plastic bag and the smaller hardware in a small plastic bag within the larger bag.

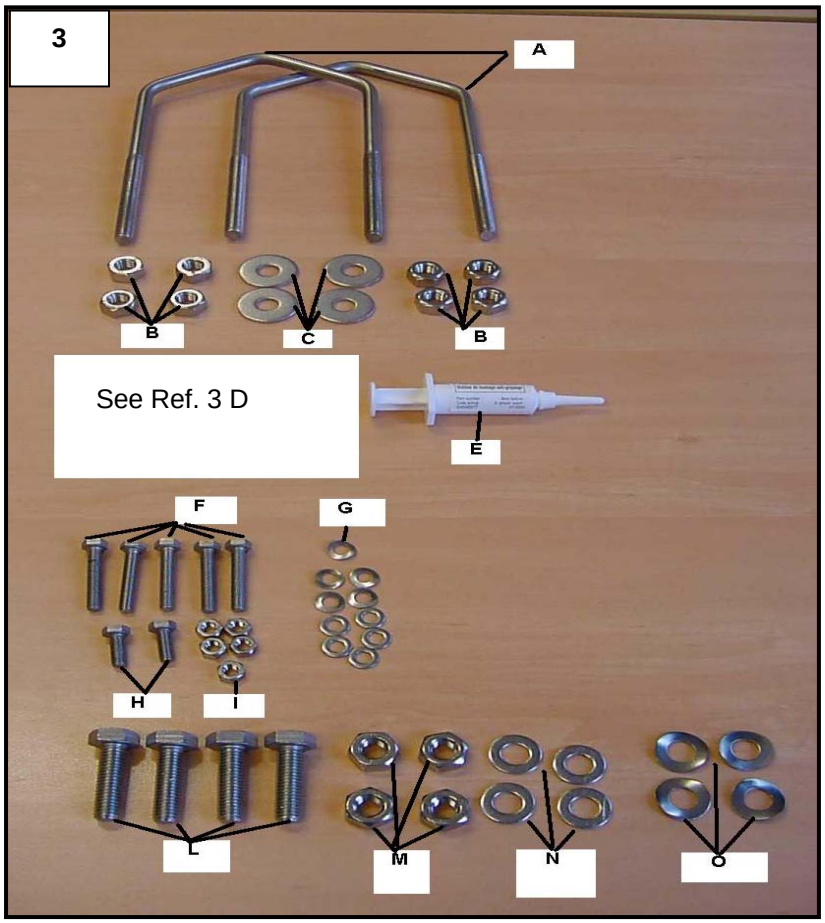
Items D, terminal lugs are for grounding cable termination.

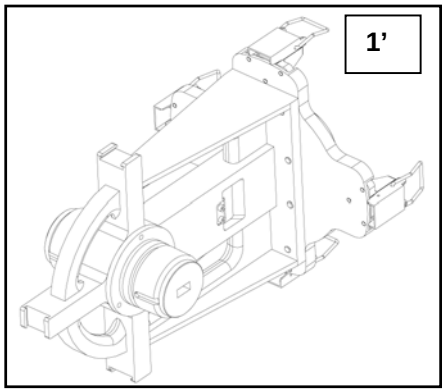
NON INTEGRATED POLE MOUNTING INSTALLATION HARDWARE KIT CHECK

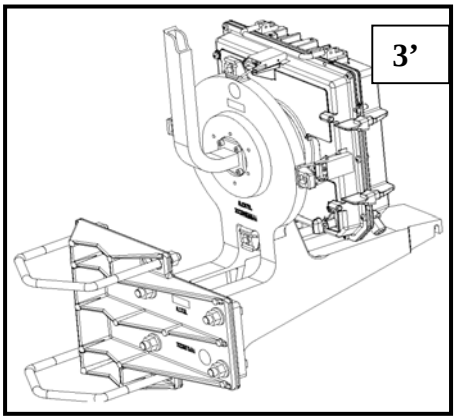
Check contents of all hardware bags according to the following Hardware installation Kits:

- 1+0 NON Integrated Antenna and ODU Mounting Hardware Installation Kit
- 1+1 NON Integrated Antenna and ODU Mounting Hardware Installation Kit

1'	RF coupler - No Installation Hardware Kit is required for RF Coupler
3'	NON Integrated Pole Mounting
3	NON Integrated pole mounting Installation Hardware Kit







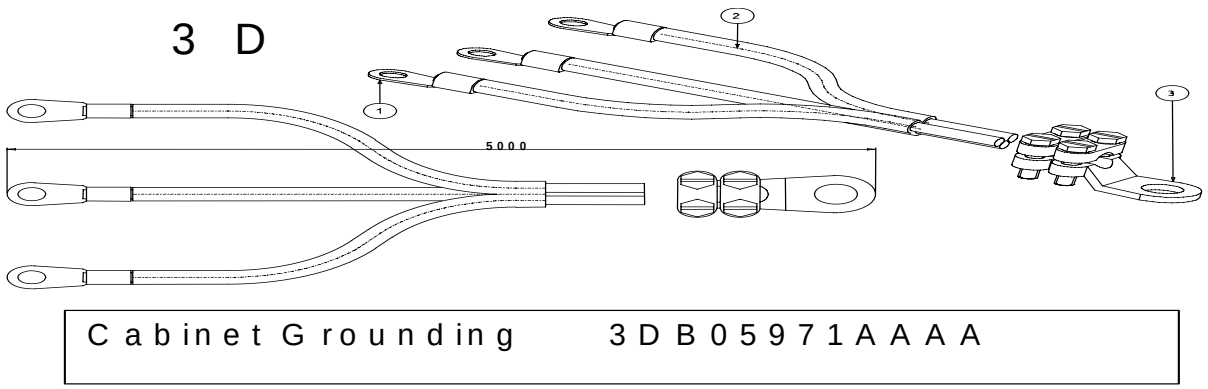


Figure 9 – Non integrated antenna and ODU Mounting Hardware Installation Kit

See Table 2 - ODU Mounting Hardware Installation Kit Listing on page 21 for a description of the items shown in the photograph. The attaching hardware for the steerable support unit is shown in the photograph as items N through S, but other than the steerable support, are not listed in the table. All parts shown should be received packed together in the same carton. The steerable support is wrapped and the remaining hardware is in two plastic bags, the large pieces in a large plastic bag and the smaller hardware in a small plastic bag within the larger bag.

Items D, terminal lugs are for grounding cable termination.

Table 2 - ODU Mounting Hardware Installation Kit Listing

DESCRIPTION	PHOTO REF	NON INTEG. ANT. 1+0 quantity	NON INTEG. ANT. 1+1 quantity
ODU RF coupler	1’		1
ODU / NON Integrated Antenna /pole mount assy	3’	1	1
U Bolts M10 (3CC06029AAAA)	3 A	2	2
Hex Nut Din 934 M10 (1AD001970046)	3 B	4+4	4+4
Flat Washer Din 9021 10.5 (1AD002290005)	3 C	4	4
Cabinet Grounding (3DB05971AAAA)	3D		
Assembly grease GUM 5GR (1AC008760001)	3 E	1	1
Bolt Din 933 M6 X 25 (1AD000500064)	3 F	5	5
Flat Washer 6.4 Din 125 (1AD00870170)	3 G	5	5
Curved WasheR 6.4 Din 137 D6 (1AD000290017)	3 G	5	5
Hex Nut M6 Din 934 M6 (1AD00190033)	3 I	5	5
Bolt M 10 x 25 Din 933 (1AD0021501000)	3 L	4	4
Hex Nut M 10 Din 934 (1AD001970046)	3 M	4	4
Flat Washer 10.5 Din 125 (1AD000870185)	3 N	4	4
Curved Washer 10.5 Din 137 1AD002290005)	3 O	4	4

POLE MOUNT PARTS CHECK

Check for correct steering support and pole mount assembly according to the following:

- **Steering Support and Pole Mount Assembly for Radio with Integrated Antenna**

Ref: 3CC10752AAAB - ODU and Integrated Antenna Support Pole Mounting View

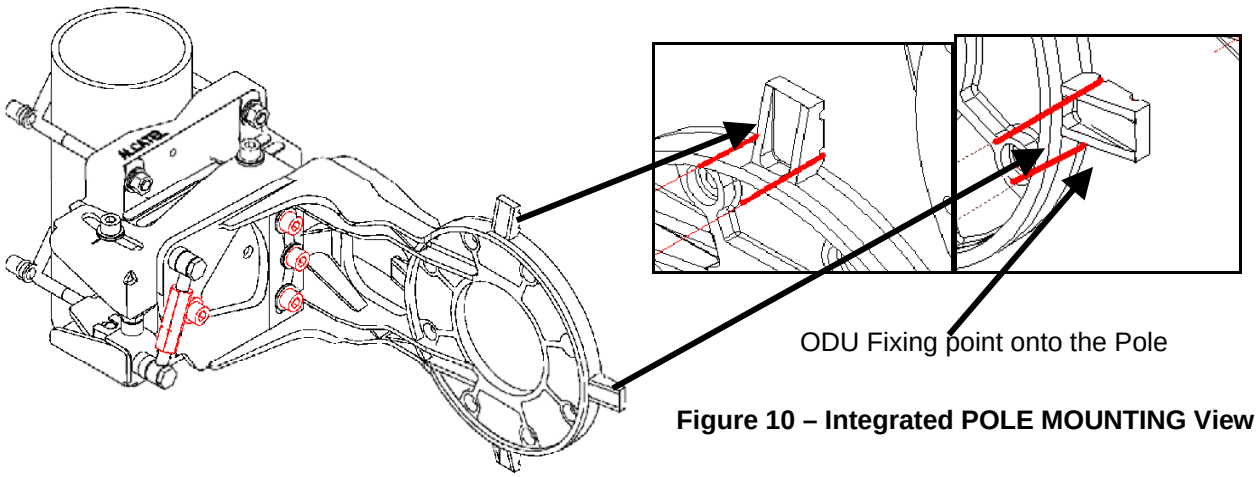


Figure 10 – Integrated POLE MOUNTING View

- **ODU Support and Pole Mount Assembly for Radio with Non-Integrated Antenna**

Ref: 1AB128510002 - ODU Support for NON Integrated Antenna POLE MOUNTING View

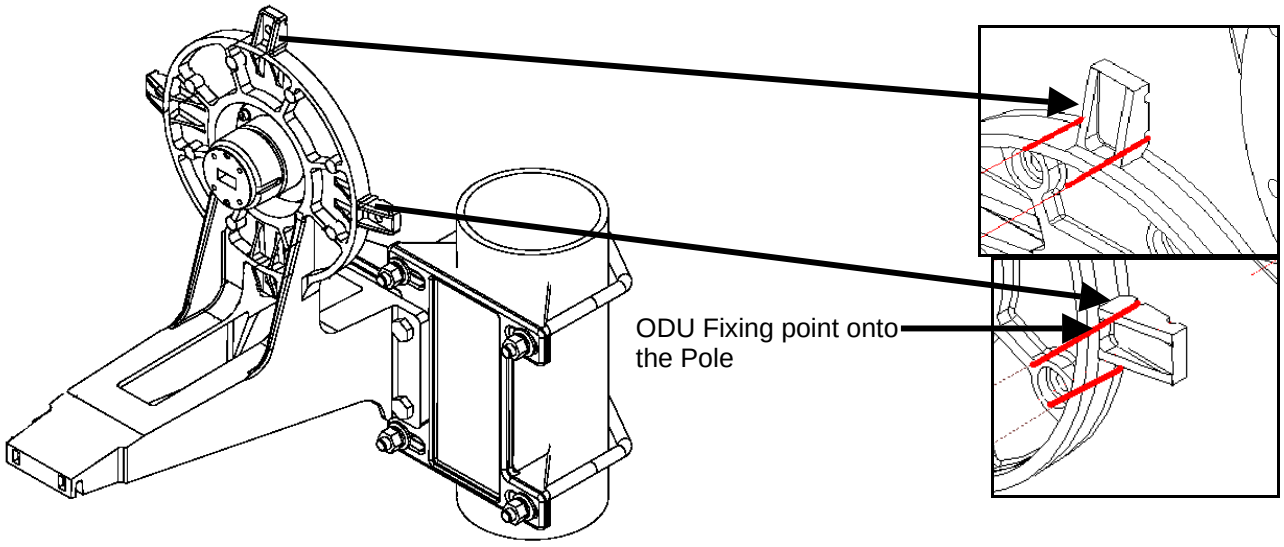


Figure 11 – RADIO and NON Integrated ANTENNA SUPPORT POLE MOUNTING View

1.3.6. Installation Tools required

The 9400 AWY radio is supplied with three Tools Bag:
- Station Tools Bag, (P/N 299702816); (ALCATEL P/N 3DB 01399 AAAA).
- Maintenance Tools Bag (P/N 299702815); (ALCATEL P/N 3DB 01398 AAAA).
- Installation Tools Bag (P/N 299702809); (ALCATEL P/N 3DB 01397 AAAA).

Tools begs Tables description.

Table 3 - Installation tools bag - Maintenance Tools Bag - Station Tools Bag,

Station Tools Bag P/N 299702816				Maintenance Tools Bag P/N 299702815		
CODE	**ITEM DESCRIPTION**	**Q.T Y**		**CODE**	**ITEM DESCRIPTION**	**Q.T Y**
041911001	CORD FOR ANTISTATIC APPLICATION	1		041962264	COAXIAL CORD	4
3DB01229AAAA	CABLE	4		3DB01400AAAA	COAXIAL CORD PLUG	2
041172011	ANTISTATIC WRIST BAND	1		3DB00489AAAA	COAXIAL CABLE	1
248501099	FEMALE BUTTON TERMINATION	1		041911001	CORD FOR ANTISTATIC APPLICATION	1
041172010	INSULATED PLUG WITH PLIERS	1		3DB02519AAAA	CORD	1
1AD024120002	COAX EXTRACTOR	1		3DB01229AAAA	CABLE	4
3AL79115AAAA	EXTRACTOR	1		3DB05021AAAA	CORD	1
8BE815030000	TOOL KIT	1		8BE815030001	TOOL KIT	1
8BE815030002	8x10 fixed SPANNER	1		041172011	ANTISTATIC WRIST BAND	1
870.952.129	16x17 fixed wrench	1		248501099	FEMALE BUTTON TERMINATION	1
8BE815010070	TORQUE WRENCH	1		041172010	INSULATED PLUG WITH PLIERS	1
8BE815010080	ALLEN WRENCH	1		1AD024120002	COAX EXTRACTOR	1
870.952.706	6 flush hexagonal wrench	1		3AL79115AAAA	EXTRACTOR	1
8BE815020020	3x100 screwdriver	1		8BE815030000	TOOL KIT	1
8BE815020021	3.5x100 screwdriver	1		8BE815030002	8x10 fixed SPANNER	1
870.959.166	5.5x200 screwdriver	1		870.952.129	16x17 fixed wrench	1
8BE815020040	3x60 cross screwdriver	1		8BE815010070	TORQUE WRENCH	1
8BE815020041	4.5x80 cross screwdriver	1		8BE815010080	ALLEN WRENCH	1
8BE815020042	4.5x250 cross screwdriver	1		870.952.706	6 flush hexagonal wrench	1
870.952.417	17 fixed wrench	1		8BE815020020	3x100 screwdriver	1
870.952.131	17x19 fixed wrench	1		870.959.166	5.5x200 screwdriver	1
879.010.249	TOOL KEY 5,5 MM	1		870.959.166	5.5x200 screwdriver	1
879.010.250	TOOL KEY 7 MM	1		870.952.706	6 flush hexagonal wrench	1
3D03884AAAA	LEVER	1		8BE815020041	4.5x80 cross screwdriver	1
1AB026470031	SURGE ARRESTER 230V	2		8BE815020042	4.5x250 cross screwdriver	2
870.952.131	17x19 fixed wrench	1		870.952.417	17 fixed wrench	1
870.952.119	12x13 fixed wrench	1		870.952.131	17x19 fixed wrench	1
				879.010.249	TOOL KEY 5,5 MM	1
				879.010.250	TOOL KEY 7 MM	1
				3D03884AAAA	LEVER	1

Installation Tools Bag, P/N 299702809						
CODE	**ITEM DESCRIPTION**	**Q.T Y**		**CODE**	**ITEM DESCRIPTION**	**Q.T Y**
8BE815030000	TOOL KIT	1		8BE815020040	3x60 cross screwdriver	1
870.952.129	16x17 fixed wrench	1		8BE815020041	4.5x80 cross screwdriver	1
8BE815010080	ALLEN WRENCH	1		8BE815020042	4.5x250 cross screwdriver	1
870.952.706	6 flush hexagonal wrench	1		870.952.417	17 fixed wrench	1
8BE815030002	8x10 fixed SPANNER	1		870.952.131	17x19 fixed wrench	1
8BE815010070	TORQUE WRENCH	1		879.010.249	TOOL KEY 5,5 MM	1
8BE815020020	3x100 screwdriver	1		879.010.250	TOOL KEY 7 MM	1
3CC14292AAAA	Stretching screw					
8BE815020021	3.5x100 screwdriver	1		870.959.166	5.5x200 screwdriver	1

1.3.7. Tables of installation IDU-ODU components

The 9400 AWY composition catalogue includes also the installation components required for the most common installation cases. The following tables shows the installation part list related to the available system configuration and the antenna types.

1.3.7.1. Integrated or Not Integrated antenna installation components

The following installation components tables include all the items required for the integrated antenna or Not Integrated antenna cases, the tables show the item part numbers and the requested quantity related to the foreseen system.

Note:

A = ref. INTEGRATED ANTENNA
B = ref. NOT INTEGRATED ANTENNA

Example:

1In/N (2In/N) = it is possible to use INTEGRATED ANTENNA (In) or NON INTEGRATED ANTENNA (N)

1In (2In) = it is possible to use INTEGRATED ANTENNA (In) only

1N (2N) = it is possible to use NON INTEGRATED ANTENNA (N) only

Legend:

1+1 HST 1+1 Hot Stand-by

1+1 HST SD 1+1 Hot Stand-by Space Diversity

1+1 FD CP 1+1 Frequency Diversity Co-Polar

1+1 FD AP 1+1 Frequency Diversity Alternate Polar

1+1 FD DA 1+1 Frequency Diversity Dual Antenna

9470 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	**Description**	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3DB06691AAXX	TRX 9470 7.1-7.75 GHZ LHB	1	2	2	2	2	2	
3DB06692AAXX	TRX 9470 7.25-7. 9 GHZ LHB	1	2	2	2	2	2	
3DB06693AAXX	TRX 9470 7.7-8.4 GHZ LHB	1	2	2	2	2	2	
3DB06694AAXX	TRX 9470 8.0-8.5 GHZ UHB	1	2	2	2	2	2	
Alcatel part number	**Transceiver**	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3DB06774AAXX	BRANCHING 7GHZ CH1-1P P.SH. 154_A MHz	1	2	2	2	2	2	
3DB06774ABXX	BRANCHING 7GHZ CH2-2P P.SH. 154_A MHz	1	2	2	2	2	2	
3DB06775AAXX	BRANCHING 7GHZ CH1-1P P.SH.154_B/160 MHz	1	2	2	2	2	2	
3DB06775ABXX	BRANCHING 7GHZ CH2-2P P.SH.154_B/160 MHz	1	2	2	2	2	2	
3DB06776AAXX	BRANCHING 7GHZ CH1-1P P.SH.168 MHZ	1	2	2	2	2	2	
3DB06776ABXX	BRANCHING 7GHZ CH2-2P P.SH.168 MHZ	1	2	2	2	2	2	
3DB06777AAXX	BRANCHING 7GHZ CH1-1P P.SH.182 MHZ	1	2	2	2	2	2	
3DB06777ABXX	BRANCHING 7GHZ CH2-2P P.SH.182 MHZ	1	2	2	2	2	2	
3DB06778AAXX	BRANCHING 7GHZ CH1-1P P.SH.196 MHZ	1	2	2	2	2	2	
3DB06778ABXX	BRANCHING 7GHZ CH2-2P P.SH.196 MHZ	1	2	2	2	2	2	
3DB06779AAXX	BRANCHING 7GHZ CH1-1P P.SH.245 MHZ	1	2	2	2	2	2	
3DB06779ABXX	BRANCHING 7GHZ CH2-2P P.SH.245 MHZ	1	2	2	2	2	2	
3DB06780AAXX	BRANCHING 7GHZ CH1-1P P.SH.161_A MHz	1	2	2	2	2	2	
3DB06780ABXX	BRANCHING 7GHZ CH2-2P P.SH.161_A MHz	1	2	2	2	2	2	
3DB06781AAXX	BRANCHING 7GHZ CH1-1P P.SH.161_C MHz	1	2	2	2	2	2	
3DB06781ABXX	BRANCHING 7GHZ CH2-2P P.SH.161_B MHz	1	2	2	2	2	2	
3DB06782AAXX	BRANCHING 7GHZ CH1-1P P.SH.161_C MHz	1	2	2	2	2	2	
3DB06782ABXX	BRANCHING 7GHZ CH2-2P P.SH.161_C MHz	1	2	2	2	2	2	
3DB06783AAXX	BRANCHING 7GHZ CH1-1P P.SH.161_D MHz	1	2	2	2	2	2	
3DB06783ABXX	BRANCHING 7GHZ CH2-2P P.SH.161_D MHz	1	2	2	2	2	2	
3DB06784AAXX	BRANCHING 7GHZ CH1-1P P.SH.161_E MHz	1	2	2	2	2	2	
3DB06784ABXX	BRANCHING 7GHZ CH2-2P P.SH.161_E MHz	1	2	2	2	2	2	
3DB06785AAXX	BRANCHING 7GHZ CH1-1P P.SH.161_F MHz	1	2	2	2	2	2	
3DB06785ABXX	BRANCHING 7GHZ CH2-2P P.SH.161_F MHz	1	2	2	2	2	2	
3DB06786AAXX	BRANCHING 8GHZ CH1-1P P.SH.294/305/311 MHz	1	2	2	2	2	2	
3DB06786ABXX	BRANCHING 8GHZ CH2-2P P.SH.294/305/311 MHz	1	2	2	2	2	2	
3DB06787AAXX	BRANCHING 8GHZ CH1-1P P.SH.151 MHz	1	2	2	2	2	2	
3DB06787ABXX	BRANCHING 8GHZ CH2-2P P.SH.151 MHz	1	2	2	2	2	2	
3DB06788AAXX	BRANCHING 8GHZ CH1-1P P.SH.266 MHZ	1	2	2	2	2	2	
3DB06788ABXX	BRANCHING 8GHZ CH2-2P P.SH.266 MHZ	1	2	2	2	2	2	
3DB06789AAXX	BRANCHING 8GHZ CH1-1P P.SH.119/126 MHz	1	2	2	2	2	2	
3DB06789ABXX	BRANCHING 8GHZ CH2-2P P.SH.119/126 MHz	1	2	2	2	2	2	
3DB10057AAXX	BRANCHING 7GHZ CH1-1P P.SH.154_C MHZ	1	2	2	2	2	2	
3DB10058AAXX	BRANCHING 7GHZ CH2-2P P.SH.168_B MHZ	1	2	2	2	2	2	
TBC	BRANCHING 8GHZ CH1-1P P.SH208 MHZ							
TBC	BRANCHING 8GHZ CH2-1P P.SH208 MHZ							
Alcatel part number	**Installation Materials**	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3DB05365AAXX	7.1-7.7 GHz 3dB Coupler		1		1			
3DB05366AAXX	7.7-8.5 GHz 3dB Coupler		1		1			
3DB06767AAXX	7.1-8.5 GHz 10dB Coupler		1					
TBD	7.1-8.5 GHz 3dB Integrated Coupler		1		1			
TBD	7.1-8.5 GHz 10dB Integrated Coupler		1					
3DB00677AAXX	7GHz 2FT SP integrated antenna	1In/N	1N	2In/N	1N	1N	2In/N	
3DB00675AAXX	8GHz 2FT SP integrated antenna	1In/N	1N	2In/N	1N	1N	2In/N	
1AF11293AAAA	7.1-8.5 GHz 3FT Integrated antenna with PM	1In	1In		1In			
1AF11284AAAA	7.1-8.5 GHz 4FT Integrated antenna with PM	1In	1In		1In			
3DB01530AAAA	7-8 GHz Flextwist							
3DB01459AAAA	Nose adapter for not int antenna							
1AF03114AAAA	PDR84 Connection KIT							
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N			
3CC10752AAAB	Integrated Pole Mounting for 2FT antenna	1In		2In	1In			
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N. 90° 50 ohm							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 4 – 9470 AWY - ODU Installation materials for Integrated or Non Intergrted antenna cases

9411 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	**Description**	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC14140AAXX	11 GHz 3db Coupler		1		1			
3CC14140ABXX	11 GHz 10db Coupler		1		1			
Alcatel part number	**Transceiver**	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC14116AAXX	ODU 9411 fs=530MHZ 2-2'	1	2	2	2	2	2	
3CC14117AAXX	ODU 9411 fs=530MHZ 2'-2	1	2	2	2	2	2	
Alcatel part number	**Installation Materials**	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3DB00673AAXX	11 GHz 2FT SP INTEGR.ANTENNA	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3DB00686AAXX	11 GHz Flex Twist	1N	1In/N	2N	2N	2	2N	
3DB02223AAXX	Nose-Adapter Non Integr. Antenna)	1N	1In/N	2N	2N	2N	2N	
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N	2N	2N	
3CC10752AAAB	Integrated Pole Mounting	1In	1In	2In	1In		2In	
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N.90° 50 ohm							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 5 – 9411 AWY - ODU Installation materials for Integrated or Not Integarted antenna cases

9413 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	**Description**	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13472AAXX	13/15 GHz 3db Coupler		1		1			
3CC13472ABXX	13/15 GHz 10db Coupler		1		1			
Alcatel part number	**Transceiver**	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13688AAXX	ODU 9413 fs=266MHZ 1-1'	1	2	2	2	2	2	
3CC13688AAXX	ODU 9413 fs=266MHZ 2-2'	1	2	2	2	2	2	
3CC13688AAXX	ODU 9413 fs=266MHZ 1'-2	1	2	2	2	2	2	
3CC13688AAXX	ODU 9413 fs=266MHZ 2'-2	1	2	2	2	2	2	
Alcatel part number	**Installation Materials**	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
1AF01893AAXX	13 GHz 1FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF10018AAXX	13 GHz 2FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01894AAXX	13 GHz 2FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3CC05751ACAA	13 GHz Flex Twist	1N	1In/N	2N	2N	2	2N	
1AB146090003	Nose-Adapter (Non Integr.Antenna)	1N	1In/N	2N	2N	2N	2N	
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N	2N	2N	
3CC10752AAAB	Integrated Pole Mounting	1In	1In	2In	1In		2In	
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N.90° ohm 90°							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 6 – 9413 AWY - ODU Installation materials for Integrated or Not Intergrted antenna cases

9415 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	Description	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13472AAXX	13/15 GHz 3db Coupler		1		1			
3CC13472ABXX	13/15 GHz 10db Coupler		1		1			
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13704AAXX	ODU 9415 fs=490MHz 1-1'	1	2	2	2	2	2	
3CC13705AAXX	ODU 9415 fs=490MHz 2-2'	1	2	2	2	2	2	
3CC13706AAXX	ODU 9415 fs=490MHz 1'-1	1	2	2	2	2	2	
3CC13707AAXX	ODU 9415 fs=490MHz 2'-2	1	2	2	2	2	2	
3CC13696AAXX	ODU 9415 fs=420MHz 1-1'	1	2	2	2	2	2	
3CC13697AAXX	ODU 9415 fs=420MHz 1-1'	1	2	2	2	2	2	
3CC13698AAXX	ODU 9415 fs=420MHz 2-2'	1	2	2	2	2	2	
3CC13699AAXX	ODU 9415 fs=420MHz 2'-2	1	2	2	2	2	2	
3CC13700AAXX	ODU 9415 fs=475MHz 1-1' HP	1	2	2	2	2	2	
3CC13701AAXX	ODU 9415 fs=475MHz 1-1' HP	1	2	2	2	2	2	
3CC13702AAXX	ODU 9415 fs=475MHz 2-2' HP	1	2	2	2	2	2	
3CC13703AAXX	ODU 9415 fs=475MHz 2'-2 HP	1	2	2	2	2	2	
3CC14077AAXX	ODU 9415 fs=475MHz 1-1'	1	2	2	2	2	2	
3CC14078AAXX	ODU 9415 fs=475MHz 1-1'	1	2	2	2	2	2	
3CC14079AAXX	ODU 9415 fs=475MHz 2-2'	1	2	2	2	2	2	
3CC14080AAXX	ODU 9415 fs=475MHz 2'-2	1	2	2	2	2	2	
3CC13708AAXX	ODU 9415 fs=640MHz 1-1'	1	2	2	2	2	2	
3CC13710AAXX	ODU 9415 fs=640MHz 1'-1	1	2	2	2	2	2	
3CC13692AAXX	ODU 9415 fs=315MHz 1-1'	1	2	2	2	2	2	
3CC13693AAXX	ODU 9415 fs=315MHz 1-1'	1	2	2	2	2	2	
3CC13694AAXX	ODU 9415 fs=315MHz 2-2'	1	2	2	2	2	2	
3CC13695AAXX	ODU 9415 fs=315MHz 2'-2	1	2	2	2	2	2	
3CC13709AAXX	ODU 9415 fs=644MHz 1-1'	1	2	2	2	2	2	
3CC13711AAXX	ODU 9415 fs=644MHz 1'-1	1	2	2	2	2	2	
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
1AF10018KAXX	15 GHz 1FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01891AAXX	15 GHz 1FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF10018ABXX	15 GHz 2FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01892AAXX	15 GHz 2FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF02958AAAA	15 GHz Flex Twist	1N	1In/N	2N	2N	2	2N	
1AB146090001	Nose-Adapter (Non Integrated Antenna)	1N	1In/N	2N	2N	2N	2N	
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N	2N	2N	
3CC10752AAAB	Integrated Pole Mounting	1In	1In	2In	1In		2In	
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N.90° 50 ohm							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 7 – 9415 AWY - ODU Installation materials for Integrated or Not Intergrted antenna cases

9418 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	Description	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13473AAXX	18/23/25 GHz 3db Coupler		1		1			
3CC13473ABXX	18/23/245 GHz 10db Coupler		1		1			
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC12991AAXX	ODU 9418 fs=1010MHz 1-1'	1	2	2	2	2	2	
3CC12992AAXX	ODU 9418 fs=1010MHz 2-2'	1	2	2	2	2	2	
3CC12993AAXX	ODU 9418 fs=1010MHz 1'-1	1	2	2	2	2	2	
3CC12994AAXX	ODU 9418 fs=1010MHz 2'-2	1	2	2	2	2	2	
3CC12999AAXX	ODU 9418 fs=340MHz 1-1' ANSI	1	2	2	2	2	2	
3CC13000AAXX	ODU 9418 fs=340MHz 1-1' ANSI	1	2	2	2	2	2	
3CC13001AAXX	ODU 9418 fs=340MHz 2-2' ANSI	1	2	2	2	2	2	
3CC13002AAXX	ODU 9418 fs=340MHz 2'-2 ANSI	1	2	2	2	2	2	
3CC13947AAXX	ODU 9418 fs=1560MHz 1-1' ANSI	1	2	2	2	2	2	
3CC13948AAXX	ODU 9418 fs=1560MHz 1-1' ANSI	1	2	2	2	2	2	
3CC13468AAXX	ODU 9418 fs=1008MHz 1-1'	1	2	2	2	2	2	
3CC13469AAXX	ODU 9418 fs=1008MHz 2-2'	1	2	2	2	2	2	
3CC13470AAXX	ODU 9418 fs=1008MHz 1'-1	1	2	2	2	2	2	
3CC13471AAXX	ODU 9418 fs=1008MHz 1'-1	1	2	2	2	2	2	
3CC12995AAXX	ODU 9418 fs=1560MHz 1-1' ETSI	1	2	2	2	2	2	
3CC12996AAXX	ODU 9418 fs=1560MHz 1'-1 ETSI							
3CC13714AAXX	ODU 9418 fs=340MHz 1-1' ETSI							
3CC13715AAXX	ODU 9418 fs=340MHz 2'-2 ETSI	1	2	2	2	2	2	
3CC13716AAXX	ODU 9418 fs=340MHz 1-1' ETSI	1	2	2	2	2	2	
3CC13717AAXX	ODU 9418 fs=340MHz 2-2' ETSI	1	2	2	2	2	2	
3CC14472AAXX	ODU 9418 fs=1092.5MHz 1-1'	1	2	2	2	2	2	
3CC14473AAXX	ODU 9418 fs=1092.5MHz 2-2'	1	2	2	2	2	2	
3CC14474AAXX	ODU 9418 fs=1092.5MHz 1'-1							
3CC14475AAXX	ODU 9418 fs=1092.5MHz 2'-2'	1	2	2	2	2	2	
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
1AF10018LAXX	18 GHz 1FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01741AAXX	18 GHz 1FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF10018ACXX	18 GHz 2FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01742AAXX	18 GHz 2FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3CC05749ACAA	18/23/25 GHz Flex Twist	1N	1In/N	2N	2N	2	2N	
1AB146090002	18/23/25 Nose-Adapter (Non Integr.Antenna)	1N	1In/N	2N	2N	2N	2N	
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N	2N	2N	
3CC10752AAAB	Integrated Pole Mounting	1In	1In	2In	1In		2In	
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N.90° 50 ohm							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 8 – 9418 AWY - ODU Installation materials for Integrated or Not Integrated antenna cases

9423 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	Description	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13473AAXX	18/23/25 GHz 3db Coupler		1		1			
3CC13473ABXX	18/23/245 GHz 10db Coupler		1		1			
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13718AAXX	ODU 9423 fs=1008MHz 1-1'	1	2	2	2	2	2	
3CC13719AAXX	ODU 9423 fs=1008MHz 2-2'	1	2	2	2	2	2	
3CC13720AAXX	ODU 9423 fs=1008MHz 1'-1	1	2	2	2	2	2	
3CC13721AAXX	ODU 9423 fs=1008MHz 2'-2	1	2	2	2	2	2	
3CC13722AAXX	ODU 9423 fs=1200MHz 1-1' ANSI	1	2	2	2	2	2	
3CC13723AAXX	ODU 9423 fs=1200MHz 1-1' ANSI	1	2	2	2	2	2	
3CC13724AAXX	ODU 9423 fs=1200MHz 2-2' ANSI	1	2	2	2	2	2	
3CC13725AAXX	ODU 9423 fs=1200MHz 2'-2 ANSI	1	2	2	2	2	2	
3CC14388AAXX	ODU 9423 fs=1200MHz 1-1' ETSI	1	2	2	2	2	2	
3CC14389AAXX	ODU 9423 fs=1200MHz 1-1' ETSI	1	2	2	2	2	2	
3CC14390AAXX	ODU 9423 fs=1200MHz 1-1' ETSI	1	2	2	2	2	2	
3CC14391AAXX	ODU 9423 fs=1200MHz 2-2' ETSI	1	2	2	2	2	2	
3CC14400AAXX	ODU 9423 fs=1197MHz 1-1'	1	2	2	2	2	2	
3CC14401AAXX	ODU 9423 fs=1197MHz 1'-1	1	2	2	2	2	2	
3CC14402AAXX	ODU 9423 fs=1197MHz 2-2'	1	2	2	2	2	2	
3CC14403AAXX	ODU 9423 fs=1197MHz 2'-2	1	2	2	2	2	2	
3CC13726AAXX	ODU 9423 fs=1232MHz 1-1'	1	2	2	2	2	2	
3CC13727AAXX	ODU 9423 fs=1232MHz 2'-2	1	2	2	2	2	2	
3CC13728AAXX	ODU 9423 fs=1232MHz 1-1'	1	2	2	2	2	2	
3CC13729AAXX	ODU 9423 fs=1232MHz 2-2'	1	2	2	2	2	2	
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
1AF10018ADXX	23 GHz 1FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01735AAXX	23 GHz 1FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF10018AEXX	23 GHz 2FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01736AAXX	23 GHz 2FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3CC05749ACAA	18/23/25 GHz Flex Twist	1N	1In/N	2N	2N	2	2N	
1AB146090002	18/23/25 Nose-Adapter (Non Integr.Antenna)	1N	1In/N	2N	2N	2N	2N	
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N	2N	2N	
3CC10752AAAB	Integrated Pole Mounting	1In	1In	2In	1In		2In	
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N.90° 50 ohm							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 9 – 9423 AWY - ODU Installation materials for Integrated or Not Integrated antenna case

9425 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	Description	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13473AAXX	18/23/25 GHz 3db Coupler		1		1			
3CC13473ABXX	18/23/245 GHz 10db Coupler		1		1			
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13734AAXX	ODU 9425 fs=1008MHz 1-1'	1	2	2	2	2	2	
3CC13735AAXX	ODU 9425 fs=1008MHz 2-2'	1	2	2	2	2	2	
3CC13736AAXX	ODU 9425 fs=1008MHz 1'-1	1	2	2	2	2	2	
3CC13737AAXX	ODU 9425 fs=1008MHz 2'-2	1	2	2	2	2	2	
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
1AF10018AFXX	25 GHz 1FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01737AAXX	25 GHz 1FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF10018AHXX	25 GHz 2FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01738AAXX	25 GHz 2FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3CC05749ACAA	18/23/25 GHz Flex Twist	1N	1In/N	2N	2N	2	2N	
1AB146090002	18/23/25 Nose-Adapter (Non Integr.Antenna)	1N	1In/N	2N	2N	2N	2N	
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N	2N	2N	
3CC10752AAAB	Integrated Pole Mounting	1In	1In	2In	1In		2In	
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N.90° 50 ohm							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 10 – 9425 AWY - ODU Installation materials for Integrated or Not Integrated antenna cases

9428 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	Description	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13474AAXX	28/32/38 GHz 3db Coupler		1		1			
3CC13474ABXX	28/32/38 GHz 10db Coupler		1		1			
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13738AAXX	ODU 9428 fs=1008MHz 1-1'	1	2	2	2	2	2	
3CC13739AAXX	ODU 9428 fs=1008MHz 2-2'	1	2	2	2	2	2	
3CC13740AAXX	ODU 9428 fs=1008MHz 1'-1	1	2	2	2	2	2	
3CC13741AAXX	ODU 9428 fs=1008MHz 2'-2	1	2	2	2	2	2	
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3DB00658AAXX	28 GHz 1FT SP INTEGR.ANTENNA	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3DB00659AAXX	28 GHz 2FT SP INTEGR.ANTENNA	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3DB00682AAXX	28/32/38 GHz Flex Twist	1N	1In/N	2N	2N	2	2N	
3DB02082AAXX	28/32/38 Nose-Adapter (Non Integr.Antenna)	1N	1In/N	2N	2N	2N	2N	
3DB00692AAXX	FLEX-TWIST ARM SUPPORT 28-38GHz (Non Integr.Antenna)	1	1	2	1	2	2	
3DB03455AAXX	Universal Round Collar	1	1	2	1	2	2	
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N	2N	2N	
3CC10752AAAB	Integrated Pole Mounting	1In	1In	2In	1In		2In	
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N.90° 50 ohm							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 11 – 9428 AWY - ODU Installation materials for Integrated or Not Integrated antenna cases

9432 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	Description	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13474AAXX	28/32/38 GHz 3db Coupler		1		1			
3CC13474ABXX	28/32/38 GHz 10db Coupler		1		1			
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13744AAXX	ODU 9432 fs=812MHz 1-1'	1	2	2	2	2	2	
3CC13745AAXX	ODU 9432 fs=812MHz 2-2'	1	2	2	2	2	2	
3CC13746AAXX	ODU 9432 fs=812MHz 1'-1	1	2	2	2	2	2	
3CC13747AAXX	ODU 9432 fs=812MHz 2'-2	1	2	2	2	2	2	
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3DB03802AAXX	32 GHz 1FT SP INTEGR.ANTENNA	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3DB03803AAXX	32 GHz 2FT SP INTEGR.ANTENNA	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3DB00682AAXX	28/32/38 GHz Flex Twist	1N	1In/N	2N	2N	2	2N	
3DB02082AAXX	28/32/38 Nose-Adapter (Non Integr.Antenna)	1N	1In/N	2N	2N	2N	2N	
3DB00692AAXX	FLEX-TWIST ARM SUPPORT 28-38GHz (Non Integr.Antenna)	1	1	2	1	2	2	
3DB03455AAXX	Universal Round Collar	1	1	2	1	2	2	
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N	2N	2N	
3CC10752AAAB	Integrated Pole Mounting	1In	1In	2In	1In		2In	
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N.90° ohm 90°							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 12 – 9432 AWY - ODU Installation materials for Integrated or Not Integrated antenna cases

9438 AWY - ODU INSTALLATION COMPONENTS								
Alactel Part Number	Description	Quantity / Configuration						
	Branching & Filters	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC13474AA**	28/32/38 GHz 3db Coupler		1		1			
3CC13474AB**	28/32/38 GHz 10db Coupler		1		1			
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
3CC12987AAXX	ODU 9438 fs=1260MHz 1-1'	1	2	2	2	2	2	2
3CC12988AAXX	ODU 9438 fs=1260MHz 2-2'	1	2	2	2	2	2	2
3CC12989AAXX	ODU 9438 fs=1260MHz 1'-1	1	2	2	2	2	2	2
3CC12990AAXX	ODU 9438 fs=1260MHz 2'-2	1	2	2	2	2	2	2
3CC13933AAXX	ODU 9438 fs=700MHz Canada 2-2'	1	2	2	2	2	2	2
3CC13934AAXX	ODU 9438 fs=700MHz Canada 2'-2	1	2	2	2	2	2	2
3CC13052AAXX	ODU 9438 fs=700MHz 1'-1 ANSI	1	2	2	2	2	2	2
3CC13053AAXX	ODU 9438 fs=700MHz 2-2' ANSI	1	2	2	2	2	2	2
3CC13054AAXX	ODU 9438 fs=700MHz 1'-1 ANSI	1	2	2	2	2	2	2
3CC13055AAXX	ODU 9438 fs=700MHz 2'-2 ANSI	1	2	2	2	2	2	2
		1	2	2	2	2	2	2
Alcatel part number	Transceiver	1+0	1+1 HST	1+1 HST SD	1+1 FD CP	1+1 FD AP	1+1 FD DA	Note
1AF10018AJXX	38 GHz 1FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01739AAXX	38 GHz 2FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF10018AGXX	38 GHz 2FT SP INTEGR.ANTENNA RFS	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
1AF01740AGXX	38 GHz 2FT SP INTEGR.ANTENNA ANDREW	1In/N	1In/N	2In/N	1In/N	1N	2In/N	
3DB00682AAXX	28/32/38 GHz Flex.Twist	1N	1In/N	2N	2N	2	2N	
3DB02082AAXX	28/32/38 Nose-Adapter (Non Integr.Antenna)	1N	1In/N	2N	2N	2N	2N	
3DB00692AAXX	FLEX-TWIST ARM SUPPORT 28-38GHz (Non Integr.Antenna)	1	1	2	1	2	2	
3DB03455AAXX	Universal Round Collar	1	1	2	1	2	2	
1AB128510002	Non Integrated Pole Mounting	1N	1N	2N	1N	2N	2N	
3CC10752AAAB	Integrated Pole Mounting	1In	1In	2In	1In		2In	
3CC06503AAXX	Consumable set							
1AB128500002	IDU-ODU cable grounding kit							
1AC001100022	Filotex Coax cable 50 ohm							
1AB095530021	Filotex conn. male N.90° ohm 90°							
3DB05971AAXX	Cabinet grounding kit							

Q.ty In = Integrated Antenna Q.ty N= Not Integrated Antenna

Table 13 – 9438 AWY - ODU Installation materials for Integrated or Not Integrated antenna cases

1.3.7.2. IDU installation components

Two IDU boxes (Main / Extension) are foreseen:

- (1+0): 44,45 x 443 x 210mm (=> 1U) + Mini-distributor (=> 0.6U)
- (1 Main + Extension): 89,9x443x 420mm (=> 2U) + Mini-distributor (=> 0.6U)

Indoor units (IDU) of the 9400 AWY system can be installed in different ways as described below:

- Installation on a special workbench or desk;
- Installation on a suitable wooden or masonry wall;
  - Installation in a 19" Din rack
  - Installation in a 21" ETSI rack

For each of the above type of installation special mechanical supporting fixtures are available.

Table 14 -.on page 35 gives a list of the installation materials that are included in the catalogue.

Table 14 - IDU Installation components

IDU INSTALLATION COMPONENTS		
ALCATEL PART NUMBER	**NAME**	**NOTE**
3DB04656AAAA	ETSI RACK H 2200	
3DB04657AAAA	ETSI RACK H 2000	
3DB06683AAAA	IDU Table/Wall Mounting Kit 3U	
3DB06612AAAA	1+0 Table/ETSI RackMounting Kit	
3CC07946AAAA	Telephone Handset	
3DB06594AAAA	User Service Channel cable for 1+1	
3DB06593AAAA	E3/*DS3* cable for 1+1	
3CC13659AAAA	37 wires 8E1/*DS1* cable for 1+1	
3DB06632AAAA	HP 37 wires 8E1/*DS1* cable for 1+1	
3DB06592AAAA	100 wire SCSI cable for 1+1	
1AB152220001	6 Breakers DC Power Panel	
1AD053060001	6 Fuse DC Power Panel	
B0177096497	Single fuse holder with fuse	
1AB058580014	One ciruit breaker	
1AB128500002	IDU-ODU cable grounding kit	
1AC001100022	FILOTEX COAX CABLE 50 OHM	
1AB095530021	FILOTEX CONN.MALE 90° 50 OHM	
3DB05594AAAA	HA-HC/SC cable	
3DB05922AAAA	NMS/AUDIO CABLE L=1.6 m	
3DB05923AAAA	NMS/AUDIO CABLE L=6.4 m	
1AB074610008	RJ45 8p connector	
3DB10064AAAA	NMS Interface AWY-MELODIE IDU L-6.4m	
3DB10063AAAA	NMS Interface AWY-MELODIE IDU L-1.6m	
1AB054120027	RS232 CT cable	
1AC016760003	Cable 4 pair shielded	
3DB10003AAAA	75 ohm coax cable 8XE1/DS1 IDU/Distr no connectors L:15	
1AB061220005	Male coax connector 1.0/2.3	
1AB009870002	Male coax connector 1.6/5.6	
1AB006420060	Male coax connector BNC 75ohm	
1AB009790019	Panel coax connector 1.0/2.3	
1AB002130006	Panel coax connector 1.6/5.6	
1AB006020076	Panel coax connector BNC 75ohm	
1AC011980001	120ohm 8X2 twisted pair cable	
3DB05953AAXX	8E1/DS1 SUB D37 connector	
1AC021980001	100ohm cable for 8XDS1	
3DB05850AAXX	ADAPT.CABLE 1.0/2.3 MALE-BNC.FEMALE	
3DB05851AAXX	ADAPT.CABLE 1.0/2.3 MALE 1.6/5.6 FEMALE	

3CC08951ACAA	120ohm cable L904/16p lg 15m w connector	
3CC07917AAAA	COMPAX module 10 pairs and covers	
3DB05583AAXX	DISTRIBUTOR SUBRACK FOR 1.0/2.3	
3DB10008AAAA	COAX CABLE 8XE1/DS1 IDU/DISTR. 1.0/2.3 – 75ohm UNB	
3DB05585AAXX	DISTRIBUTOR SUBRACK FOR 120 ohm	
3DB10007AAAAXX	COAX CABLE 8XE1/DS1 IDU/DISTR. 120 ohm BAL	
3CC08061AAAA	DISTRIBUTOR SUBRACK FOR 1.6/5.6	
3CC07885ABAA	COAX CABLE 8XE1/DS1 IDU/DISTR. 1.6/5.6 – 75ohm UNB 2m	
3CC08062AAAA	1U DISTRIBUTOR SUBRACK FOR 120 ohm non EMC	
3CC07810AAAA	3U DISTRIBUTOR SUBRACK FOR 120 ohm EMC	
3CC07658AAAB	Cable 8XE1/DS1 IDU/DISTR. 120 ohm 2m	
3CC08061ABAA	DISTRIBUTOR SUBRACK FO BNC	
3CC07759ABAA	Cable 8XE1/DS1 IDU/DISTR. BNC 75 ohm UNB 2m	
3CC08209AAAA	Power supply connection 24V (3X2.5[2)]	
3CC08212AAAA	Connection cable 24V (3X10[2)]	
3CC08165AAAA	Power supply connection 48V (3X1.5[2)]	
3CC08211AAAA	Connection cable 48V (3X4[2)]	
3CC06503AAXX	Consumable set	

Note: Kit Also Used For Bench Installation

The same mechanical support intended for wall installations can be used for bench installation to provide greater stability on the equipped bench or desk.

The workbench or desk to be used is a table especially fitted with safety power outlets, located in a suitable spot of the room, and suitably protected against accidental tampering.

2. OUTDOOR INSTALLATION UNITS (ODU)

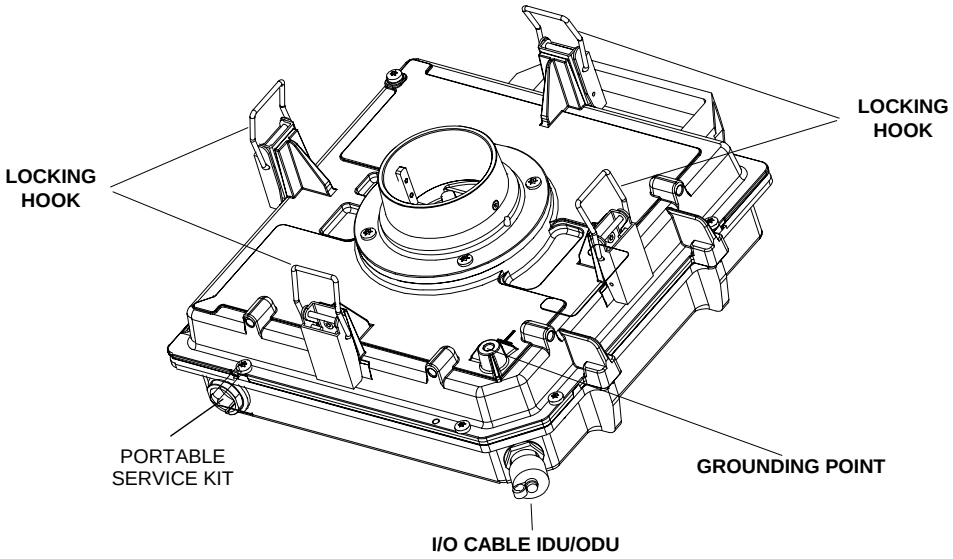
2.1. General

9400 AWY ODU units are designed for assembly:

-Either with an integrated antenna connected directly to the Outdoor equipment, see paragraph 2.2 and 2.3.

-With one or more non–integrated antennas, see paragraph 4.

ODU rear view



ODU front view

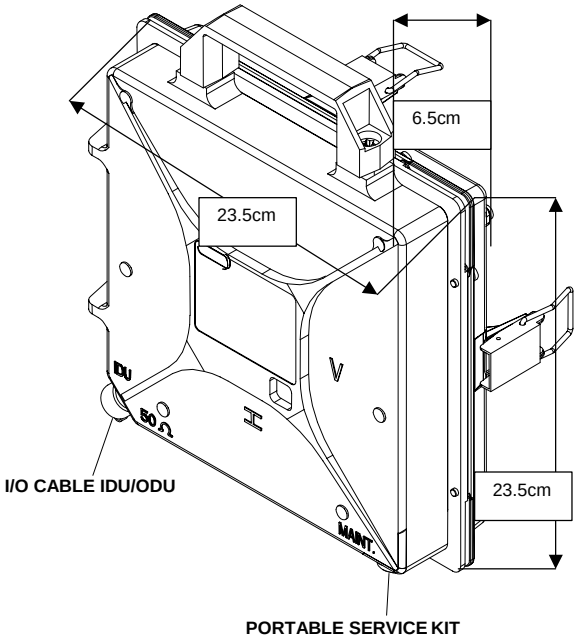


Figure 12 - ODU rear and front views

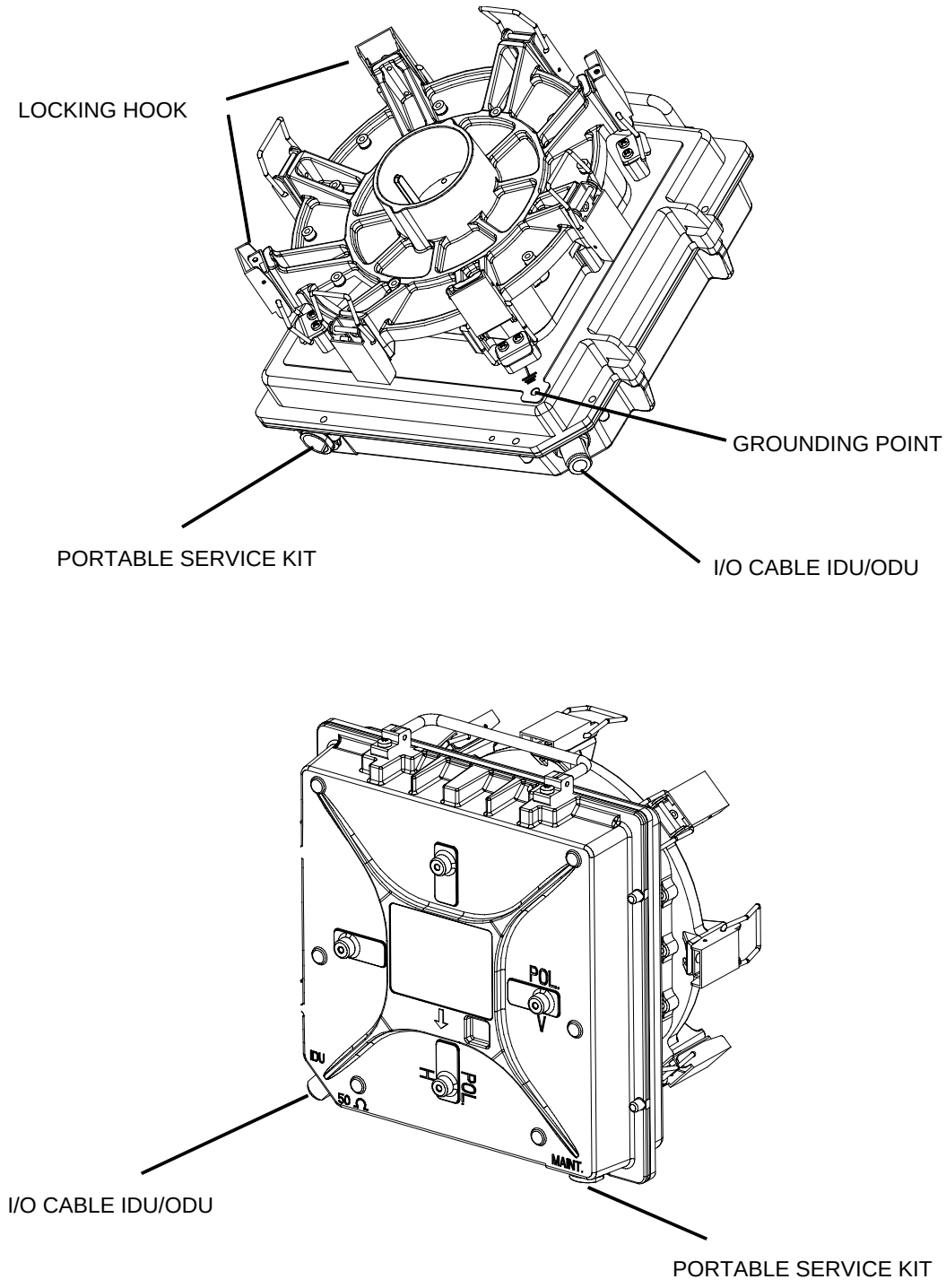


Figure 13 – 7-8 GHz ODU rear and front views

2.1.1. Typical installation layout

Figure 14 on page 40, Figure 15 page 41, and Figure 16 on page 42 show typical installation layouts. The installation materials included form

Table 4 to Table 13 are also pointed out and shown in the figures.

Figure 14 on page 40 and Figure 15 on page 41 show typical installations of 1+0 and 1+1 systems respectively, both with 30 cm or 60 cm. integrated antenna

Figure 16 on page 42 shows a typical installation of 1+0 system with non integrated antenna. The antenna is installed near the ODU installation making use of the 600 mm. flexible twist wave-guide, included in Table 15 on page 61 (PN 597210011).

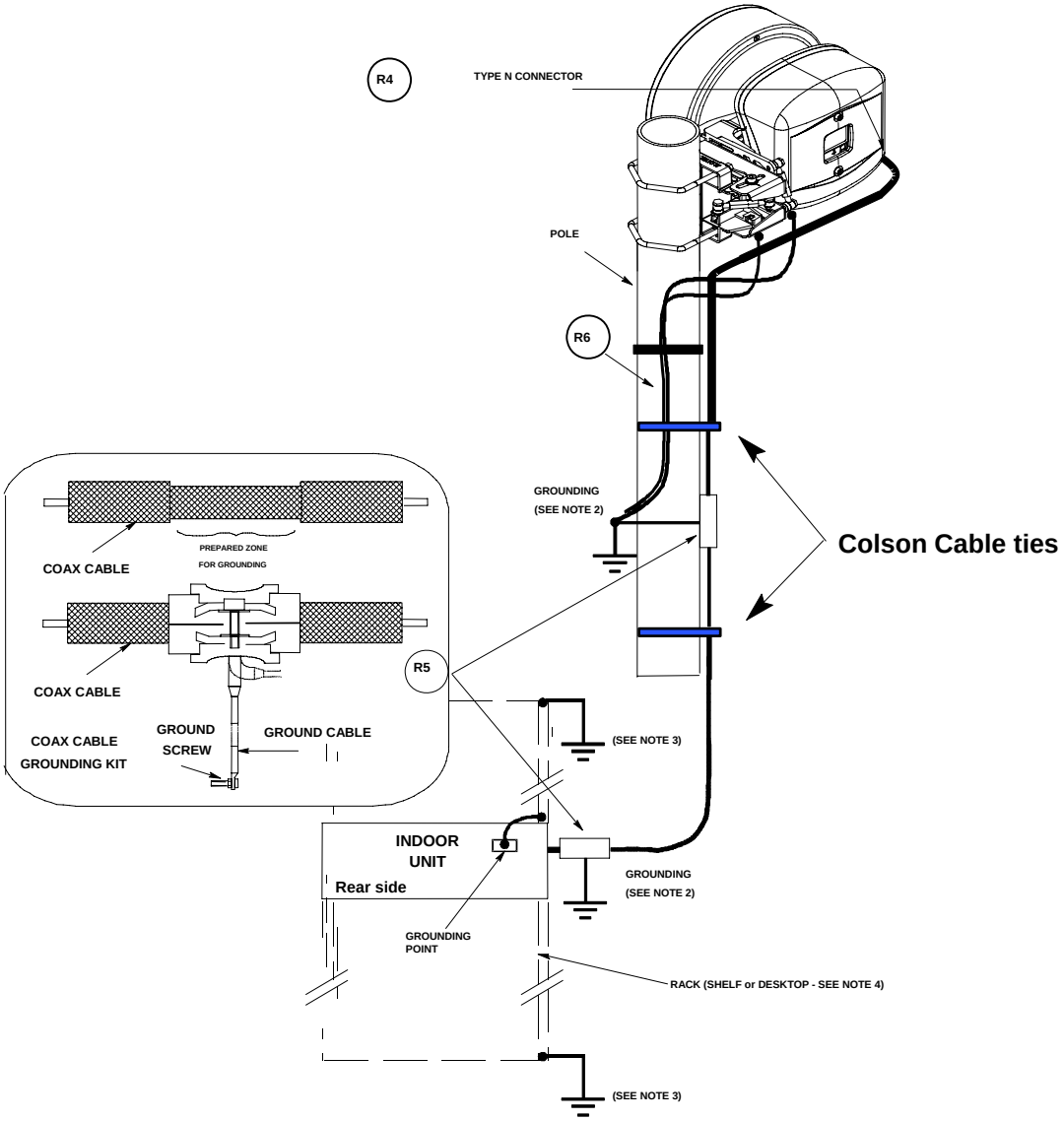


Figure 14 - Typical installation of 1+0 ODU with integrated antenna, 30 cm or 60 cm.

NOTE A:

1) The cable is fixed along the supporting pipe or pole by the normal methods (Colson cable ties are supplied in the optional consumables kit)
2) see NOTE B.
3) The rack can be connected to ground using the top or the bottom side grounding points.
4) For the installation on shelf or desktop the indoor unit must be connected to ground using the rear side grounding point.

NOTE B : Coaxial cable grounding Kit

First in prossimity of ODU
Second in prossimity of building access
In case of cable length over 80 m, the cable grounding kit must be implemented every 40 meter cable distance.

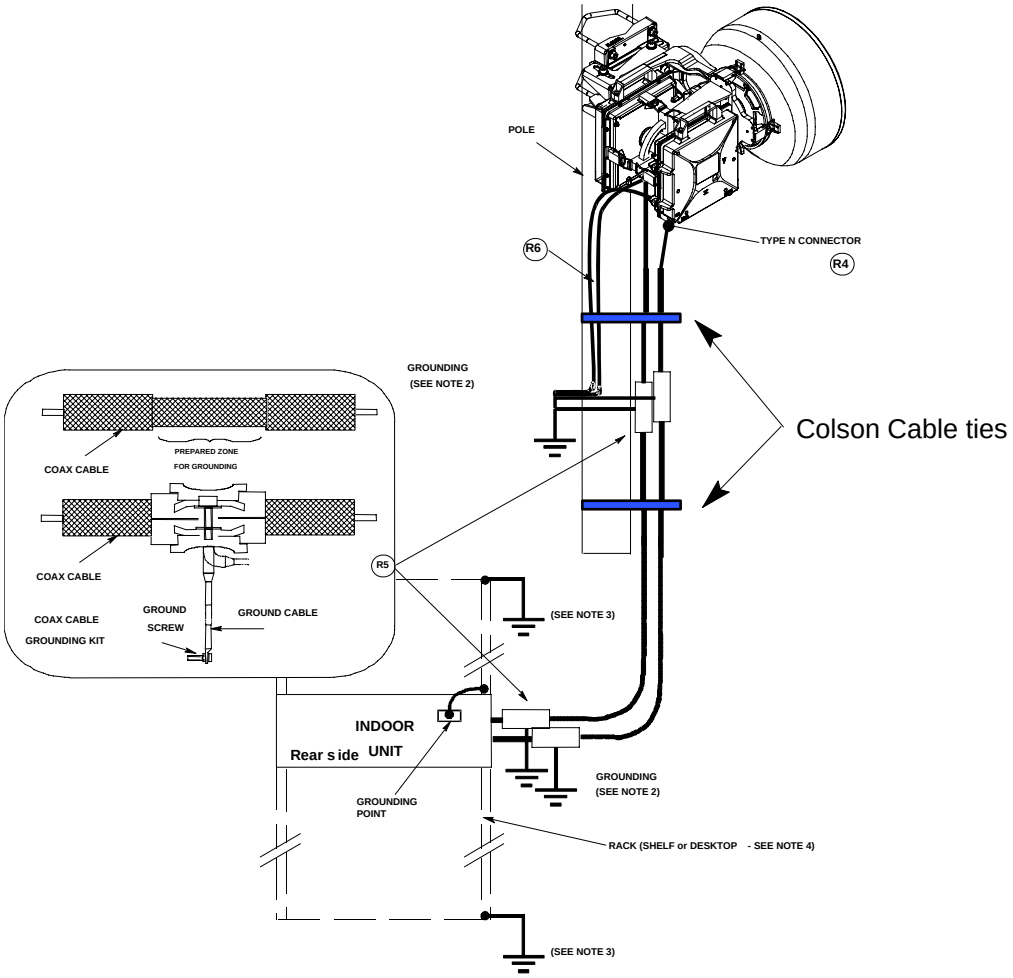


Figure 15 - Typical installation of 1+1 ODU with integrated antenna, 30 cm or 60 cm.

NOTE A:

1) The cable is fixed along the supporting pipe or pole by the normal methods (Colson cable ties are supplied in the optional consumables kit)
2) see NOTE B
3) The rack can be connected to ground using the top or the bottom side grounding points.
4) For the installation on shelf or desktop the indoor unit must be connected to ground using the rear side grounding point.

NOTE B: Coaxial cable grounding Kit

First in prossimity of ODU
Second in prossimity of building access
In case of cable length over 80 m, the cable grounding kit must be implemented every 40 meter cable distance.

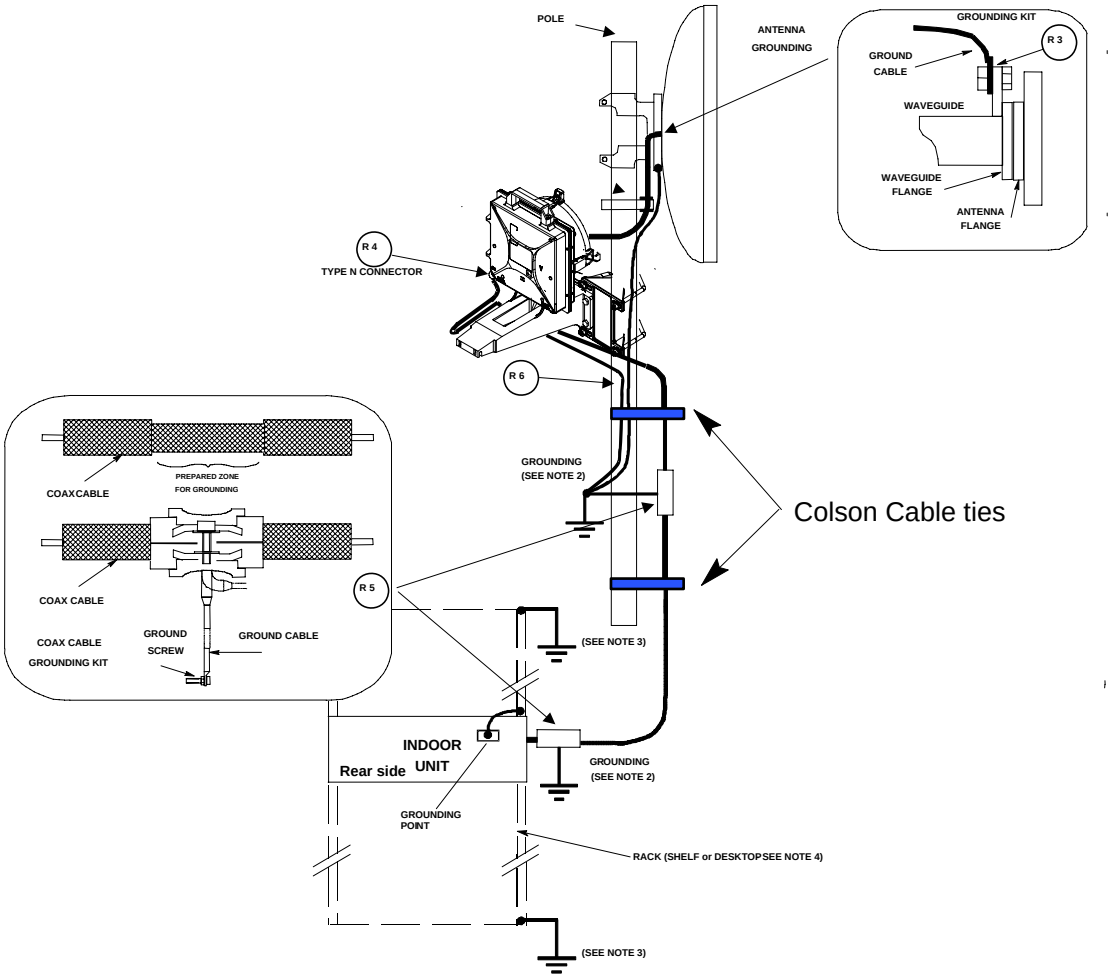


Figure 16 - Typical install. of 1+0 ODU with non integrated antenna and the 600 mm. flexible twist or optimized Wave-guide length

NOTE A:

1) The cable is fixed along the supporting pipe or pole by the normal methods (Colson cable ties are supplied in the optional consumables kit)
2) see NOTE B
3) The rack can be connected to ground using the top or the bottom side grounding points.
4) For the installation on shelf or desktop the indoor unit must be connected to ground using the rear side grounding point.

NOTE B: Coaxial cable grounding Kit

First in prossimity of ODU
Second in prossimity of building access
In case of cable length over 80 m, the cable grounding kit must be implemented every 40 meter cable distance.

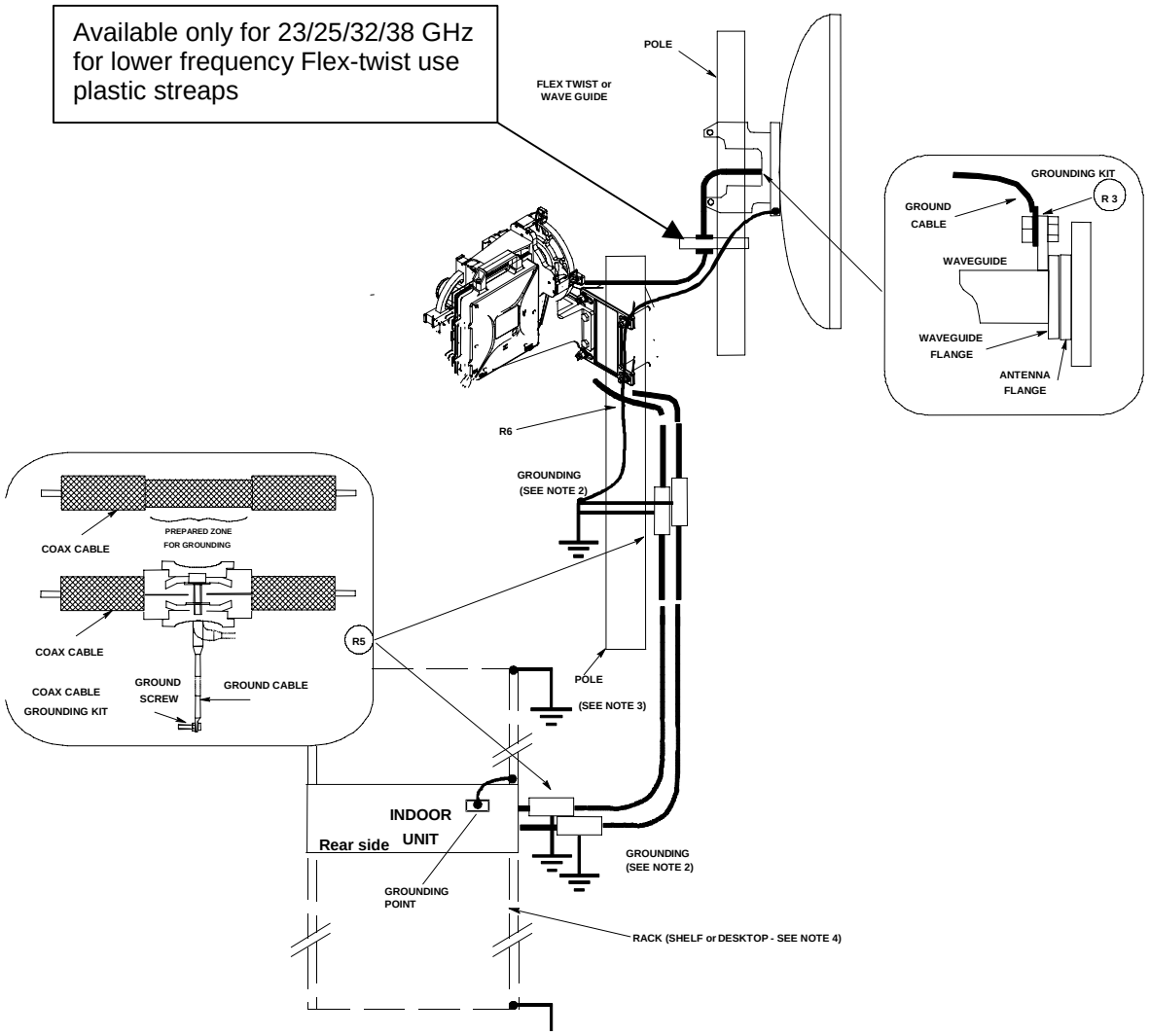


Figure 17 - Typical install. of 1+1 ODU with non integrated antenna and the 600 mm. flexible twist or optimized Wave-guide length

NOTE A:

1) The cable is fixed along the supporting pipe or pole by the normal methods (Colson cable ties are supplied in the optional consumables kit)
2) see NOTE B
3) The rack can be connected to ground using the top or the bottom side grounding points.
4) For the installation on shelf or desktop the indoor unit must be connected to ground using the rear side grounding point.

NOTE B: Coaxial cable grounding Kit

First in prossimity of ODU
Second in prossimity of building access
In case of cable length over 80 m, the cable grounding kit must be implemented every 40 meter cable distance.

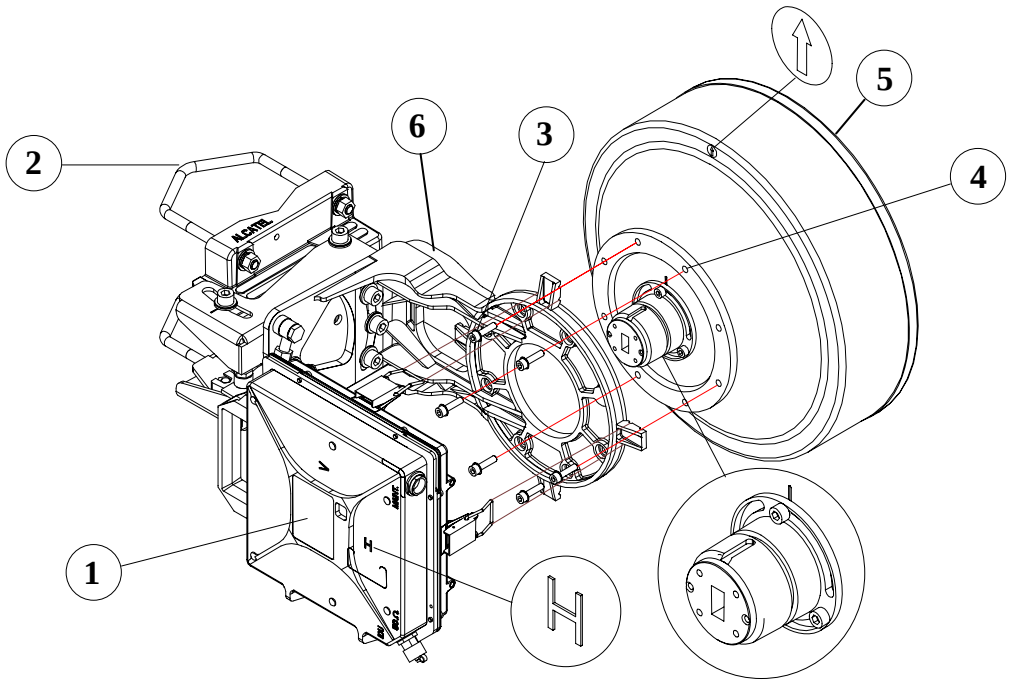
2.2. 1+0 ODU configuration Installation with integrated antenna

2.2.1. Required Parts

- Integrated antenna
  - Antenna Mounting Hardware
  - Pole Mounting Assembly
- Outdoor Unit and mounting hardware.

2.2.2. Pole mounting assembly

This assembly is valid only for integrated antenna diameters up to 0.6 m (two feet). The integrated antenna is mounted on the pole front. The outdoor “pole mounting“ system is designed for quick mechanical installation.



1) ODU radio (and detail of horizontal polarization)
2) U Bolts For Pole diameter from 90 mm up to 114 mm
3) Screws to fasten antenna to support
4) Antenna screw-fastening slots
5) Integrated Antenna (and detail of horizontal polarization)
6) Radio mounting

N.B.: To avoid equipment damage the bolt tightening torque for fixing the bolts (3) to antenna slots (4) must be 80 kg x cm (8 Newton x m) (5.76 lb.ft). For U-bolts (2) the bolt tightening torque must be 342,3 kg x cm (33,55 Newton x m) (24.65 lb.ft). Exceeding this value may result in bolt breaking.

Figure 18 - Integrated pole mounting with ODU 1+0, Horizontal Polarization

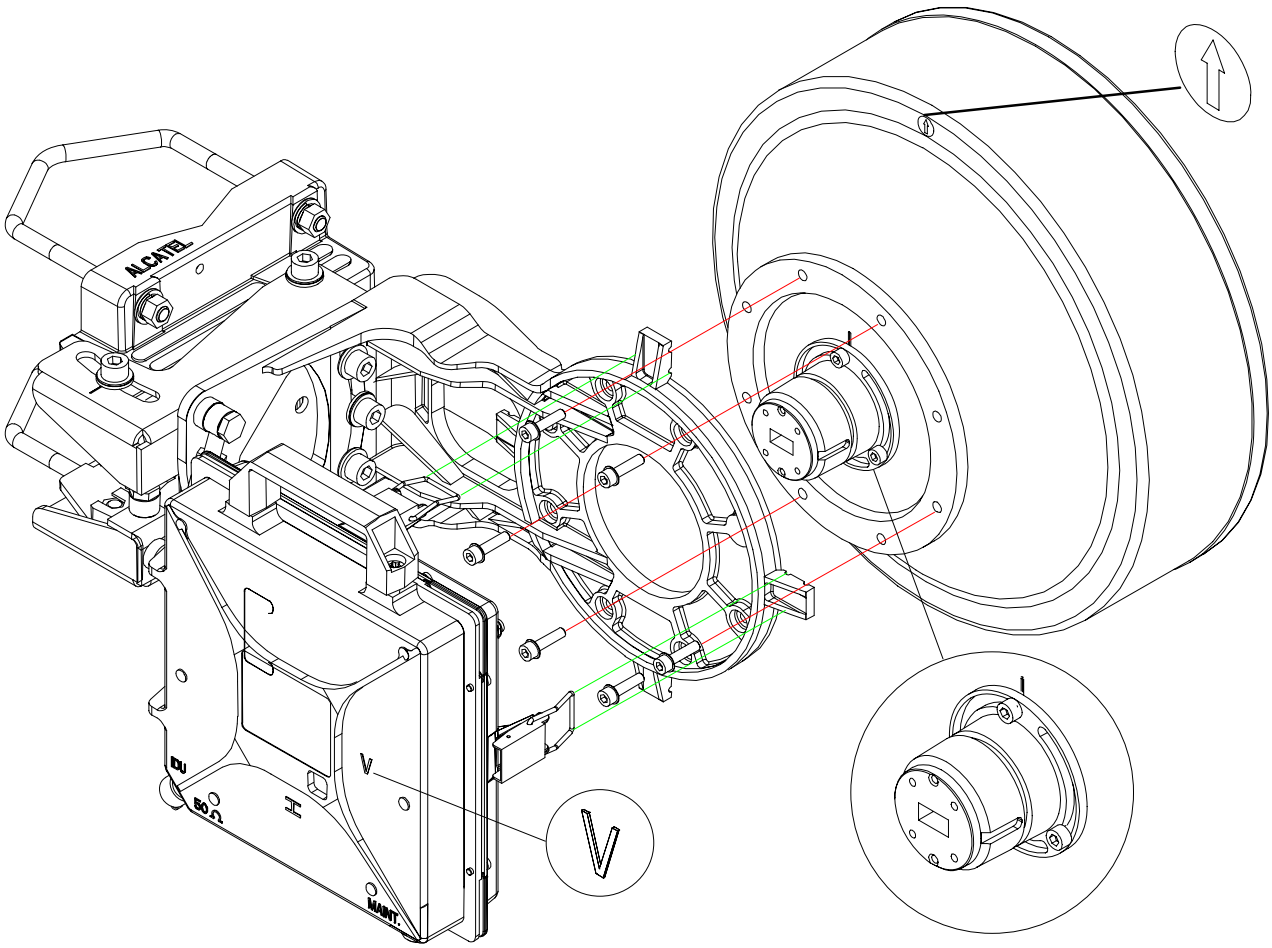


Figure 19 - Integrated antenna pole mounting with ODU 1+0, Vertical Polarization

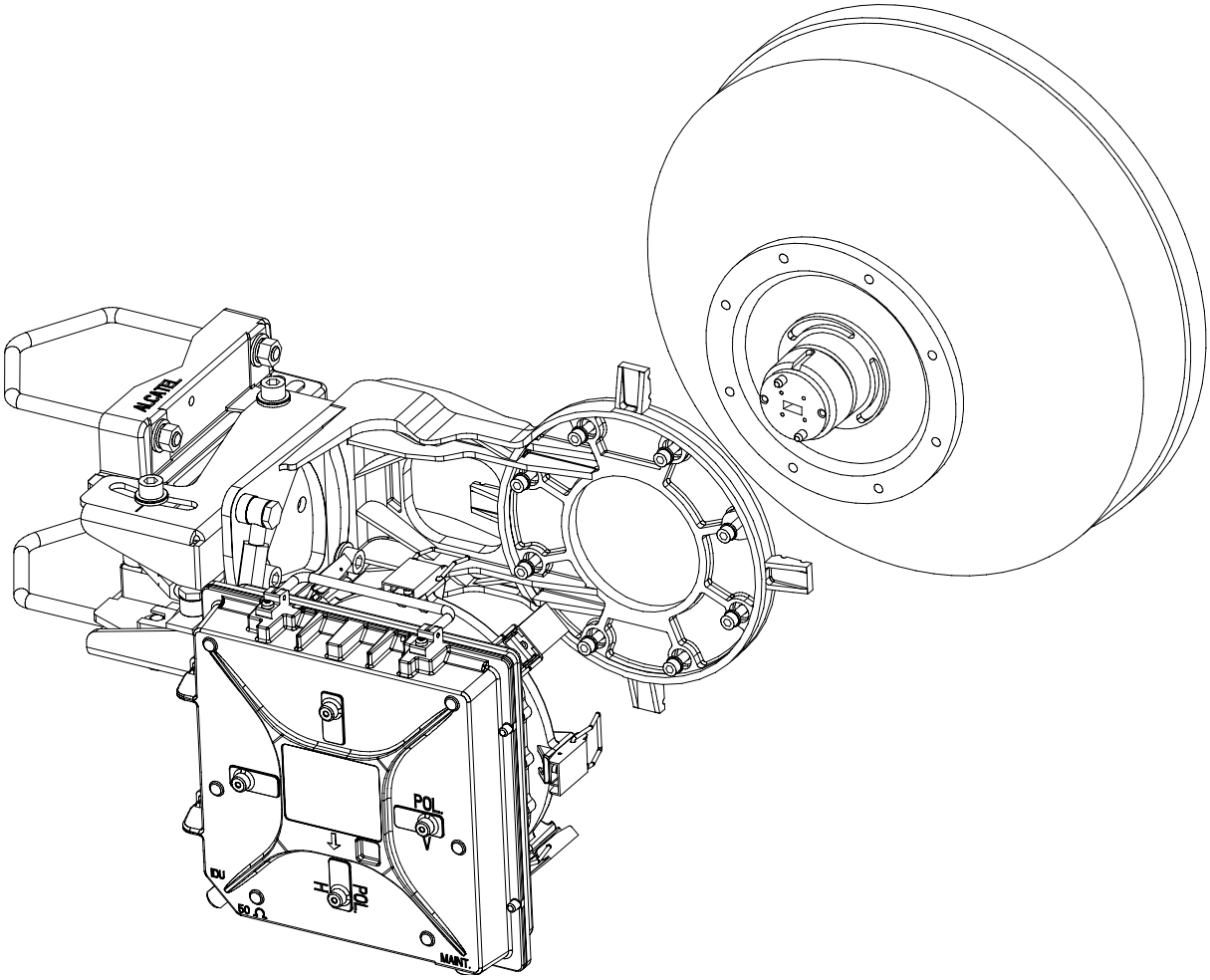


Figure 20 – 7-8 GHz Integrated antenna pole mounting with ODU 1+0, Vertical Polarization

The mechanical system can be secured to any fixing pole with a diameter of between 90 and 114 mm.
A pole diameter of 114 mm is, however, recommended. With smaller diameters, mounting is possible, if special attention is paid to the mechanical rigidity of the assembly.
There are also supports for fixing the pole to the wall: please consult us.

Various antenna types and sizes can be used, together with radio systems operating at different frequencies and in a variety of configurations.

2.2.3. General Procedural Sequence:

- **Install the pole mounting assembly on mast;** **see paragraph 2.2.4.1.**
- **Turn the Antenna Nose according to the Hop polarization** **see paragraph 2.2.4.2.**
- **Install the antenna on pole mounting,** **see paragraph 2.2.4.2.**
- **Install the ODU;** **see paragraph 2.2.5**
- **Pre-point the antenna;** **see paragraph 2.2.6**

Alternative possibility:
- *Install Antenna on pole mounting*
- *Turn Antenna nose*
- *Install pole mounting with Antenna*
- *Prepoint Antenna*
- *Install ODU*

2.2.4. Procedure

NOTE: When attaching the antenna, ODU mounting hooks, and ODU, adhere to the following:

- position the antenna with the drain hole to the bottom,
- remove the antenna node protecting plug and position the antenna node wide dimension horizontal for vertical polarization or vertical for horizontal polarization,
- position the ODU fastening hooks and the ODU horizontal for vertical polarization or vertical for horizontal polarization.

2.2.4.1. Installing the “pole mounting“ on mast

- Position the U bolts (2) on the pole fit the flat washers, “growe“ washers, nuts and lock nuts (1).
- Point the pole mounting in the required direction using a compass and a pair of binoculars, and then secure the brackets.

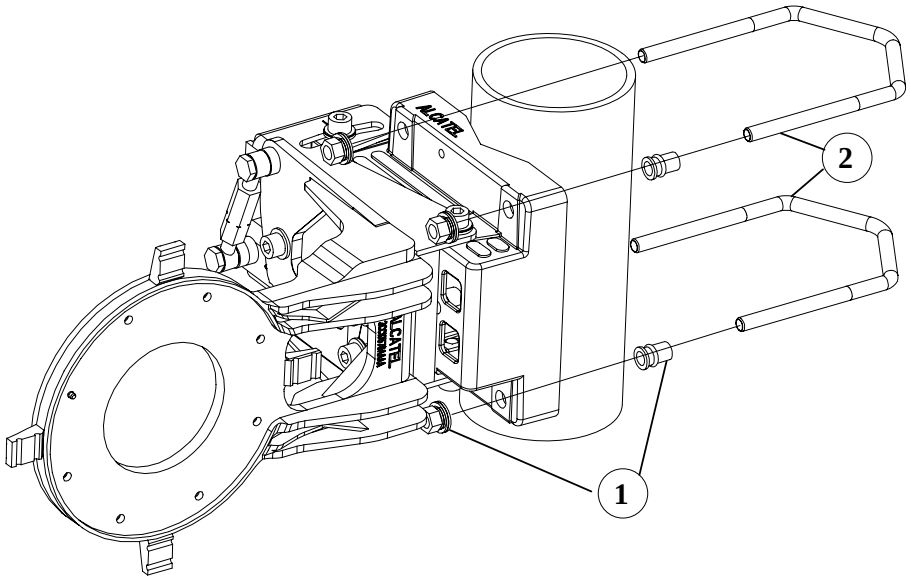
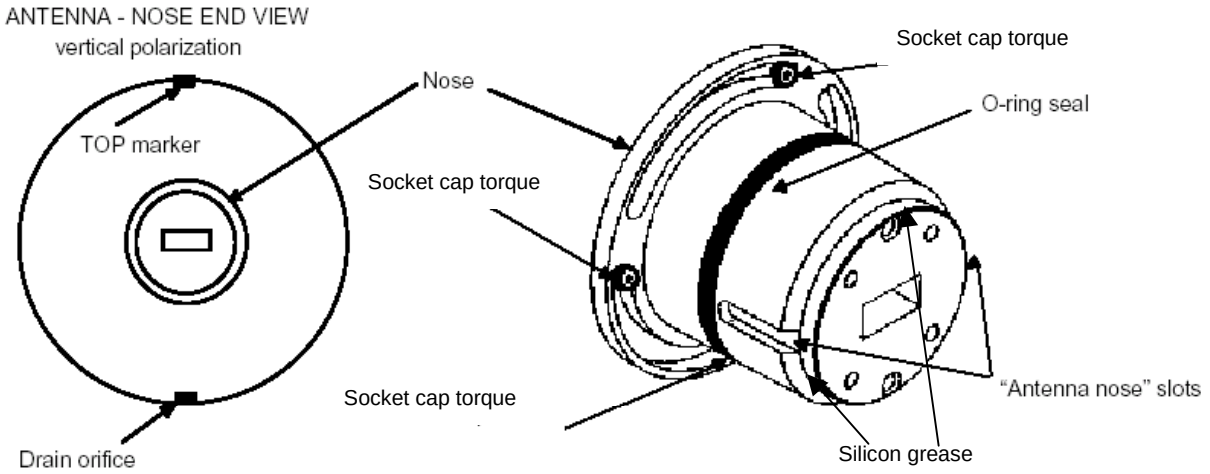


Figure 21 - Pole mounting installation for integrated antenna

2.2.4.2. Installing the antenna on the pole mounting

Turn the Antenna Nose according to the Hop polarization

- Before to position the antenna vertically (node assembling), with the drain hole in the bottom part and free of obstacles.
- Insert the M6 screws (7 in all) (1) with their “onduflex“ springy crinkle washers, tighten and secure the screws.



NB. : To turn the Antenna polarization, loose the 3 Socket cap screw and turn 90° the Nose, tight the screw
NB. : Before inserting the ODU onto the Nose, apply the sullied gel on the O-ring

Figure 22 - Change polarisation description

The antennas are normally supplied with vertical polarization. **To change the polarization**: undo the three socket cap torque and turn the nose through 90 degrees then tighten the screws again. (See Figure 23 on page 48).

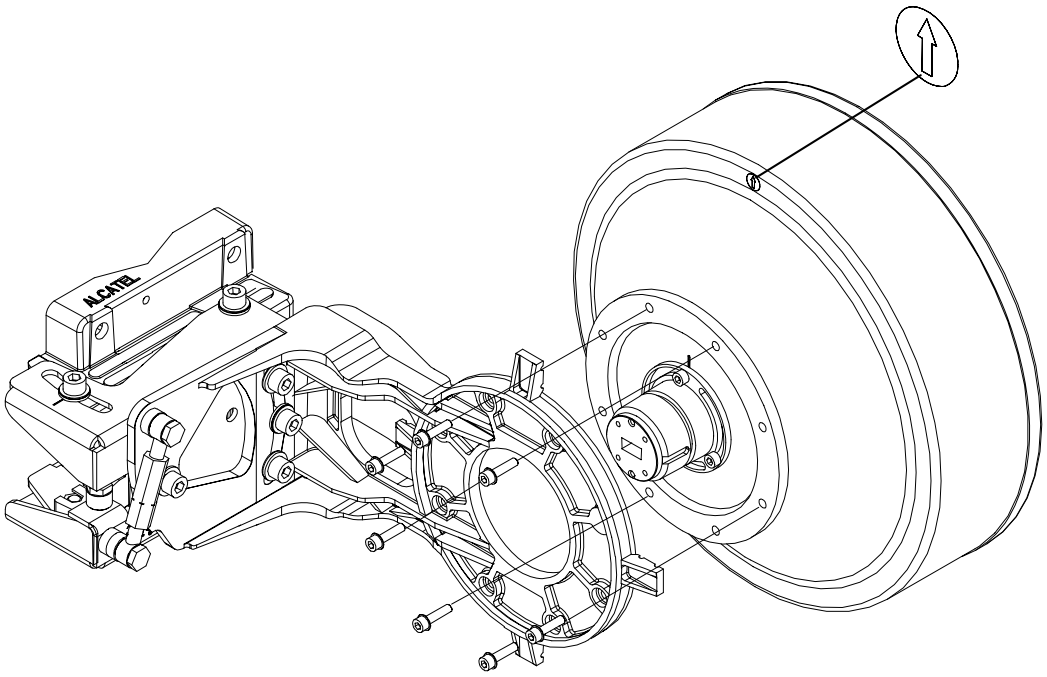


Figure 23 - Installation with integrated antenna and Vertical polarization

2.2.5. Installing the ODU

- Remove the solar shield by unscrewing the two solar shield screws
- Grasp the ODU module by the handle.
- Open the four looking hooks **(1)** arranged on the four walls of the ODU unit
- Rotate the ODU depending to horizontal or vertical polarization,
- Plug-in insert the specific brackets **(2)** to the support (Radio mounting),
- Secure the ODU module through the four hooks **(1)** on the relative brackets **(2).**
- Reinstall the solar shield onto the RT by screwing on it the two solar shield screws

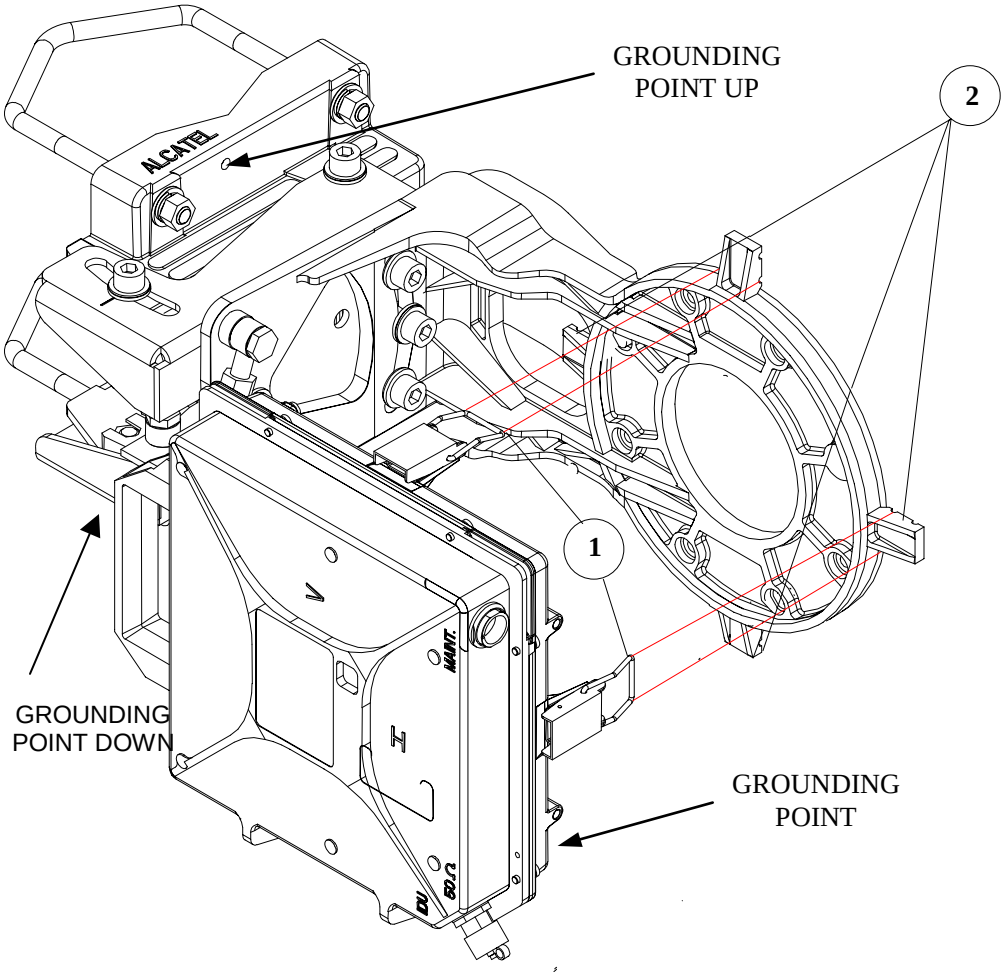


Figure 24 - ODU 1+0 installation for integrated antenna

REMINDER: The ODU/antenna assembly requires no additional seal on the SHF flanges; the two ends are smooth. The O-ring seal around the male “noses” provides sealing.

2.2.6. Pointing the antenna

2.2.6.1. Antenna mechanical pre-pointing

Overall antenna steer (with turnbuckles set to the “maximum“) is:

- Bearing: 360 degrees for 30 cm and 60 cm diameter antenna,

The steer obtained by the turnbuckles is:

- Elevation: ± 25° degrees,
- Bearing: ± 10° degrees.

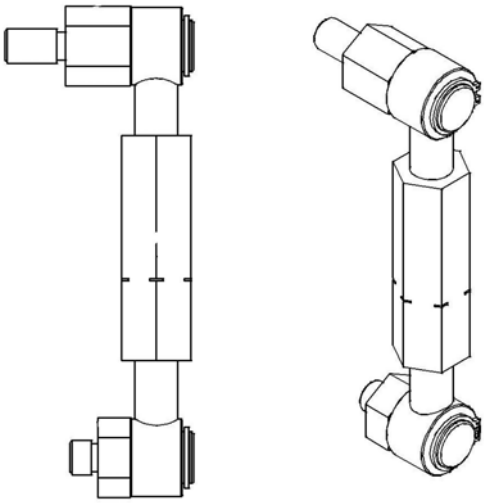


Figure 25 – Stretching screw

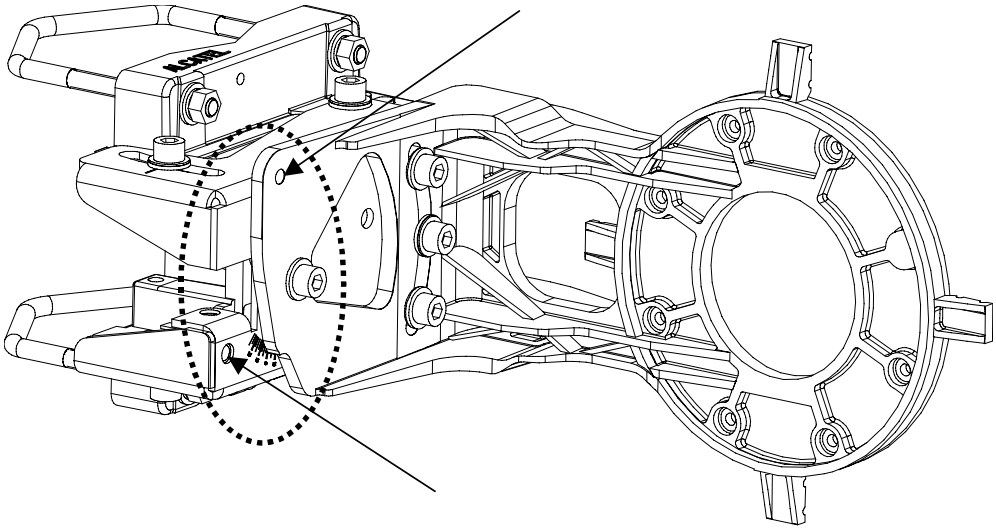


Figure 26 – Pole mounting without Stretching screw inserted

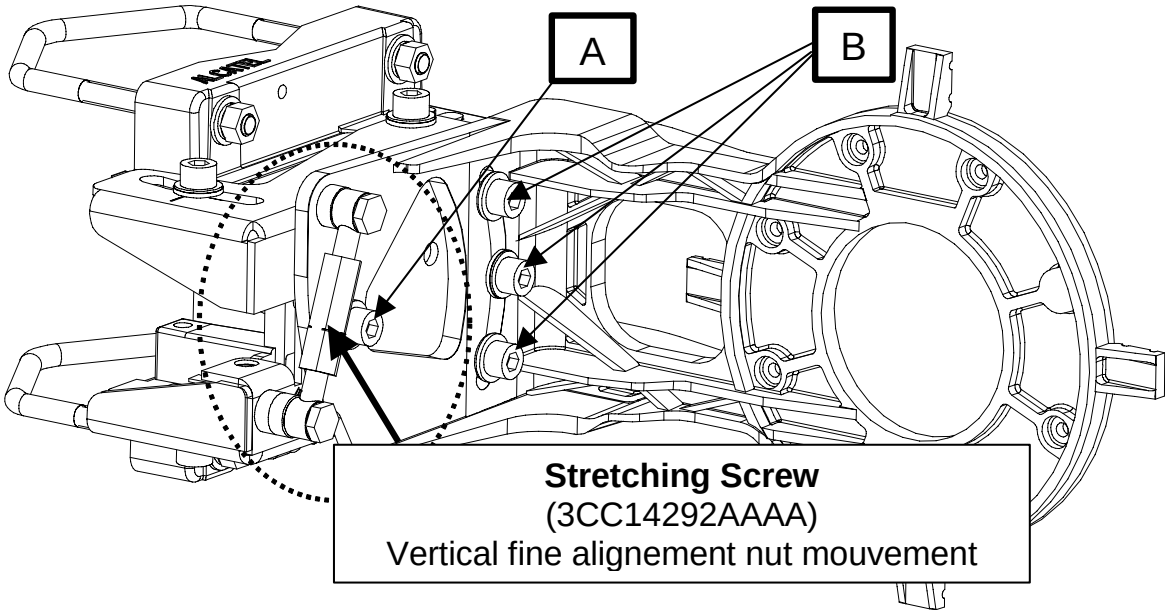


Figure 27 – Stretching screw inserted (Vertical alignmnet)

(A) Vertical position rotational axis
(B) Vertical position coarse alignment movement tighten screw

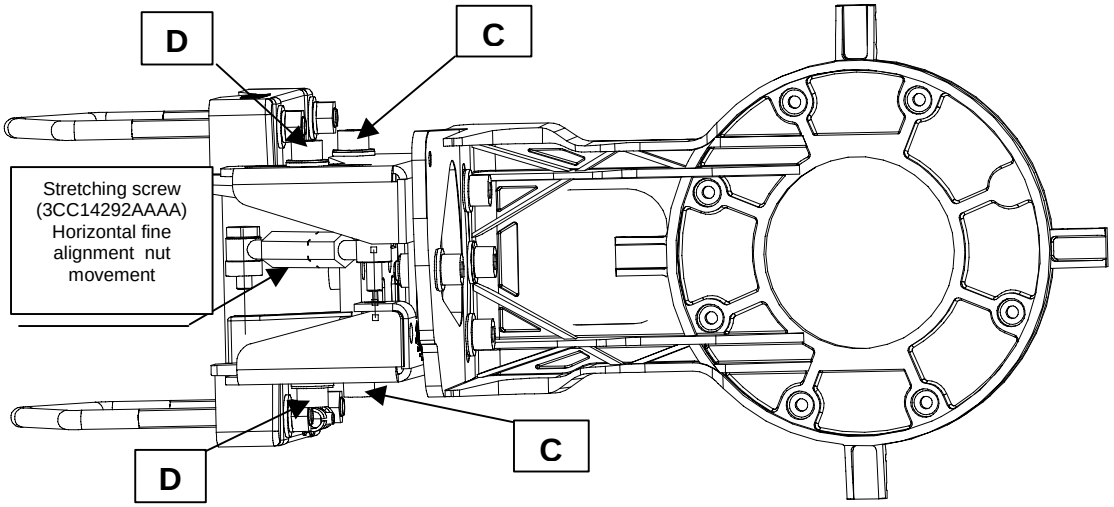


Figure 28 - Stretching screw inserted (Horizontall alignmnet)

(C) Horizontal position rotational axis
(D) Horizontal position coarse alignment movement tighten screw

First horizontal pre-pointing (azimuth)

Horizontally place the antenna according to the direction set down in the “plant documents“ where, among the various indication are indicated those concerning the “reference points“ (Position of the tower or of the building with respect to true north) in order to point the antenna in the set direction.
There are various procedures and technical means to adopt in order to mechanically pre-point the antenna, and they can be implemented in various ways according to the various configurations and to the various system conditions.
The standard instrumentation is the - compass.

Second vertical pre-pointing (zenith)

Place the antenna vertically nearest to its operating angle.
The technical and operative procedure adopted to vertically point the antenna is as that previously implemented to horizontally pre-point.

Note

a) At the end of the pre-pointing operation, slowly block all the horizontal and vertical regulating system of the antenna taking care not to modify dish direction

b) Final antenna pointing (or connection) shall be established only after all the Antenna and ODU system is fully installed.

NOTE: for more information see the “9400AWY REL.2.0 - Line Up Guide (3DB06687EAAA Ed.02)” ANNEX A – *Antenna Alignment”*

2.2.6.2. Installation on the wall information

Note: In certain pole mounting installation circumstances, due to various reasons such as protrusions from the wall, it might be useful to mount as shown on page 52 in order to easily install ODU module.

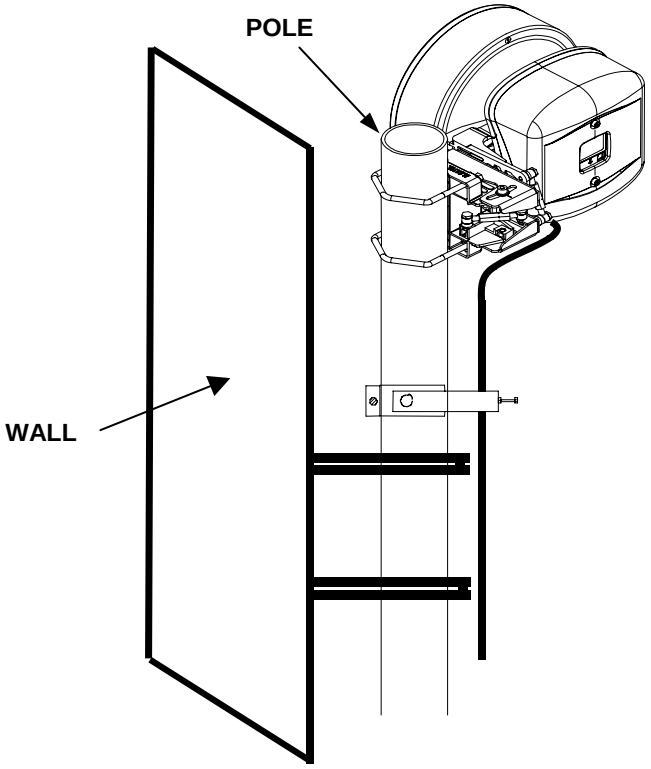


Figure 29 - Pole mounting near a wall

2.3. 1+1 ODU configuration Installation with integrated antenna

2.3.1. Required Parts Listing

- Integrated antenna
- Antenna Mounting Hardware .
- Pole Mounting Assembly
- Outdoor Unit and mounting hardware.

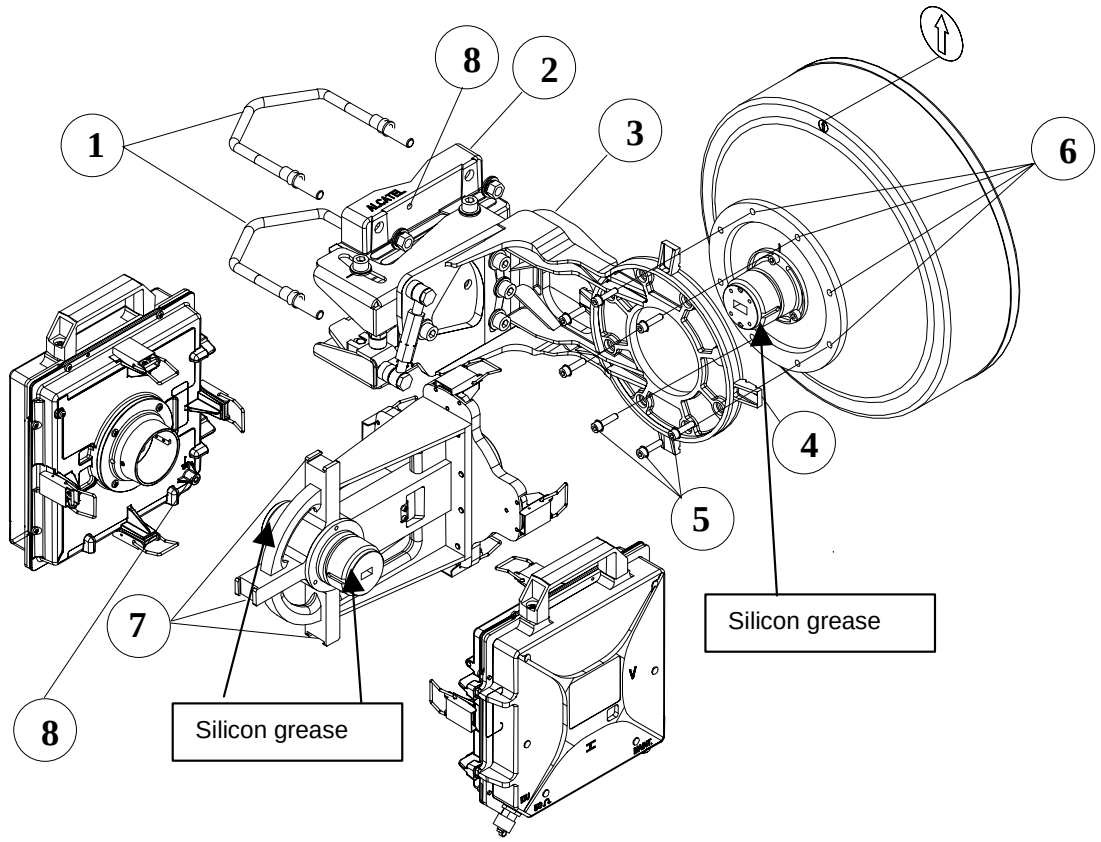


Figure 30 - Typical installation pole mounting with ODU 1+1 for integrated antenna

1) U bolts
2) Pole mounting
3) Radio mounting
4) Fastening points for COUPLER
5) Screws fastening the antenna to the support
6) Antenna screw-fastening slots
7) RF Coupler Fastening brackets for ODU
8) Grounding points

N.B.: To avoid equipment damage the bolt tightening torque for fixing the bolts (5) to antenna slots (6) must be 80 kg x cm (8 Newton x m) (5.76 lb.ft). For U-bolts (1) the bolt tightening torque must be 342.3 kg x cm (33.55 Newton x m) (24.65 lb.ft). Exceeding this value may result in bolt breaking.

2.3.2. General Procedural Sequence

- Install the pole mounting assembly on mast; see paragraph 2.2.4.1;
- Install the antenna on the pole mounting, see paragraph 2.2.4.2;
- Install the Coupler, see paragraph 2.3.3.1;
- Install the ODU, see paragraph 2.2.5;
- Point the antenna, see paragraph 2.2.6.

2.3.3. Typical 1+1 installation

2.3.3.1. Installing the coupler

Grasp the coupler by the handle. Fasten the coupler to the support through the four locking hooks (1) that will be tightened onto the relative fastening brackets on the radio support (2).

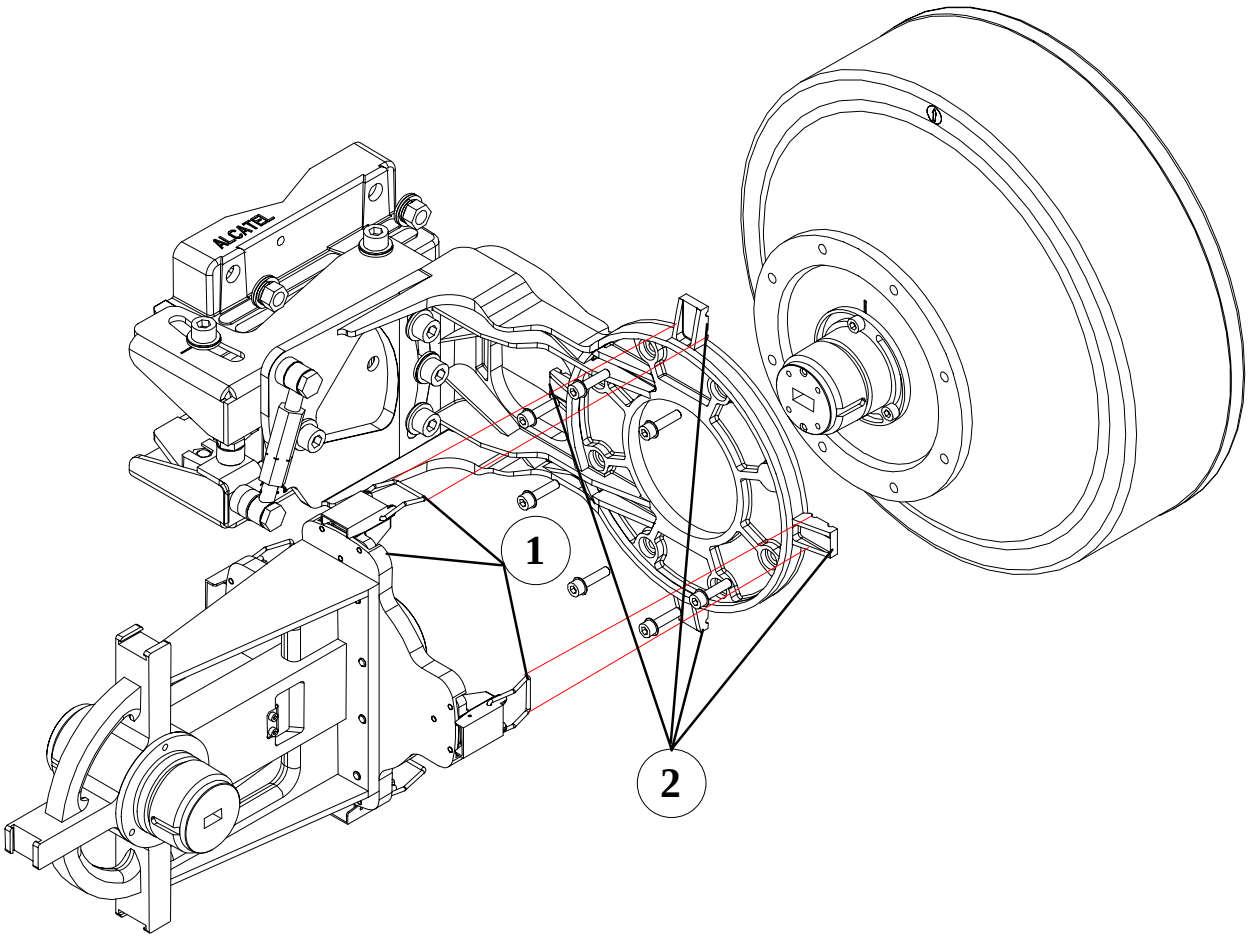


Figure 31 - Installing the Coupler To the Radio Support

2.3.3.2. Installing the ODU 1+1

Grasp two modules ODU by the handle. Fasten the ODU module to the support through the locking hooks (3) that will be tightened onto the relative fastening bracket on the coupler (4).

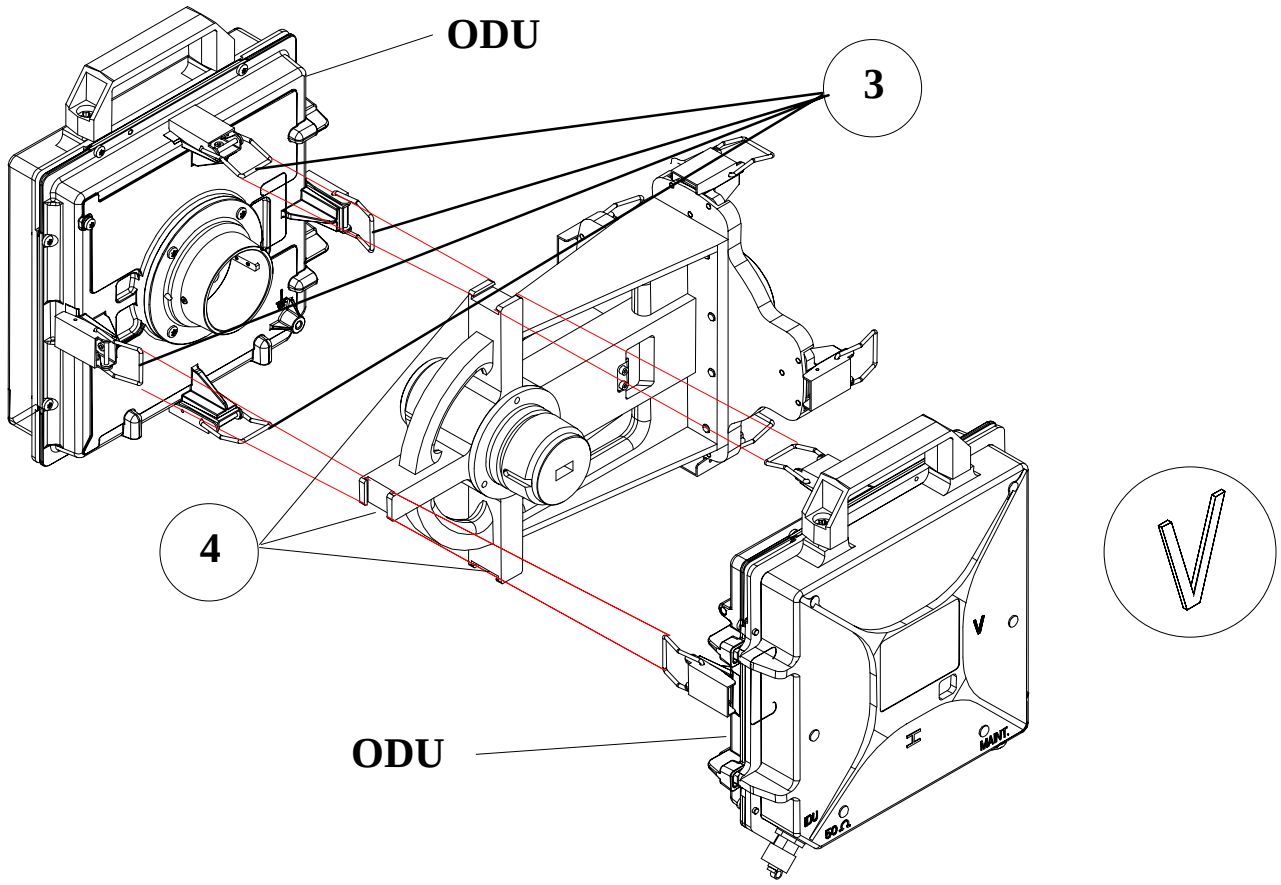


Figure 32 - Installing the RF coupler with ODU 1+1 for integrated antenna

3. CHANGE POLARIZATION IN 1+1 CONFIGURATION

The axial adaptation between H polarization to V polarization (and viceversa) is a mechanical/electrical adjustment. Every mechanical “STEP” is 30° adjustment.

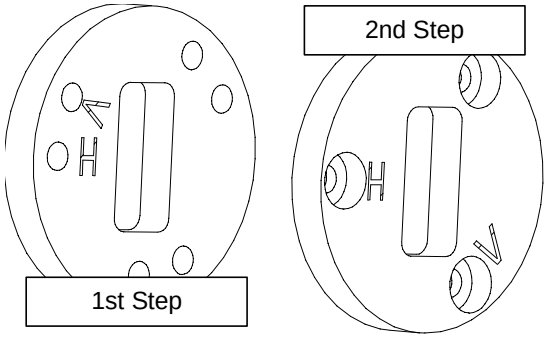


Figure 33 – 1st Step and 2nd step

3.1. Change Polarizatione Procedure

1st Step = internal 30° rotate

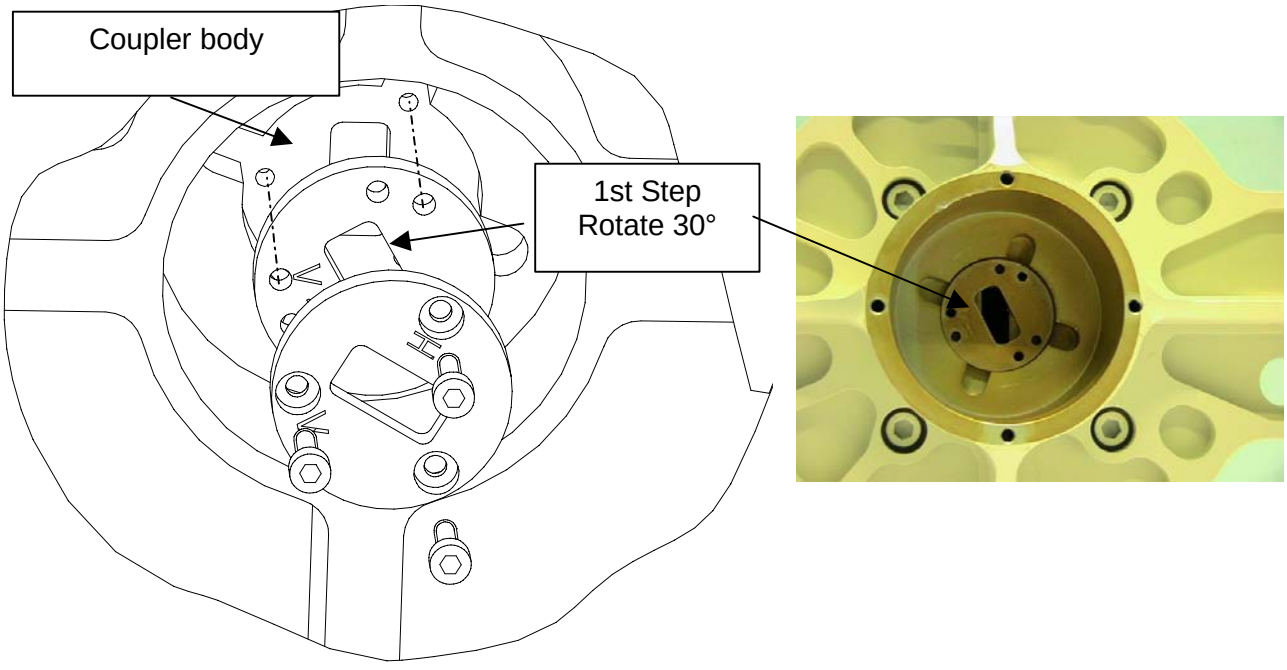


Figure 34 – 1st Step inserted

2nd Step= cover + screws 60°(30°+ 30°) rotate

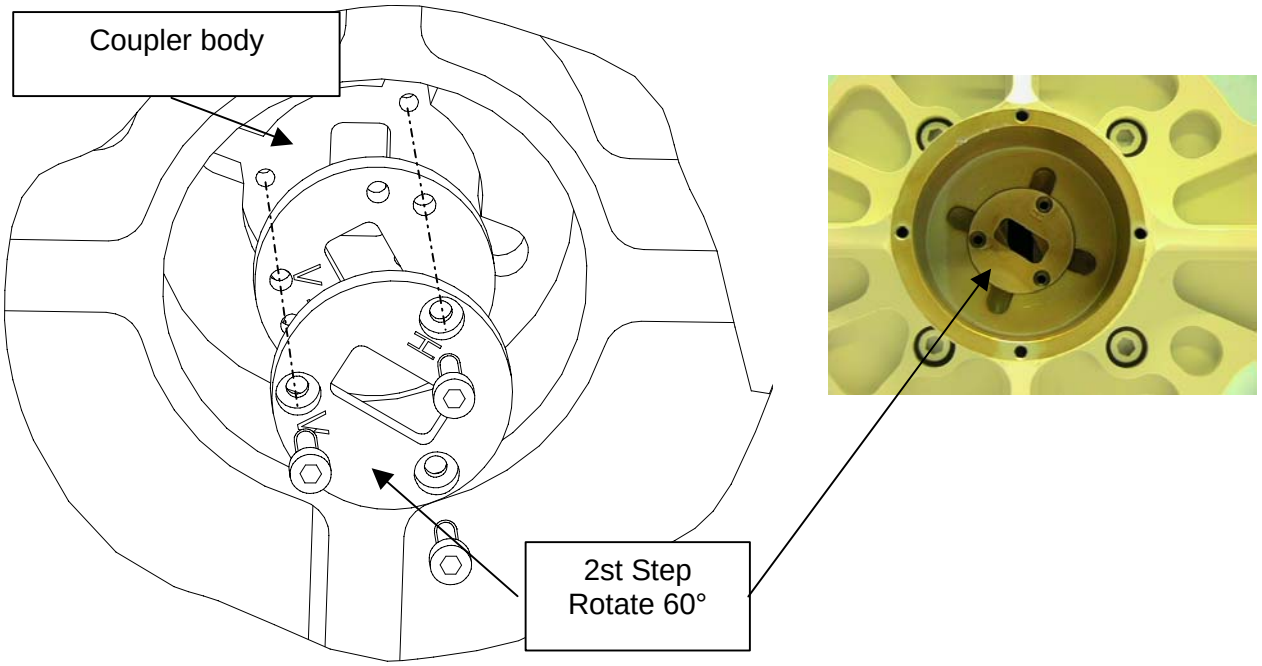


Figure 35 – 2nd Step inserted

The “spigot” in the Integrated Antenna configuration is 30° and complete the change of polarization (90°).

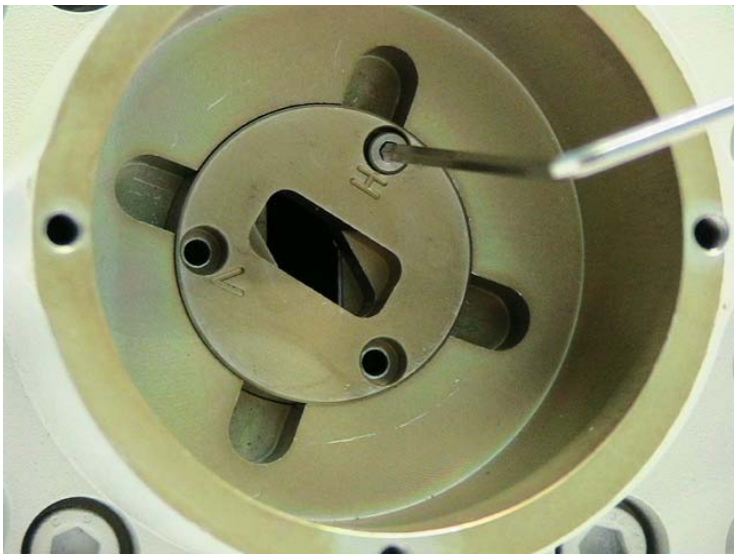


Figure 36 – Screws fixing

4. 1+0 ODU CONFIGURATION INSTALLATION WITH NON-INTEGRATED ANTENNA

4.1.1. Required Parts Listing

- Non Integrated antenna
- Antenna Mounting Hardware and instructions (supplied by manufacturer).
- Pole Mounting Assembly
- Outdoor Unit and mounting hardware.
- Flexible waveguide, gaskets, and fasteners or standard waveguide and flanges.

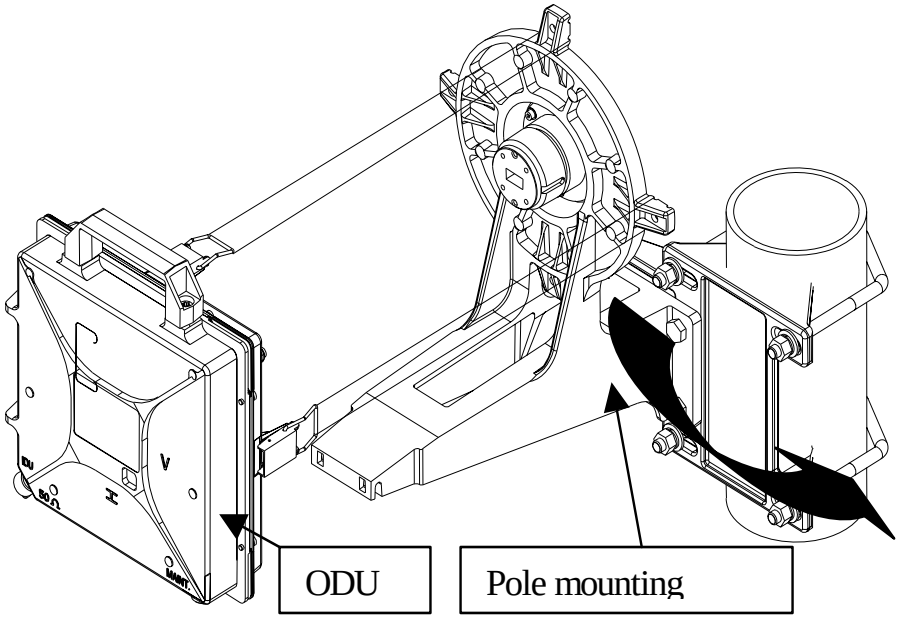


Figure 37 - Pole mounting installation for not integrated antenna with ODU 1+0

NB: Pole mounting can be installed on the Right or Left hand side of the pole.

4.1.2. General Procedural Sequence

- Install the antenna on the mast, according to the instructions given by the manufacturer and supplied with the antenna, and prepoint the antenna towards the remote station;
- install the pole mounting on the mast, see paragraph 4.1.3;
- install the ODU, see paragraph 4.1.3.2;
- install the flextwist (suited to the frequency) between the Pole M. Nose adaptor and the antenna Nose Adaptor, see paragraph 4.1.5.

4.1.3. Install the pole mounting on the mast.

4.1.3.1. Pole mounting assembly

This assembly is valid only for non-integrated antenna.

The outdoor “pole mounting“ system is designed for quick mechanical installation.

The mechanical system can be secured to any fixing pole with a diameter of between 90 and 114 mm.
A pole diameter of 114 mm is, however, recommended. With smaller diameters, mounting is possible, if special attention is paid to the mechanical rigidity of the assembly.
There are also supports for fixing the pole to the wall: please consult us.
Various antenna types and sizes can be used, together with radio systems operating at different frequencies and in a variety of configurations.

4.1.3.2. Installing the “pole mounting“

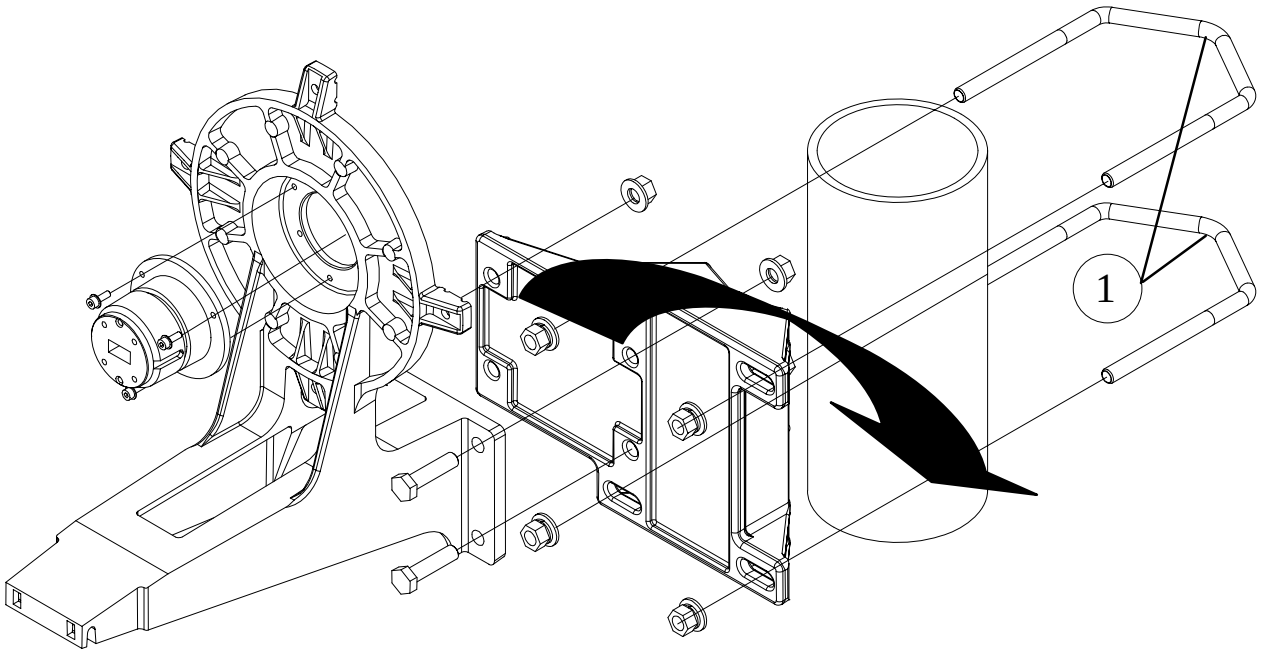


Figure 38 - Installation of the pole mounting for not integrated antenna

NB: Pole mounting can be installed on the Right or Left hand side of the pole.

- Position the Pole mounting support on the pole side as shown in the plant documentation.
- Position the U bolts (1) on the pole, fit the flat washers, “growe“ washers, nuts and lock nuts (2).
- Point the pole mounting in the required direction using a compass and a pair of binoculars, and then secure the brackets.
- **To change the polarization**: undo the three socket cap screws and turn the nose through 90 degrees then tighten the screws again. See Figure 23 on page 48.

4.1.4. Installing the ODU

NB: Pole mounting can be installed on the Right or Left hand side of the pole.

- Take off the solar shield by unscrewing the two screws placed on the solar shield back panel.
- Grasp the ODU module by the handle. Open the four looking hooks **(1)** arranged on the four walls of the ODU unit
- Position the Pole mounting support on the pole side as shown in the plant documentation.
- Position the ODU for desired polarization (horizontal or vertical),
- Connect the specific brackets **(2)** to the support (Radio mounting),
- Secure the ODU module through the four hooks **(1)** onto the relative brackets **(2)**.
- Put back the solar shield by screwing the two screws placed on the solar shield back panel.

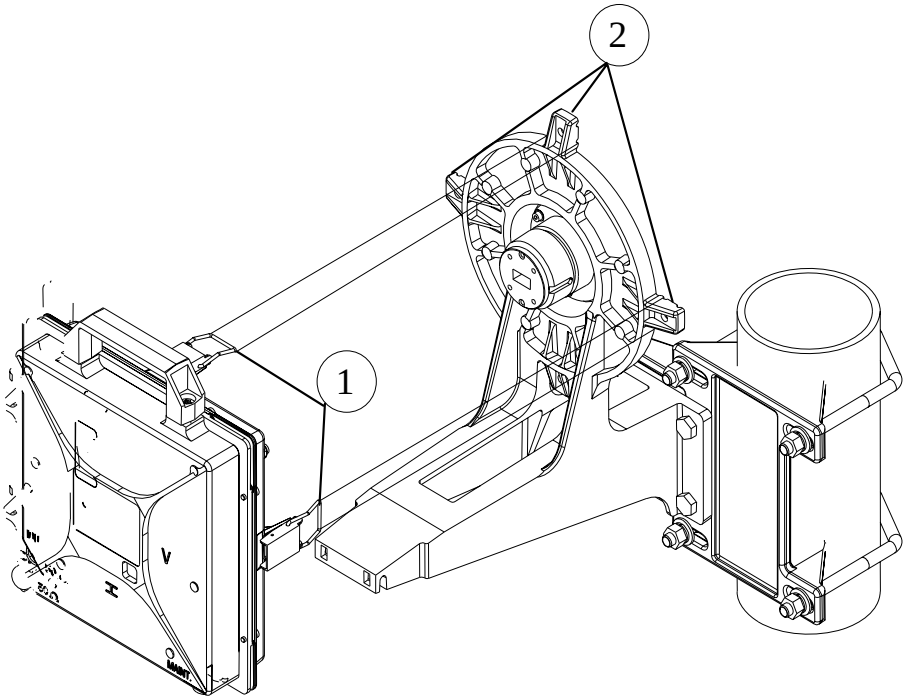


Figure 39 - ODU 1+0 installation for not integrated antenna

REMINDER: The ODU/antenna assembly requires **no additional seal on the SHF flanges**; the two ends are smooth. The O-ring seal around the male “noses” provides sealing.

4.1.5. Installing the “Flextwist“ waveguide

This 600mm long twistable flexible waveguide is supplied complete with gaskets and fasteners. At one end, it has a smooth square flange (to be mounted on the antenna) and at the other end, a grooved square flange designed to accommodate an O-ring seal (mounted at the ODU end). The kit comprises:

- One 600 mm “flextwist“ waveguide;
- One O-ring seal for square flange,
- Eight M4x20 or M3x16 stainless steel socket cap screws (13/15 Ghz or 18/23/25 GHz versions respectively);
- Eight M4x12 (13/15 GHz) or M3x12 (18/23/25 GHz) stainless steel socket cap screws;
- Sixteen 18/10 stainless Z4 (13/15 GHz) or Z3 (18/23/25 GHz) flat washers;
- Sixteen 18/10 stainless B4 (13/15 GHz) or B3 (18/23/25 GHz) “Onduflex“ springy crinkle washers;
- Eight 18/10 stainless HM4 (13/15 GHz) or HM3 (18/23/25 GHz) hex nuts;
- Eight M3 x 10 stainless steel (28/31/38 GHz)
- One record of measurements taken on the waveguide.

REMEMBER TO FIT THE SEALS AND TIGHTEN THE SCREWS.

4.1.6. Installing with waveguide

For assembly with non-integrated antenna the connection between the ODU Unit and the antenna must be via standard waveguide and flanges (see Table 15 on page 61).

Table 15 - Standard waveguide and flanges

Equipment	Frequency	Output flange at radio unit ETSI	Output flange At flexible wave guide	Wave guide ETSI
7-8 GHz	7.1 – 8.5	UDR 84	PDR 84	R84
11 GHz	12.7 – 13.3	UBR 140	PBR 140	R140
13 GHz	12.7 – 13.3	UBR 140	PBR120	R120
15 GHz	14.2 – 15.4	UBR 140	PBR140	R140
18 GHz	17.7 – 19.7	UBR 220	PBR 220	R220
23 GHz	21.2 – 23.6	UBR 220	PBR220	R220
24/25 GHz	24.5 – 26.5	UBR 220	PBR220	R220
28 GHz	27.5 – 29.5	UBR 320	PBR320	R320
31/32 GHz	31 - 33.4	UBR 320	PBR320	R320
38 GHz	37 – 40	UBR 320	PBR320	R320

4.2. 1+1 ODU configuration Installation with non-integrated antenna

Figure 40 on page 62 shows the pole mounting assembling with ODU 1+1 unit.

4.2.1. Required Parts Listing

- Non-integrated antenna
- Antenna mounting hardware and instructions (supplied by manufacturer)
- Pole Mounting Assembly
- RF Coupler
- Outdoor unit and mounting hardware
- Flexible waveguide, gaskets, and fasteners

4.2.2. General Procedural Sequence

- Install the antenna on the mast, according to the instructions given by the manufacturer and supplied with the antenna, and prepoint towards the remote station using a compass and pair of binoculars;
- Install the pole mounting on the mast; see paragraph 4.1.3;
- Install the RF Coupler
- Install the ODU; see paragraph 4.2.3.1;
- Install the flextwist (suited to the frequency) between the pole mounting nose adaptor and the antenna nose adaptor; see paragraph 4.1.5.

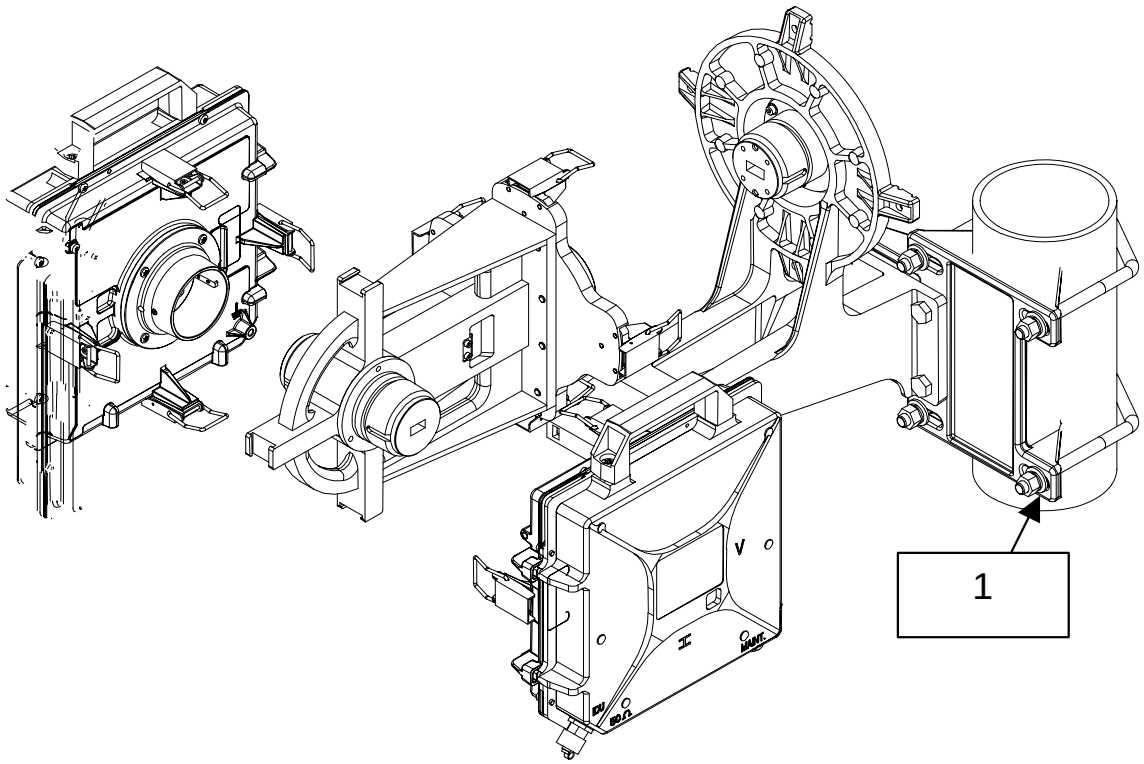


Figure 40 - Pole mounting with ODU 1+1 for not integrated antenna

N.B.: For U-bolts (1) the bolt tightening torque must be 342.3 kg x cm (33.55 Newton x m)(24.65 lb.ft). Exceeding this value may result in bolt breaking.

4.2.3. Installing the Coupler

- Grasp the coupler by the handle. Fasten the coupler to the support through the four locking hooks **(1)** that will be tightened onto the relative fastening brackets on the radio support **(2).**

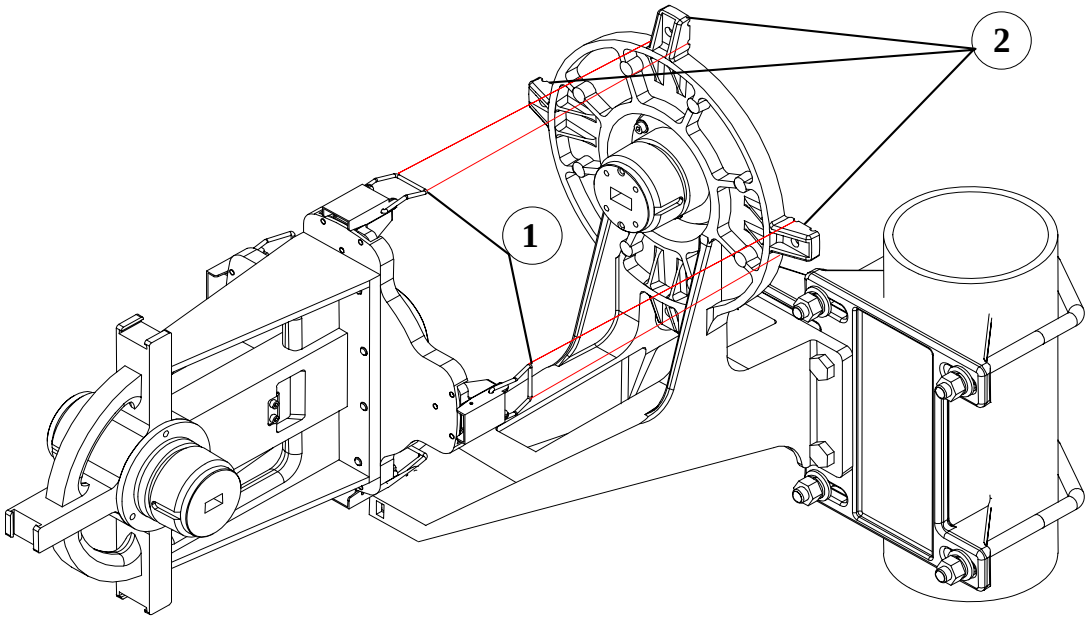


Figure 41 - Installation of the Coupler on the pole mounting

4.2.3.1. Install the ODU

- Grasp two modules ODU by the handle. Fasten the ODU module to the support through the locking hooks (**3**) that will be tightened onto the relative fastening bracket on the coupler (**4**).
- Reinstall the solar shield onto the ODU.

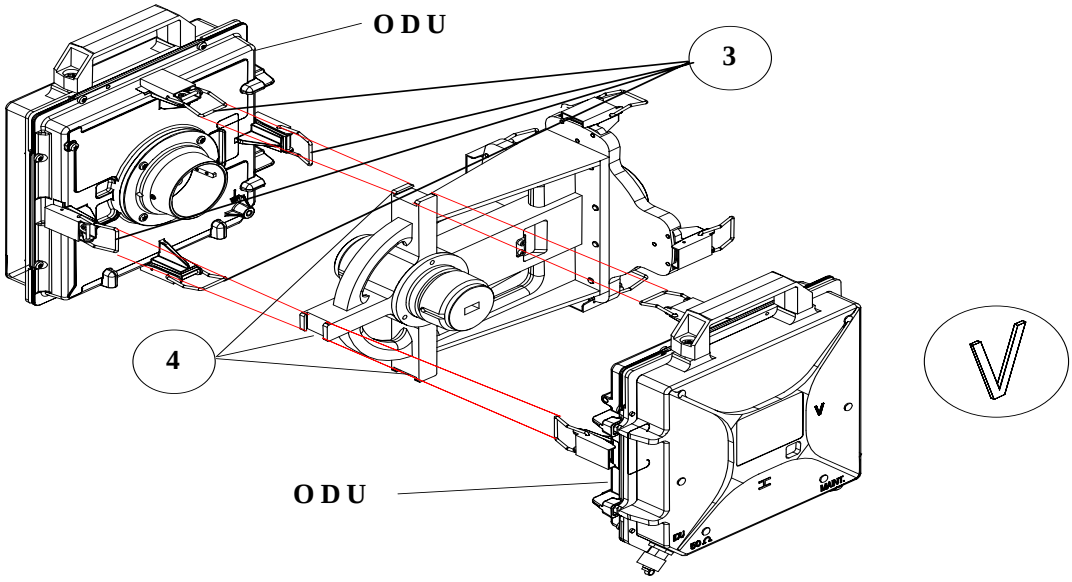


Figure 42 - Installation of ODU 1+1 on the pole mounting for not integrated antenna

4.3. Solar shield Installation

Figure 43 on page 64 shows the solar shield mounting example (using screws) for ODU 1+0. The same procedure applies to the 1+1 configuration.

NB. Solar shield has to be installed only after ODU installation.

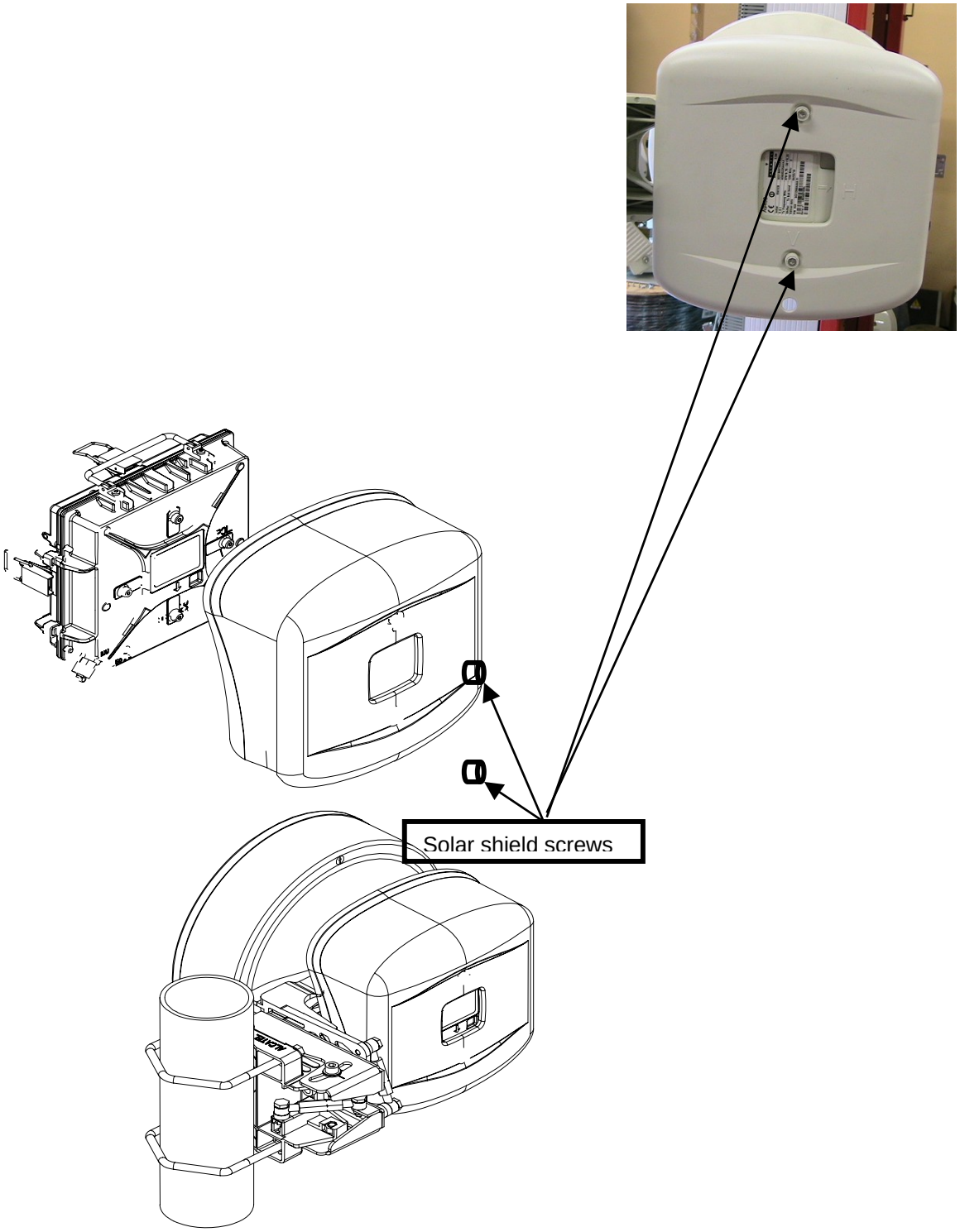


Figure 43 - Solar shield installation ODU 1+0

4.3.1. IDU / ODU cable grounding kit assembling

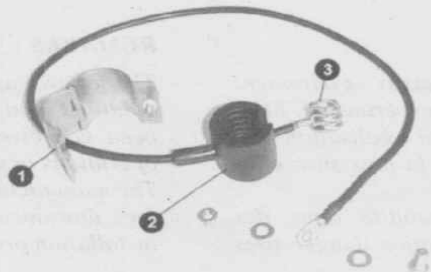
/ Electrical and mechanical characteristic.

Caractéristiques :

- Structure compacte, installation rapide
- Testé aux décharges atmosphériques
- Faible résistance de contact (< 1 mΩ)
- Indice d'étanchéité : IP 65
- Résistant à la corrosion
- Attestation : CESI MIL STD 1757 (1980)

Matériel :

1. Coquille : Acier Inox AISI 304 (V2A)
2. Garniture : Caoutchouc EPDM
3. Contact : Cuivre



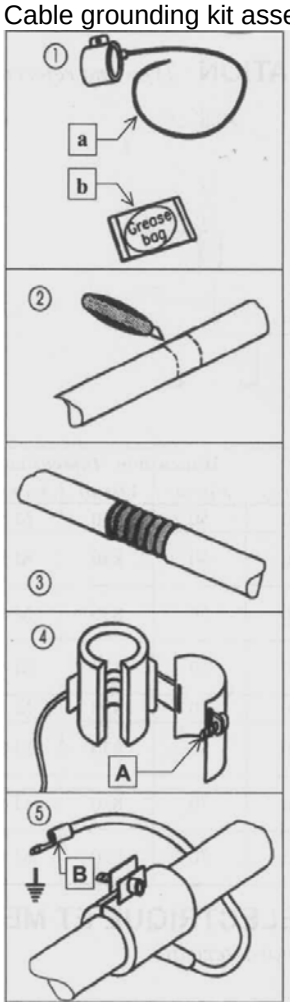
Technical features :

- *Fast, easy and reliable installation*
- *No loose parts*
- *Lightning tested*
- *Low contact resistance (< 1 mΩ).*
- *Waterproof : IP 65*
- *Corrosion resistant*
- *Certification : CESI according to MIL STD 1757 (1980)*

Material :

1. *Shell : stainless steel AISI 304 (V2A)*
2. *Gasket : Rubber EPDM.*
3. *Contact : Copper*

Cable grounding kit assembling description:



1.
Grounding kit is composed of :

a . *Ground clamp of the selected model (unless otherwise specified, the supplied cable is in black color).*

b . *Bag of silicone grease to lubricate the EPDM gasket surface.*

2 .
Select a straight cable section, where the sheath is uniform.
Make an engraving on the sheath, with a cut width **X** *as indicated in the table on page 1 of 2.*
Be careful to avoid damages to the outer copper conductor of the cable.

3 .
Remove the section of the sheath where bare metal contact is required.
Carefully clean the outer conductor to ensure the best electrical contact.
Protect cable sheath with silicone lubricant.

4 .
Carefully open the contact clip and place it over the outer copper conductor of the cable.
Close the clamp and tight the fixing screw **A**.

5 .
Fix the cable lug **B** *to the ground of the tower.*

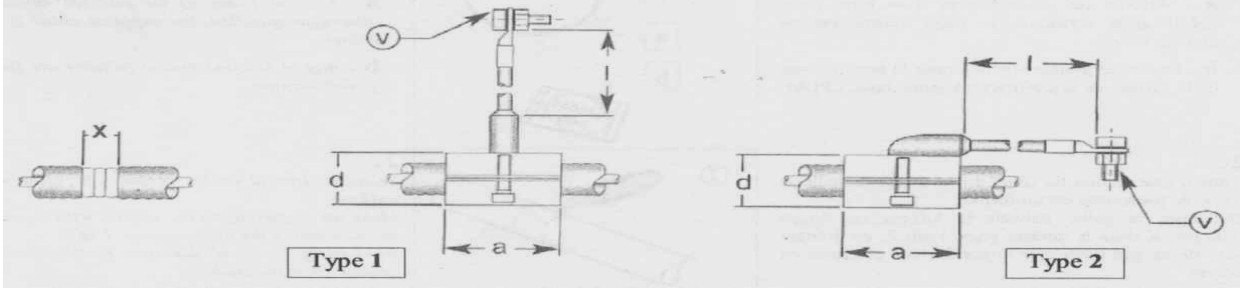
REMARKS :

The above assembling instructions are addressed to qualified and experienced personnel only. They have been conceived to guide these people to perform the operations in the easiest and safest way as possible.
The manufacturer disclaims any liability or responsibility for unwanted result due to improper or unsafe installation practice.

Recommended tools and accesories :

Electrician knife, cleaning cloth, solvent, 6 mm allen wrench.

Cable reference type: **Ref: FILOTEX COAX CABLE 50ohm (1AC001100022)**



Cable reference table:

Référence / *Reference*	Modèle / *Type*	Dimensions /*Dimensions*					Câbles / *Cable type*
		d *(mm)*	a *(mm)*	l *(mm)*	v *(mm)*	X *(mm)*	
20 350 026	1	20	50	830	M 8	23	C6+ 2PA281
20 350 003	1	30	50	830	M 8	26	1/4" F – RG. 214 – RG. 213
20 350 017	2						
20 350 004	1	30	50	830	M 8	26	3/8" F
20 350 018	2						
20 350 005	1	30	50	830	M 8	26 / 30	1/2" F
20 350 020	2						
20 350 019	2	30	50	830	M 8	26	1/2" SF
20 350 006	1	40	50	830	M 8	26 / 30	7/8" F
20 350 021	2						
20 350 007	1	56	70	830	M 8	26	1-1/4" F
20 350 022	2						
20 350 008	1	65	70	830	M 8	30 / 35	1-5/8" F
20 350 023	2						

5. INDOOR UNITS INSTALLATION (IDU)

5.1. General

Indoor units (IDU) of the 9400 AWY system can be installed in different ways as described below:

- Installation in a ETSI (WTD) rack (21") and North American standard rack (21") (see paragraph 5.2.1 on page 67) or Laborack (see paragraph 5.2.2 on page 71);
- Installation in a 19" DIN rack (see paragraph 5.2.3 on page 72);
- Installation on a table and suitable wooden or masonry wall (see paragraph 5.4 on page 76).

For each of the above type of installation special mechanical supporting fixtures are available.

Table 14 -.on page 35 gives a list of the installation materials that are included in the catalogue.

5.2. Rack mount kit description

Special mechanical fittings are provided for this type of installation, depending to the width of rack (19" or 21"). In the paragraph 5.2.1 on page 67 the figures examples shown the fittings used to insert the equipment in ETSI racks (21"). These examples are also present in paragraph 5.2.3 on page 71 for installation in 19" DIN racks by changing the adaptors.

5.2.1. Rack mount installation in ETSI (WTD) and North American standard rack.

For the 1+0 and 1+1 configuration the mechanical fittings are shown in the assembly drawing of Figure 44 on page 68..

The Figure 45 on page 69 shows the types of subrack installation into the rack.The **Error! Reference source not found.** on page **Error! Bookmark not defined.** and Figure 46 on page 70 shows the typical WTD rack installation with 1+0 and 1+1 equipment.

The **Figure 47** on page 70 shows the coaxial minidistributor wiring.

T.R.U
TOP RACK UNIT

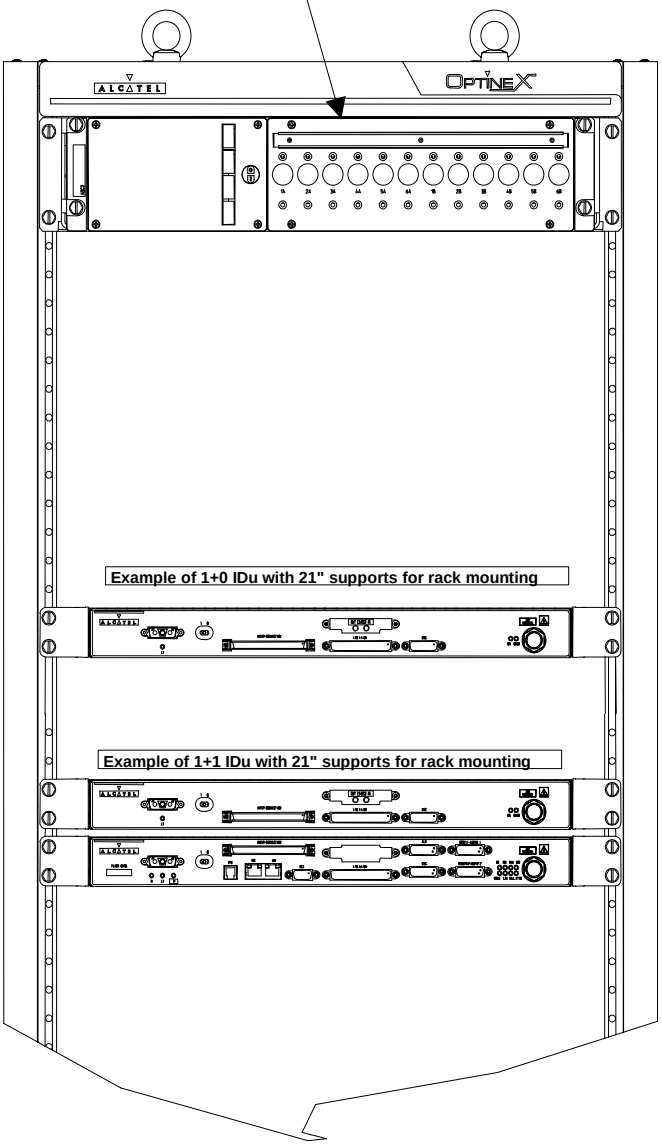


Figure 44 - Example of 1+0 and 1+1 IDU with 21" supports for rack mounting

Detail A - Screw hole

Detail B - Nut cage

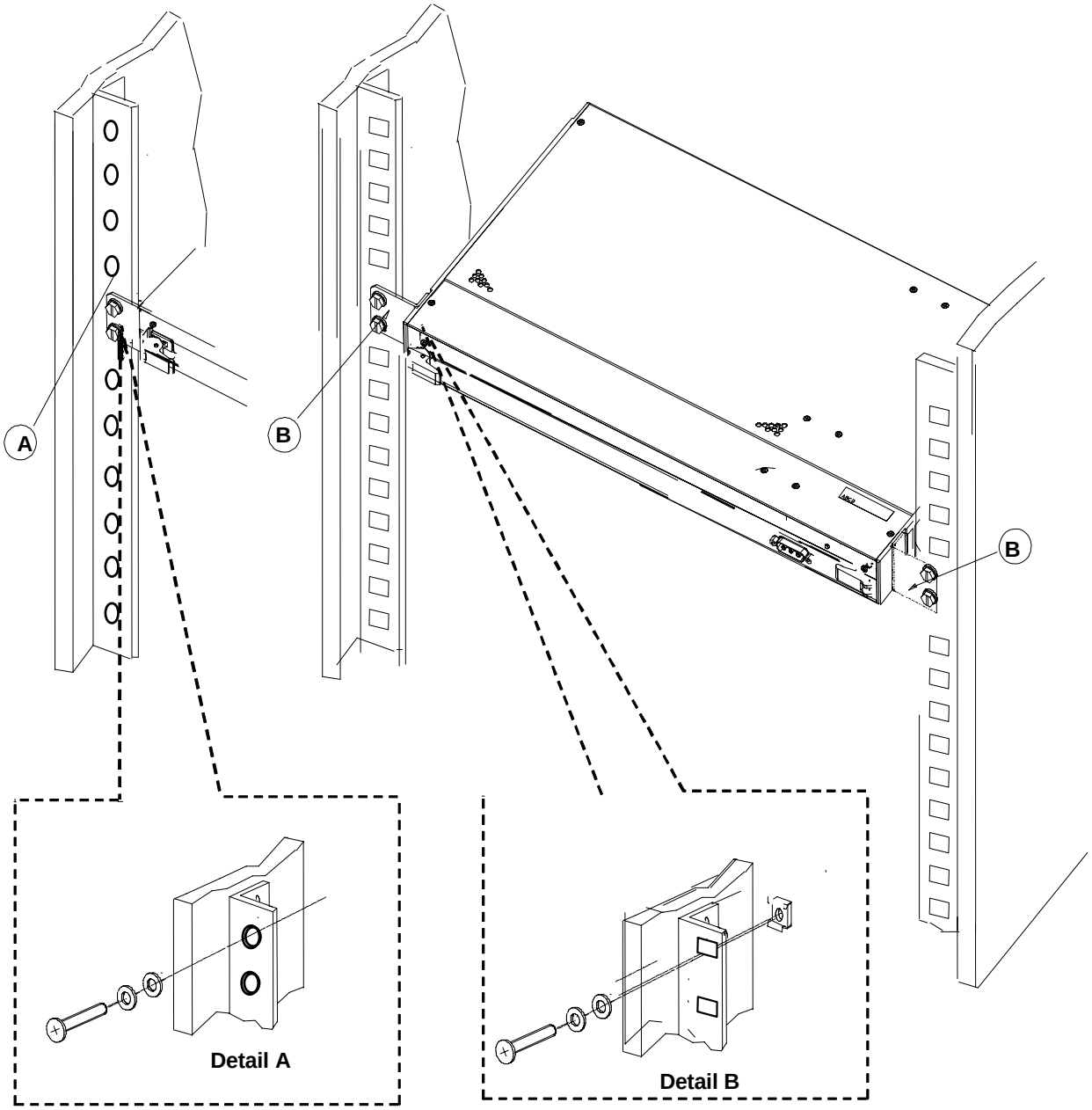


Figure 45 - Subrack installation in 21" rack

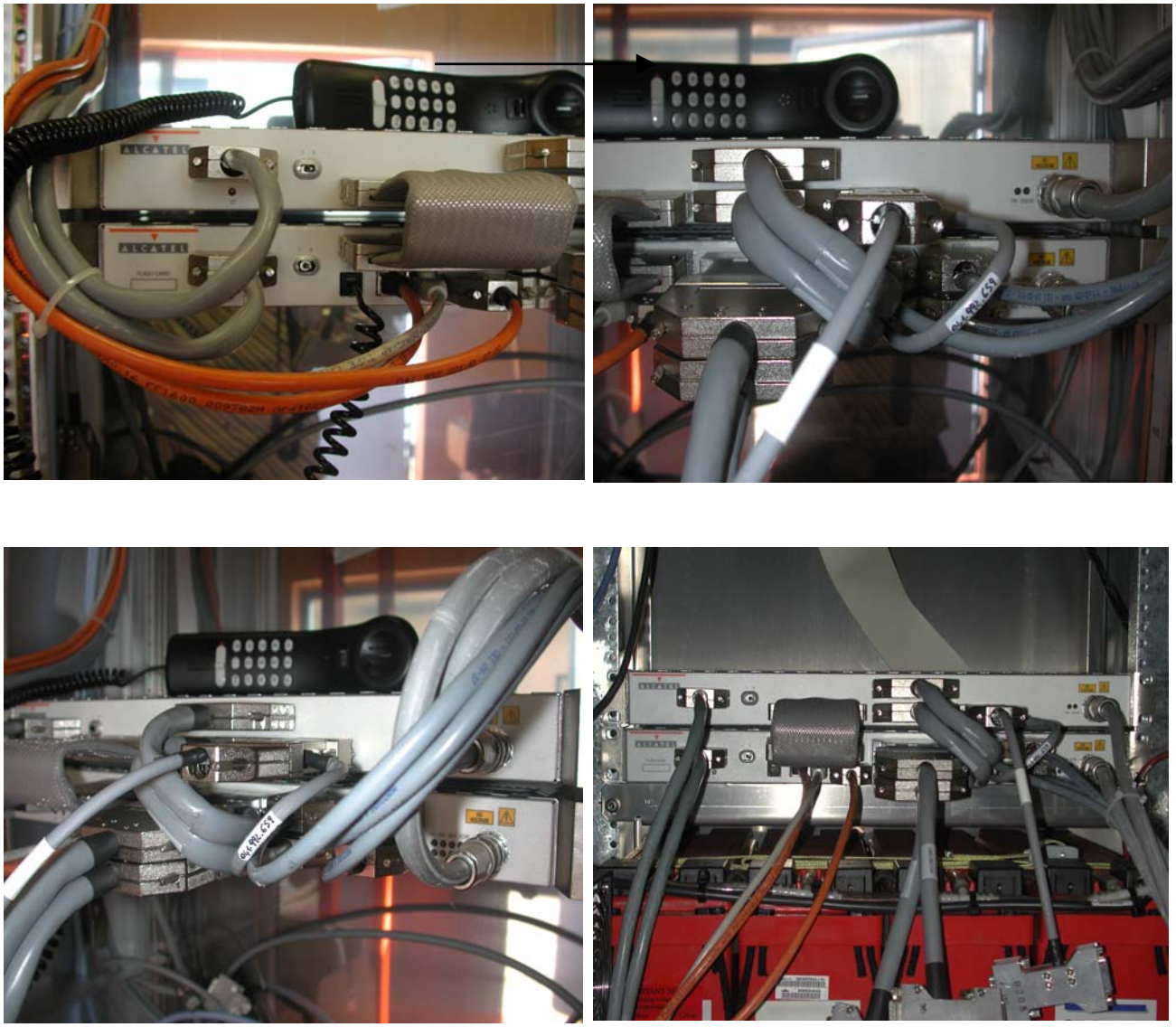


Figure 46 –View of installation

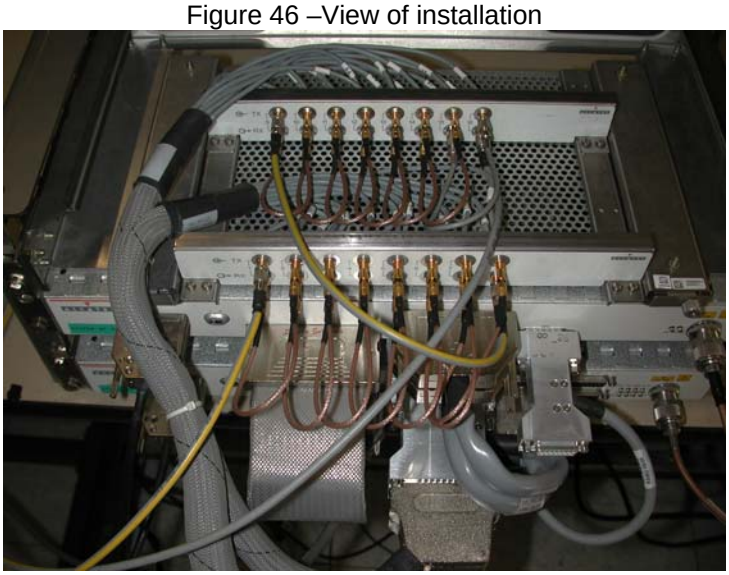
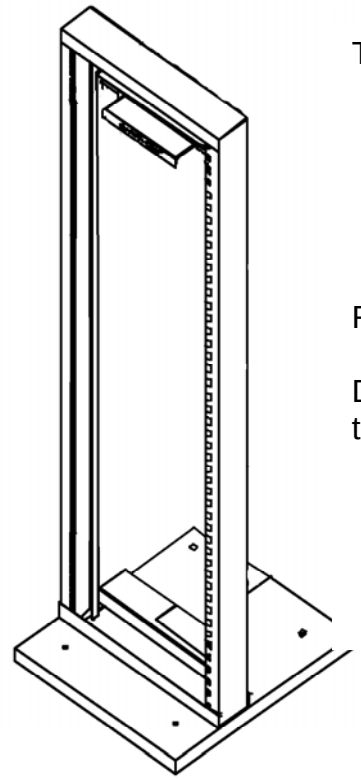


Figure 47 - Wired mini distributor

5.2.2. Laborack



The laborack dimensons are:

- Height 2065 mm 2053mm
- Width 545mm 545mm
- Depth 400mm 630mm

Ref: 1AD039050001

Depending on the configuration requested, this Laborack can accomodate:

- An energy strip
- A 2 Mbts distributor
- A compressor
- etc

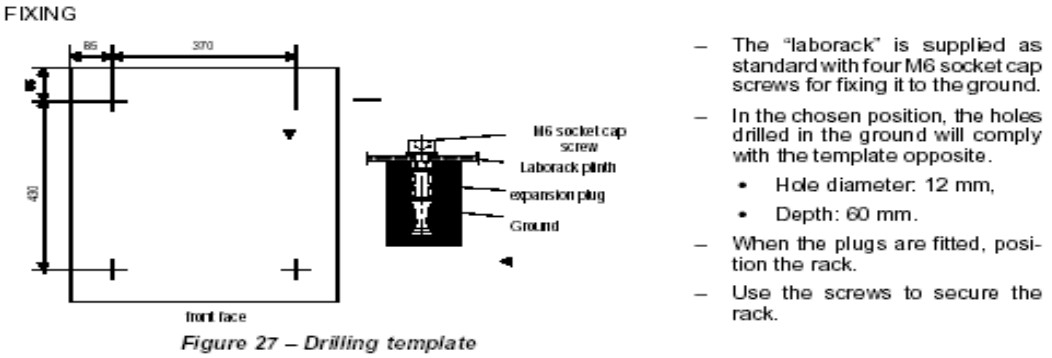


Figure 27 – Drilling template

When the fixing brackets have been correctly positioned on the 19" cabinet, the equipment will be held by its front panel, by four screws fitted in the caged nuts of the "laborack".

Figure 48 - Laborack

IDU Installation in Laborack

When you have correctly positioned the fixing brackets on the 19" unit, the front panel will hold the equipment by four screws fitted into the laborack cage nuts.

Fasten the IDU to the rack by inserting screws into holes of 19" mechanical adaptors and by screwing them into relevant holes provided with nut cage situated on rack brackets (see Figure 44 on page 68)

5.2.3. Rack mount adapters installation in a rack

The mechanical fittings are shown in the assembly drawing of Figure 49

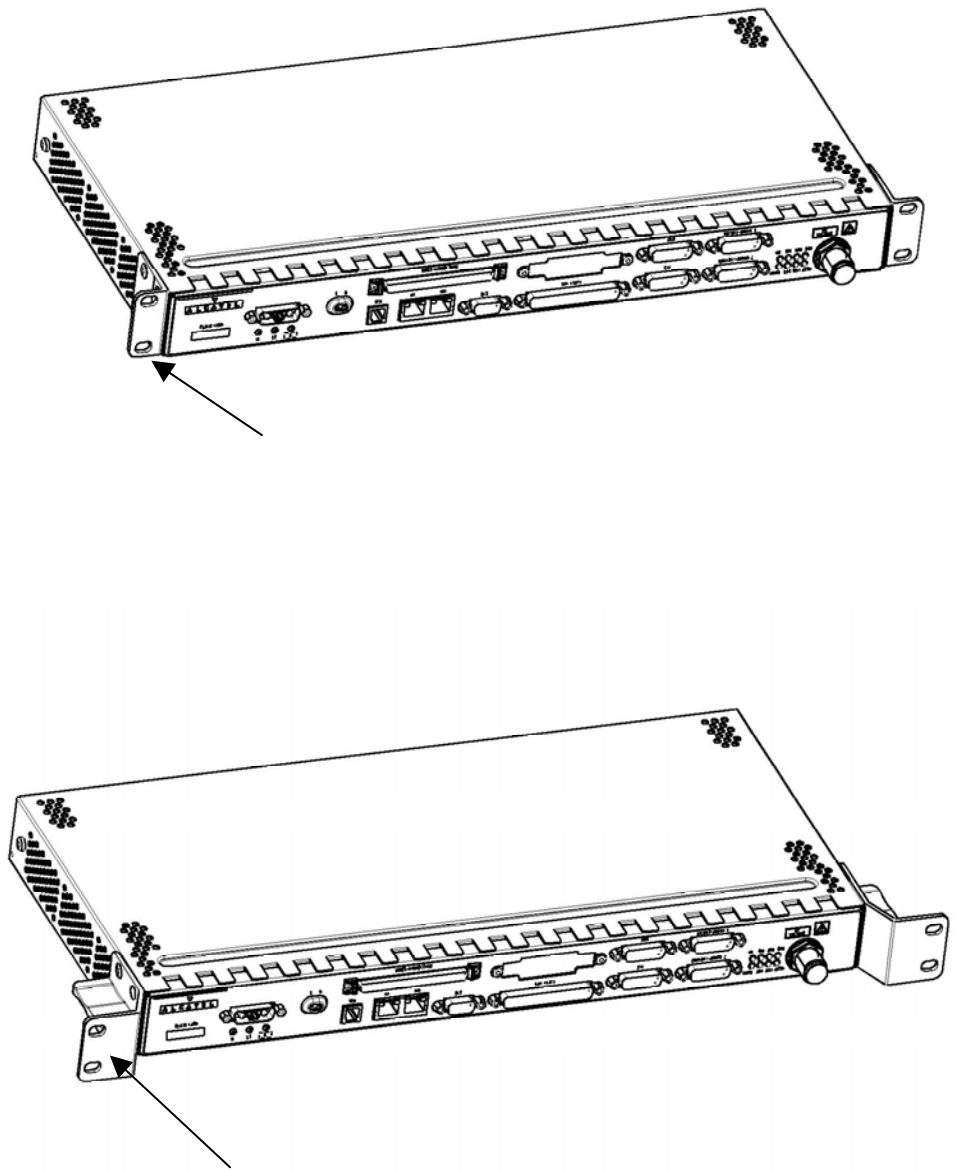


Figure 50 - IDU adapter for installation

5.2.4. Grounding of the subrack

The subrack must be grounded using the Faston connector present on the rear side of the apparatus, see Figure 51 on page 73 (DETAIL A).
The section cable (wire) to use must be a 1X 3 mm^2 (12AWG) (Yellow/Green)
The subrack-mounting item , adds a good electrical connection to rack ground.

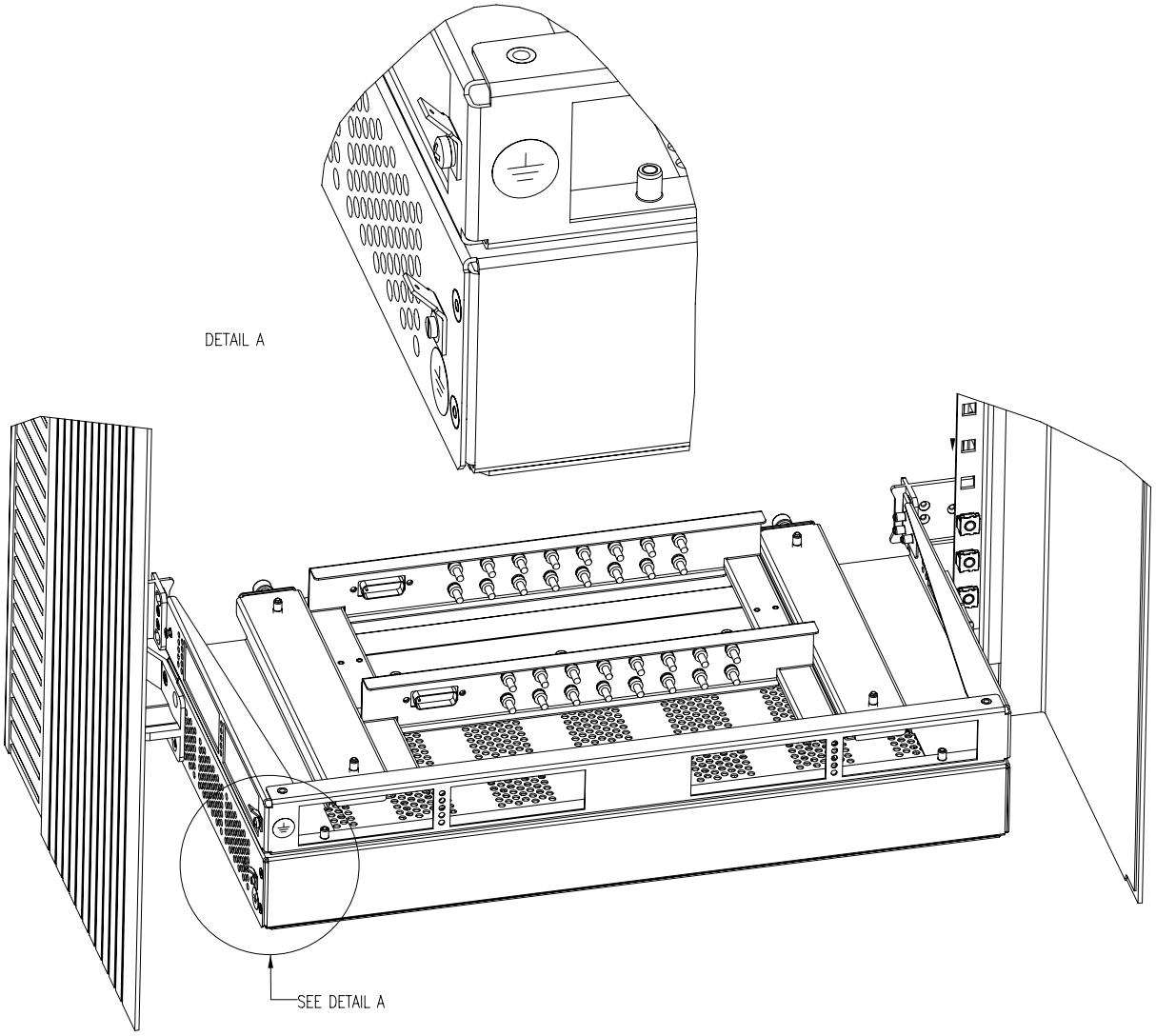
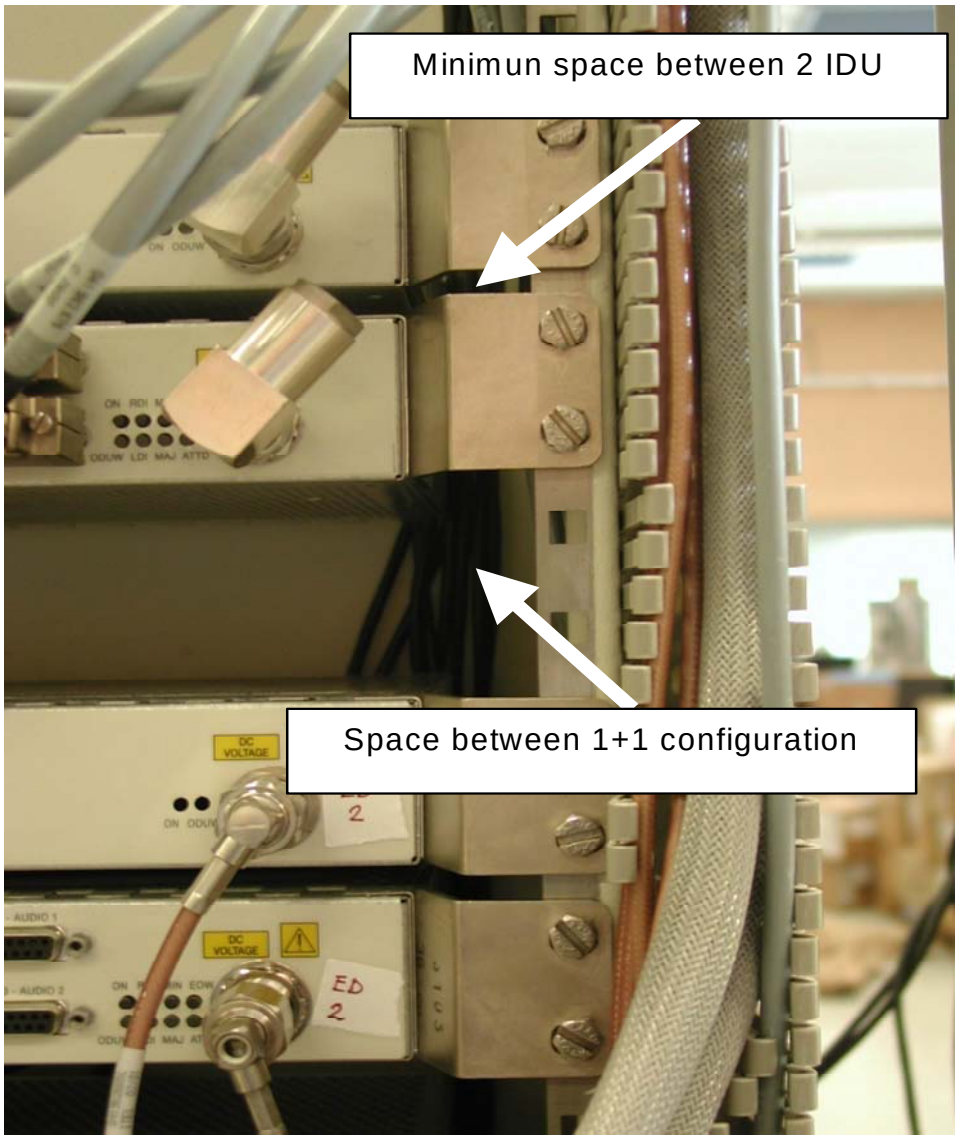
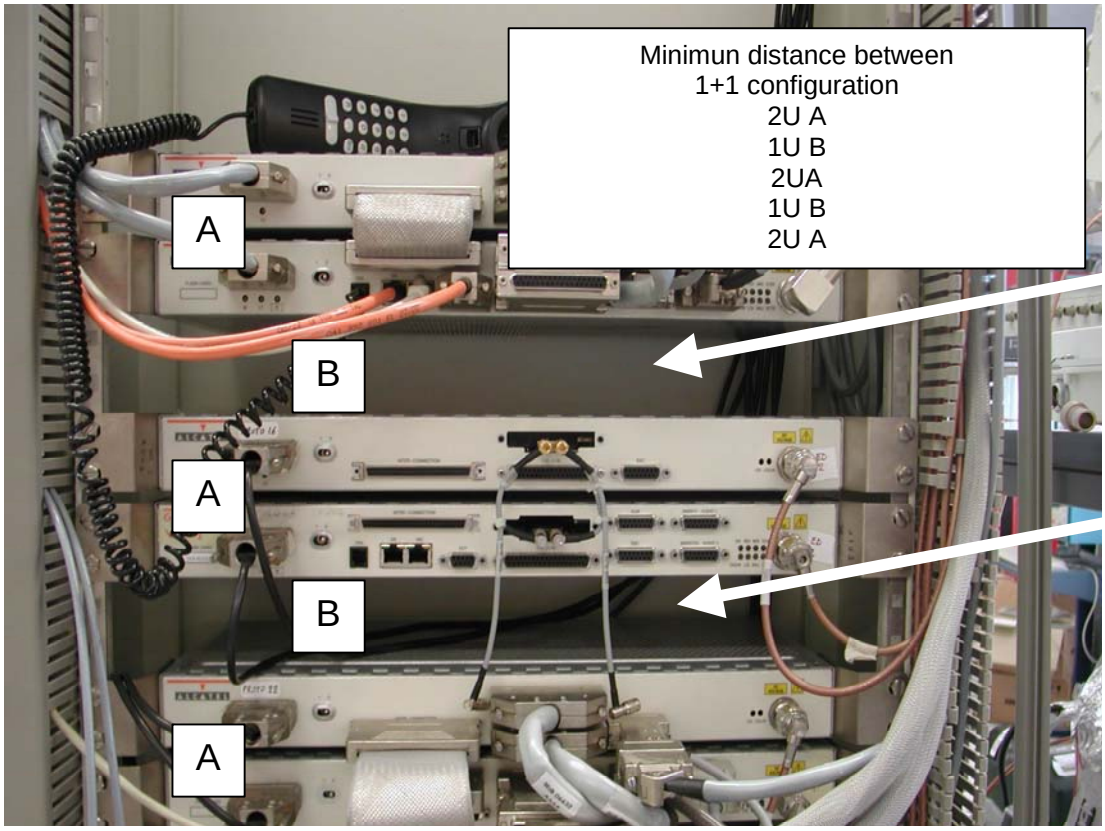


Figure 51 - Subrack cabinets grounding points

5.3. Minimum distances between systems installed in the rack



1+1 IDU Rack



1+1 IDU Rack

Figure 52 - Minimum distances for dense packing in both systems (1+0 and 1+1)

NOTE: MINIMUN DISTANCE WITH MINI DISTRIBUTOR IN 1+1 CONFIGURATION

RACK ETSI
1 MINIDISTRIBUTOR
EXTENSION IDU
MAIN IDU
Space = 1 UNIT
1 MINIDISTRIBUTOR
EXTENSION IDU
MAIN IDU
Space = 1 UNIT

5.4. Table/Wall mounting kit description

The mechanical support (kit ref. 3DB06683AAAA) can be used for either table or wall installations, in order to ensure stability on the equipped bench, desk or wall.

The mechanical support can contain a maximum of ONE unit in case of system 1+0 , and TWO units in case of system 1+1, both equipped with mini distributor.

5.4.1. Table / wall mounting kit description

The possible installations are the followings:

1+0 table without mini distributor	**Figure 53**
1+0 Installation table with mini distributor	
and 1+0 Installation wall with and without mini distributor	Figure 54
1+1 Installation table (with and without minidistribuor)	Figure 55
1+1 Installation wall (with and without mini distributor)	Figure 56
1+0 and 1+1 typical wall installation (horizontal and vertical positioning)	Figure 57

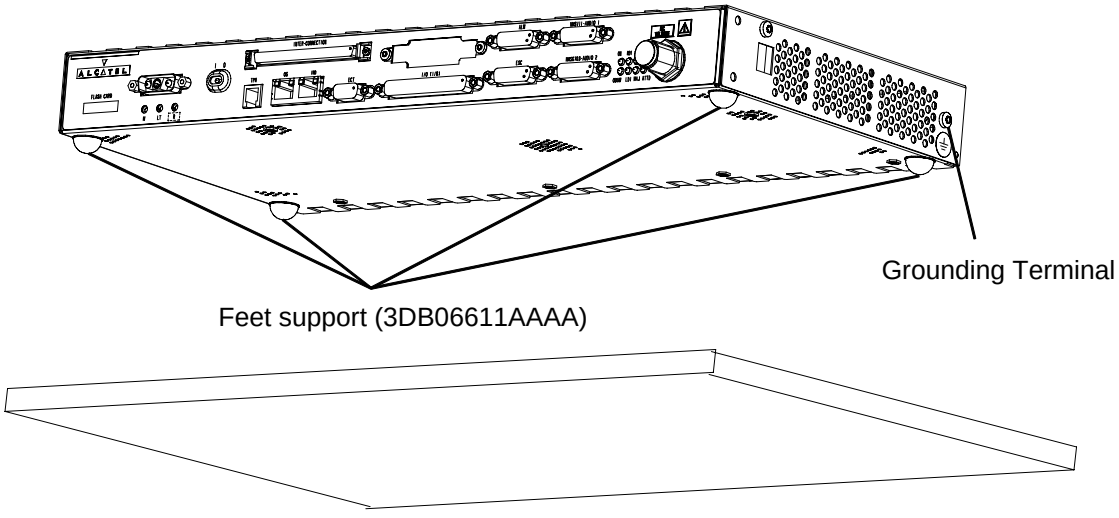
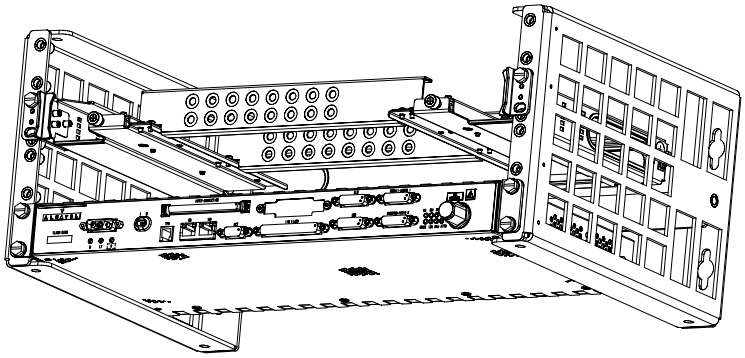


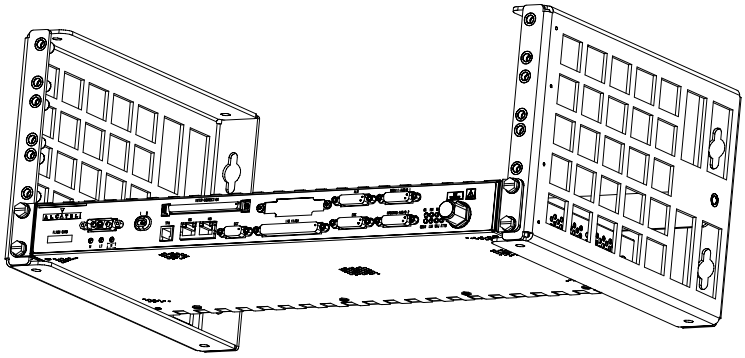
Figure 53 – 1+0 installation on table without mini distributor

Grounding of the equipment for table kit

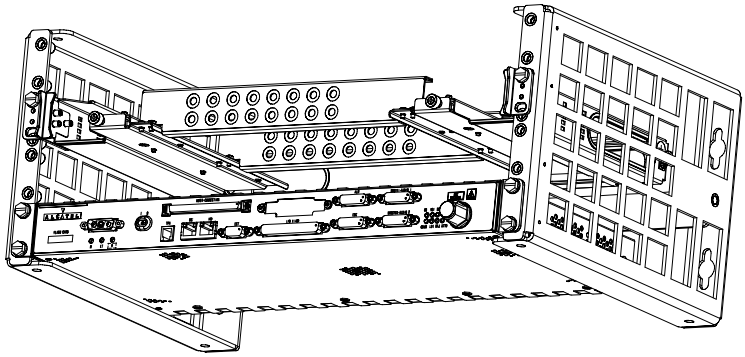
The equipment must be grounded using the Grounding Terminal (4MA screw) present on the right side of the mechanical enclosure. The section cable (wire) to use is 1X 3 mm^2 (12 AWG) (Yellow/Green) with a wire connector UL listed (ZMVV).



1+0 Installation table with mini distributor (with mechanical support)

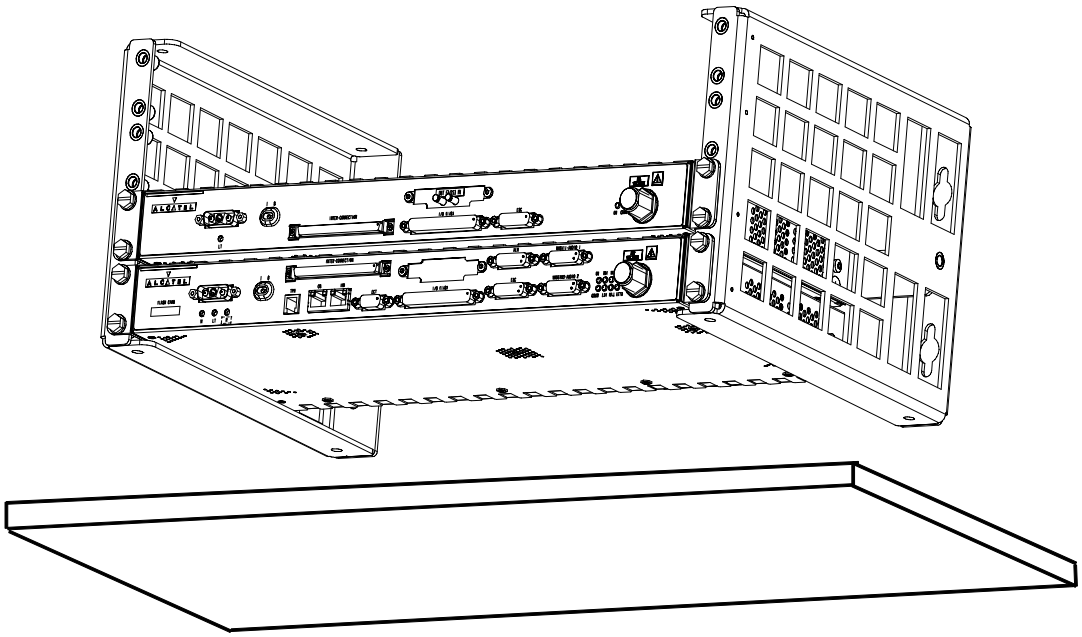


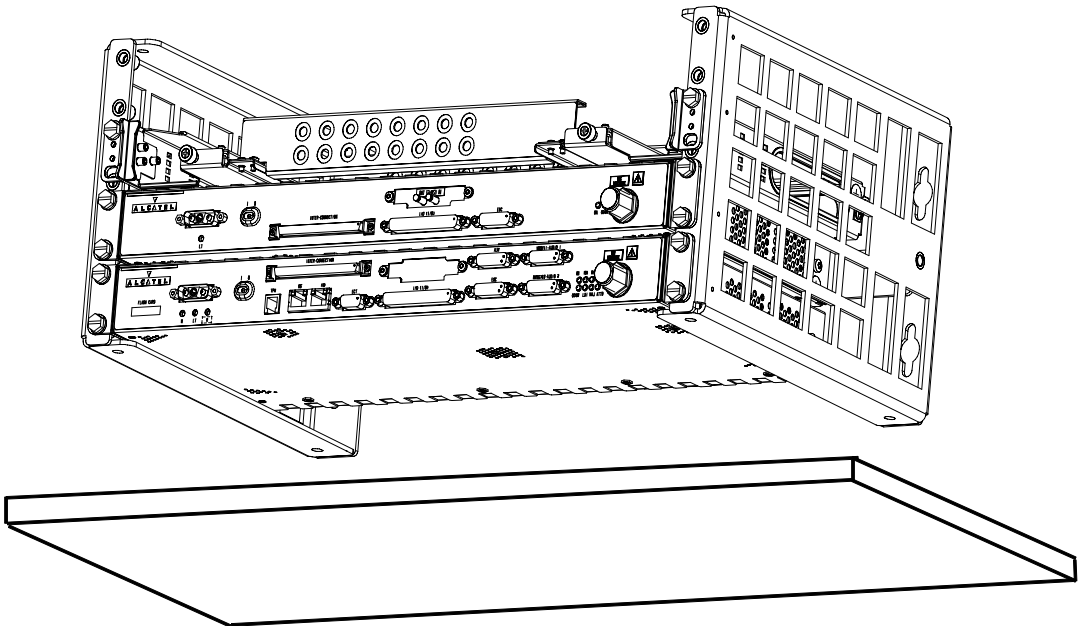
1+0 Installation wall without mini distributor (with mechanical support)



1+0 Installation wall with mini distributor (with mechanical support)

Figure 54 – 1+0 Installation table with mini distributor
and 1+0 Installation wall with and without mini distributor





)

Figure 55 – 1+1 Installation table (with and without minidistribuor)

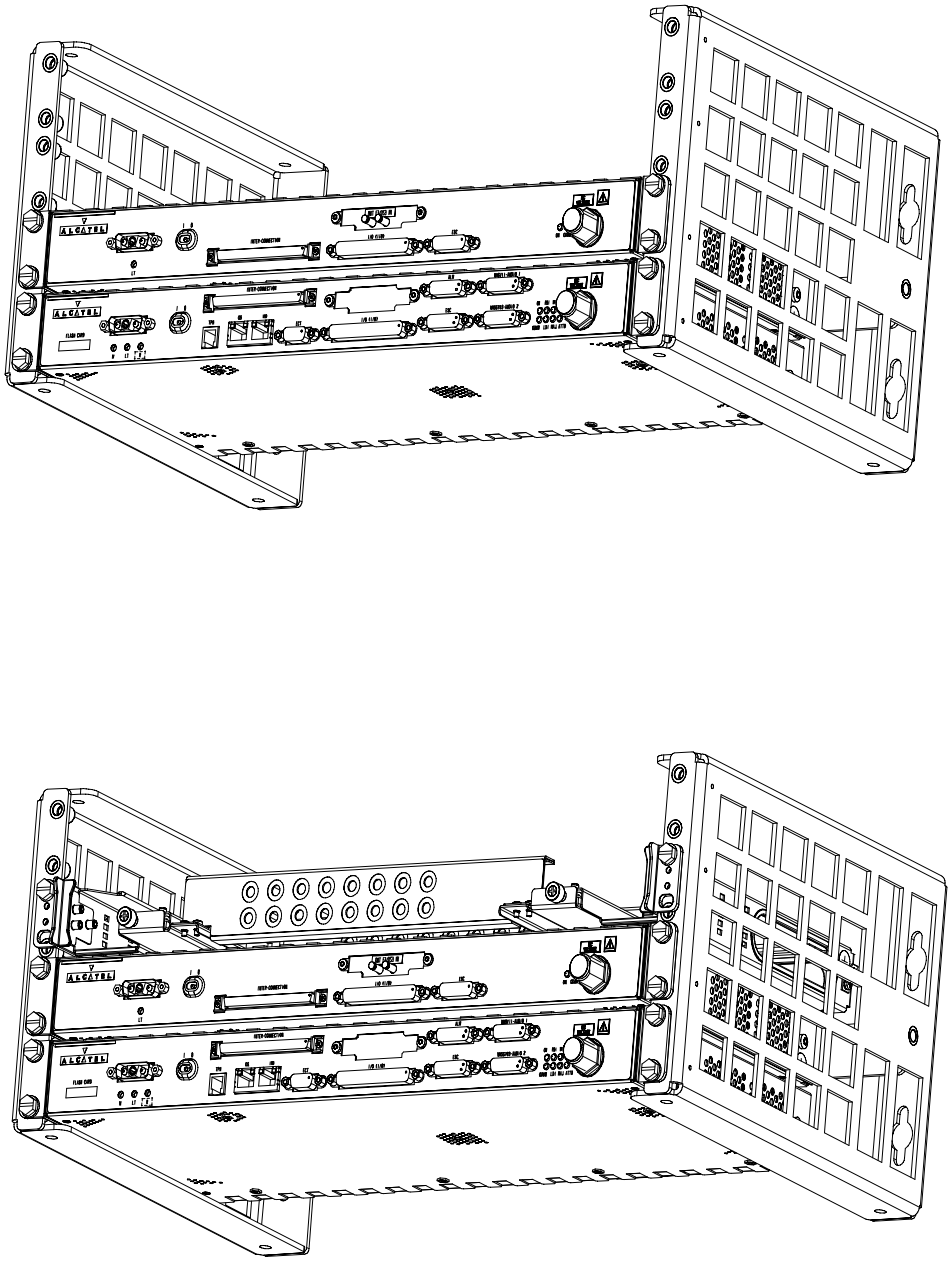


Figure 56 – 1+1 Installation wall (with and without mini distributor)

5.4.2. Wall installation description

The wooden or masonry wall that is selected for the installation should be in a suitable portion of the room. Preferably it should be near to a safety power outlet, and it should ensure safeguard against accidental tampering. It is possible to install the apparatus in a horizontal or vertical position according to the dimension represented in Figure 57on page 80 and Figure 58 on page 81.

For this wall installation, the unit feet must not be fitted.

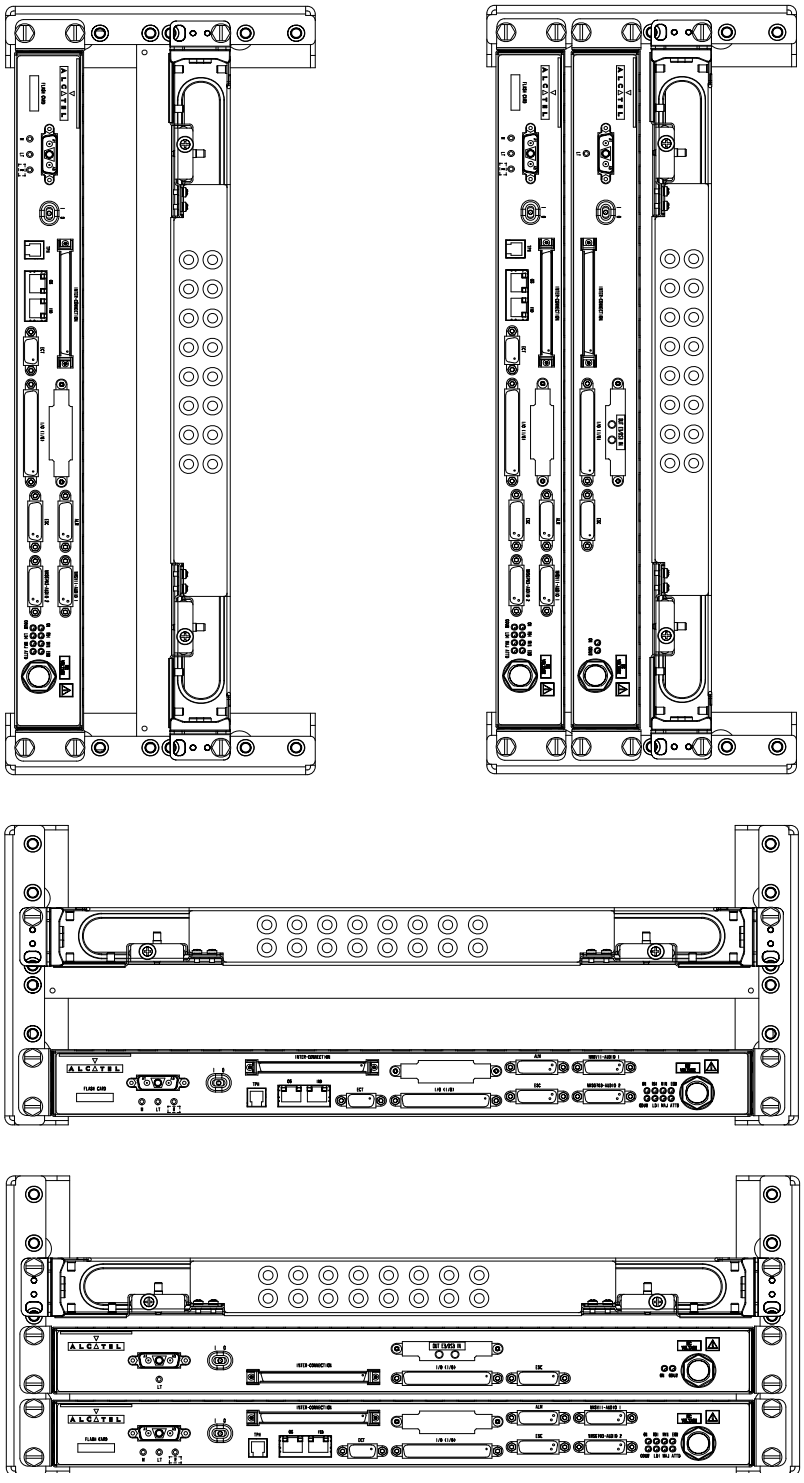


Figure 57 – 1+0 and 1+1 typical wall installation (horizontal and vertical positioning)

For horizontal or vertical IDU installation the mechanical support must be fixed using the expansion anchors supplied with the mechanical support.
Install the mechanical support (see Figure 58 on page 81) following the steps listed below:

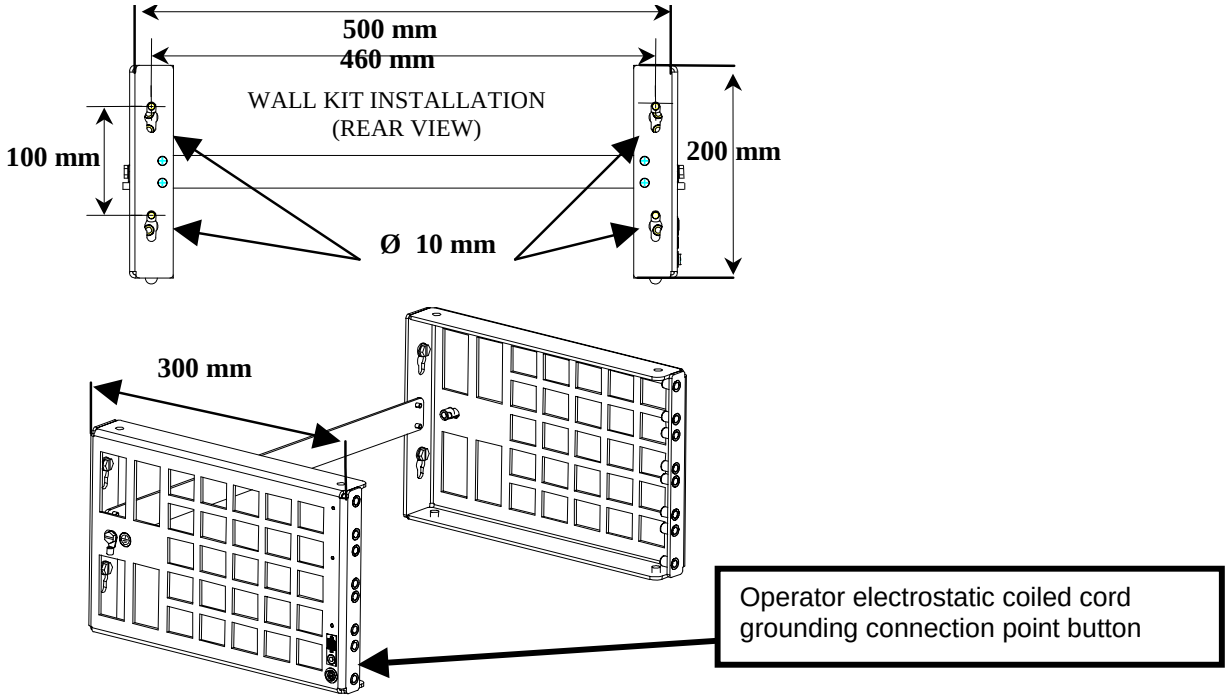


Figure 58 - Fixing the mechanical support to the wall (horizontal and vertical)

(1) Locate the position on the wall.

(2) Mark the holes to be drilled on the wall.

(3) Temporarily remove the support and drill the holes at the points drawn on the wall.

(4) Place the inserts into the holes.

(5) Anchor the mechanical support to wall without tightening the bolts.

(6) Check the support's perpendicularity using a spirit level or a plumb bob.

(7) Fix the mechanical support using expansion bolts.

Grounding of the equipment for table/wall installation

The equipment must be grounded using one of the Grounding Terminal (4MA screw) present on the right side of the mechanical enclosure. The section cable (wire) to use is 1X 3 mm^2 (12 AWG) (Yellow/Green) with a wire connector UL listed (ZMVV)

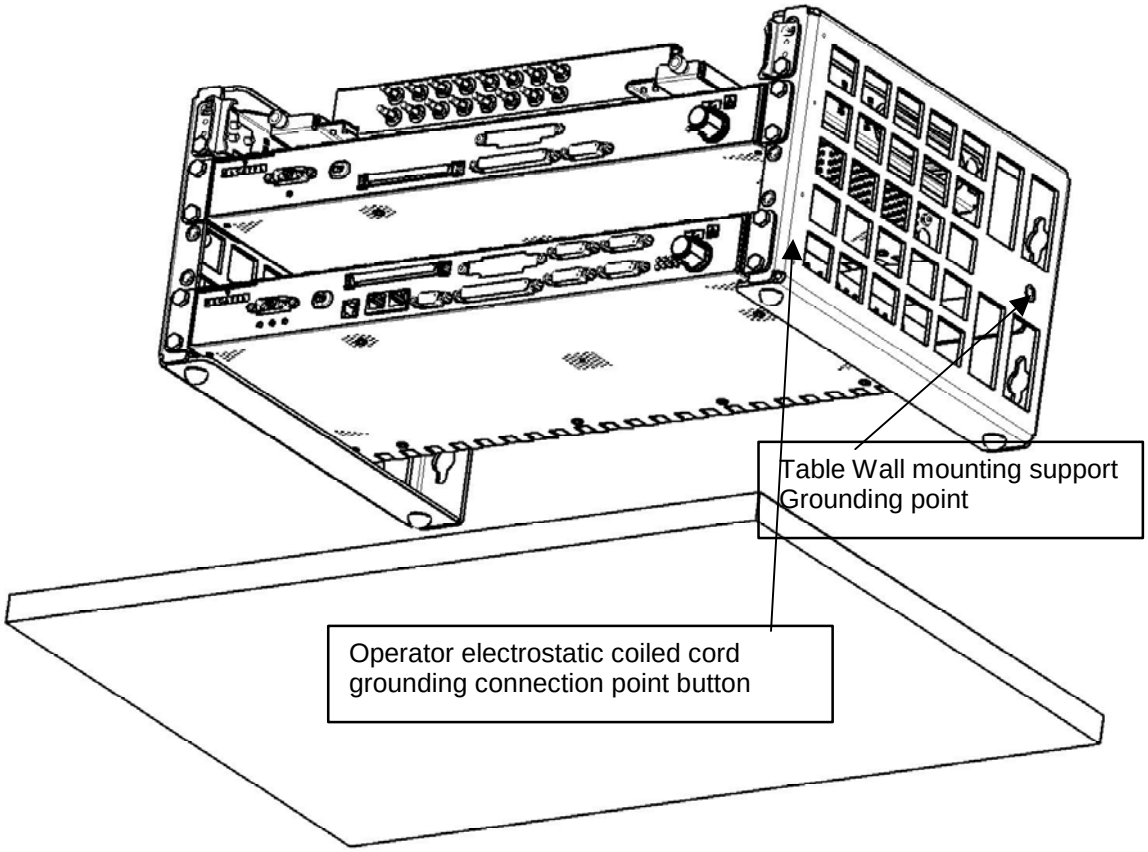


Figure 59 - Example of Table/wall assembly grounding point

6. IDU INTERCONNECTIONS

6.1. Module interconnections, description

External interfaces are listed in the following figures, with corresponding connectors. The interfaces are divided into two groups, depending on their location: MAIN UNIT, and EXTENSION UNIT. The EXTENSION UNIT can be supplied only for IDU 1+1.

.

Figure 60 – Main Unit Front

Figure 61 –Extension Unit Front

NB: In all chapters, possible references to DS1 and DS3 interfaces (that are not supported by the SWP version this Handbook issue refers to) are given just for general information purposes and are subject to change

6.1.1. IDU – ODU cable disconnection/connection

Before to disconnect or connect the IDU-ODU cable (at IDU or ODU side) ***switch off*** the corresponding IDU Main Unit or IDU Extension Unit.

Craft Terminal connection

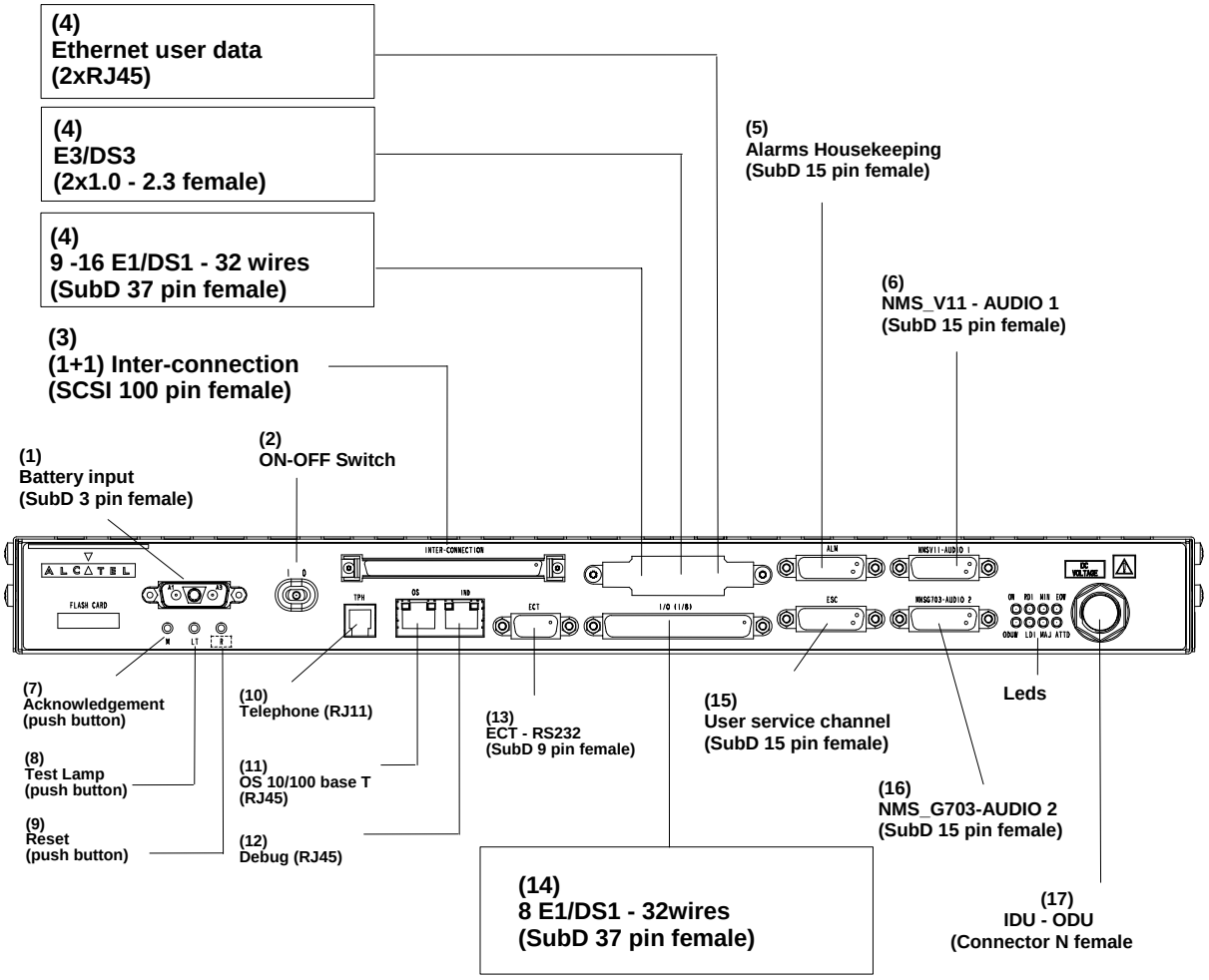
To connect the CT cable (at IDU's interface and/or PC side):

- veirfy that the PC is switched of (if switched on, close all running applications, then switch of it)
- connect suitable cable to IDU's F interface and PC side
- now the PC can be safely switched on

Craft Terminal diconnection

To disconnect the CT cable (at IDU's F interface and/or PC side):

- perform the logoff, exiting from the CT applications
- close all other running applications, if any
- switch off the PC
- now the cable can be safely disconnected



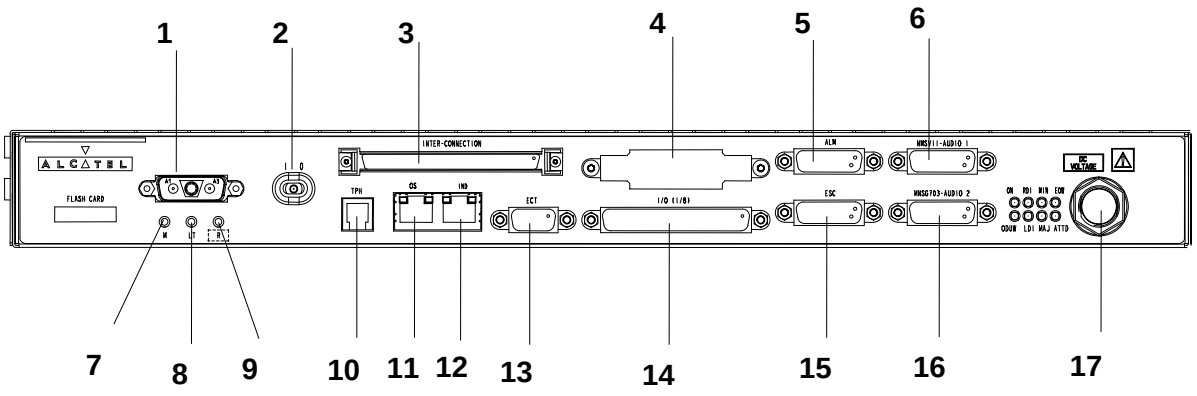
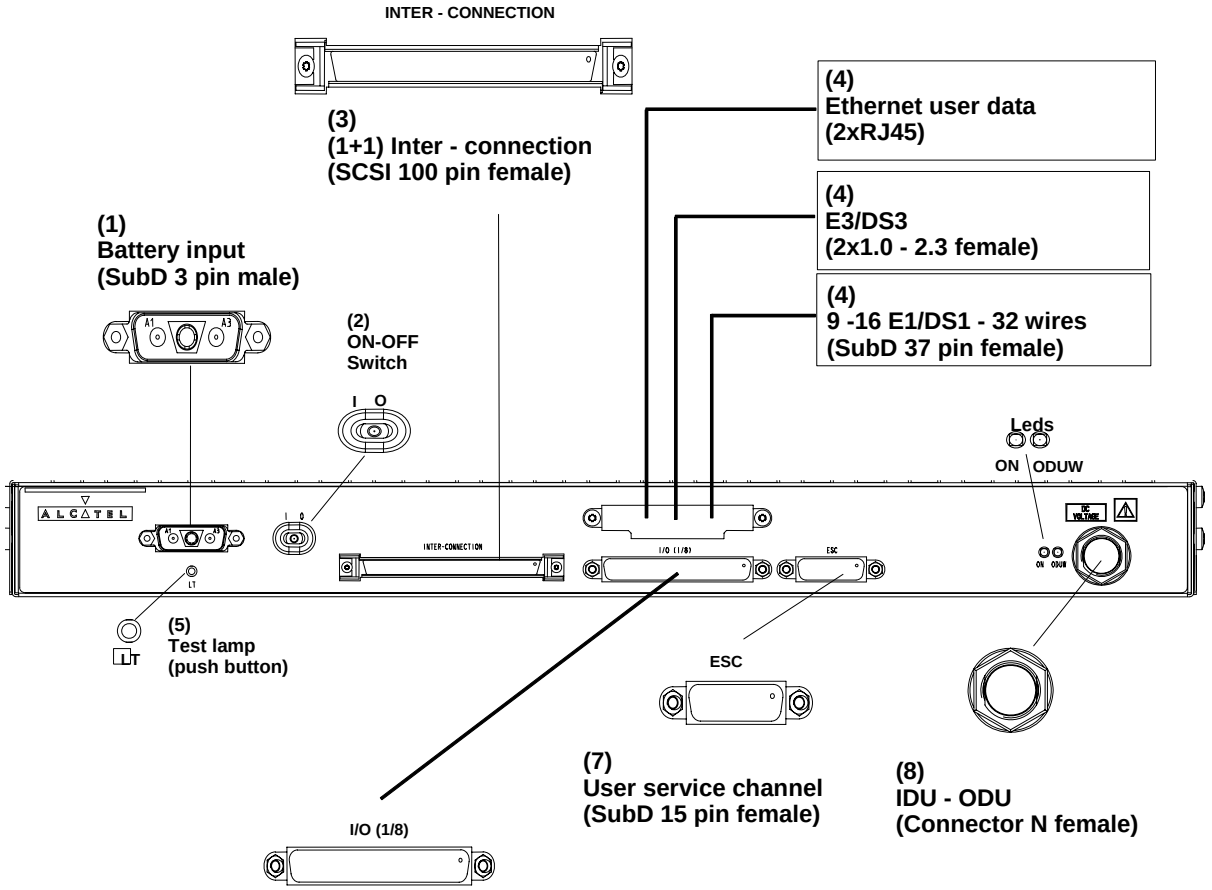


Figure 62 - Main Front / Rear view interconnections IDU

Figure 63 – Main Rear view (Flash card insertion)



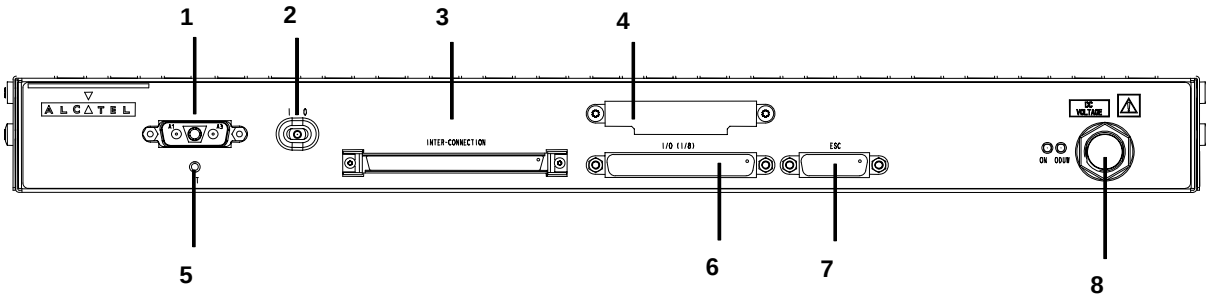


Figure 64 - Extension Front view interconnections IDU

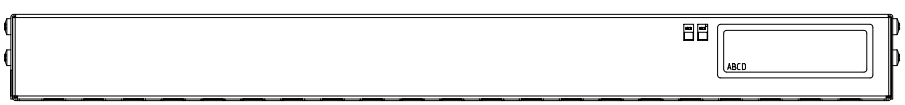


Figure 65 - Extension Rear view IDU

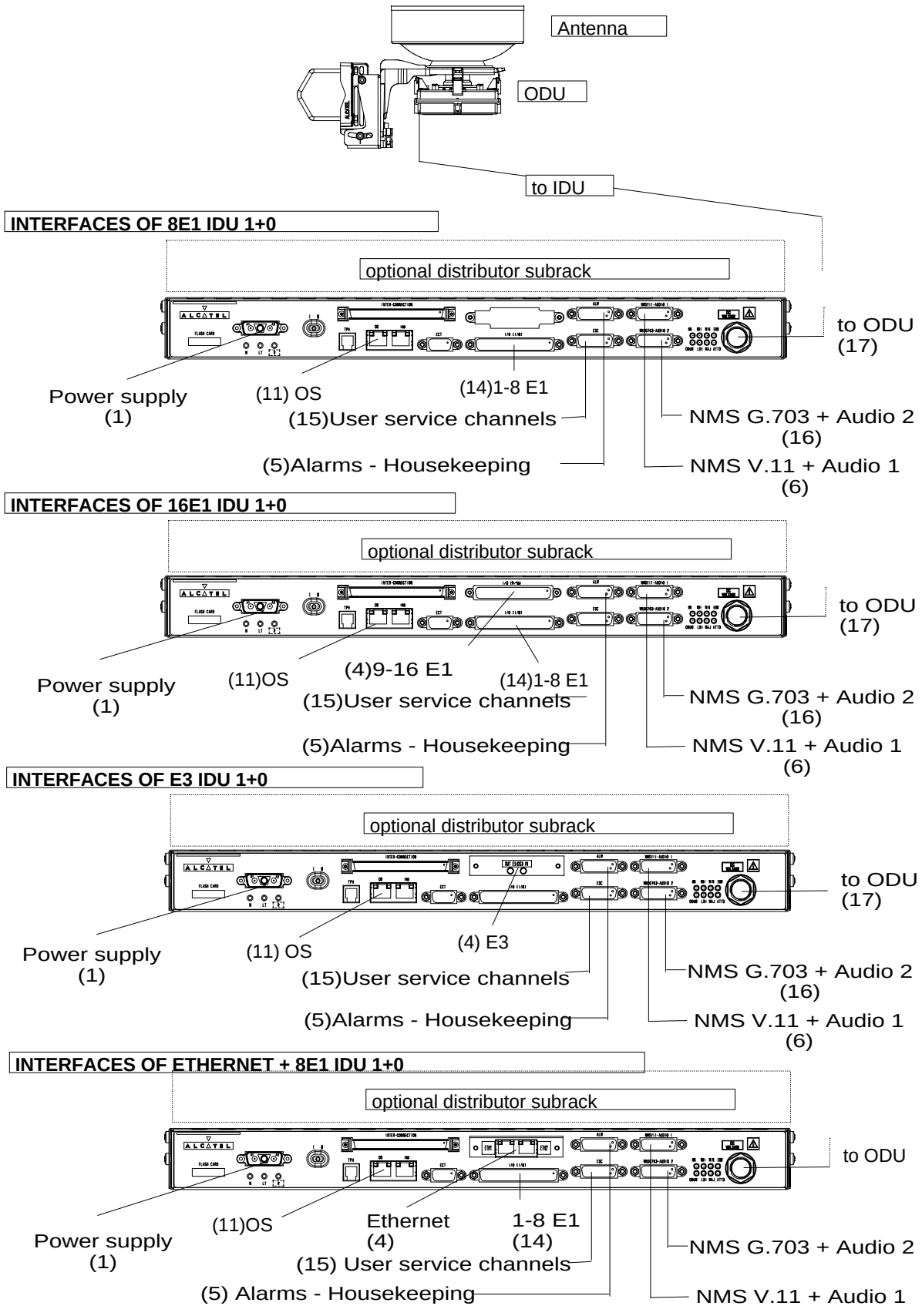


Figure 66 – 1+0 Interconnections view

INTERFACES OF 8E1 IDU 1+1

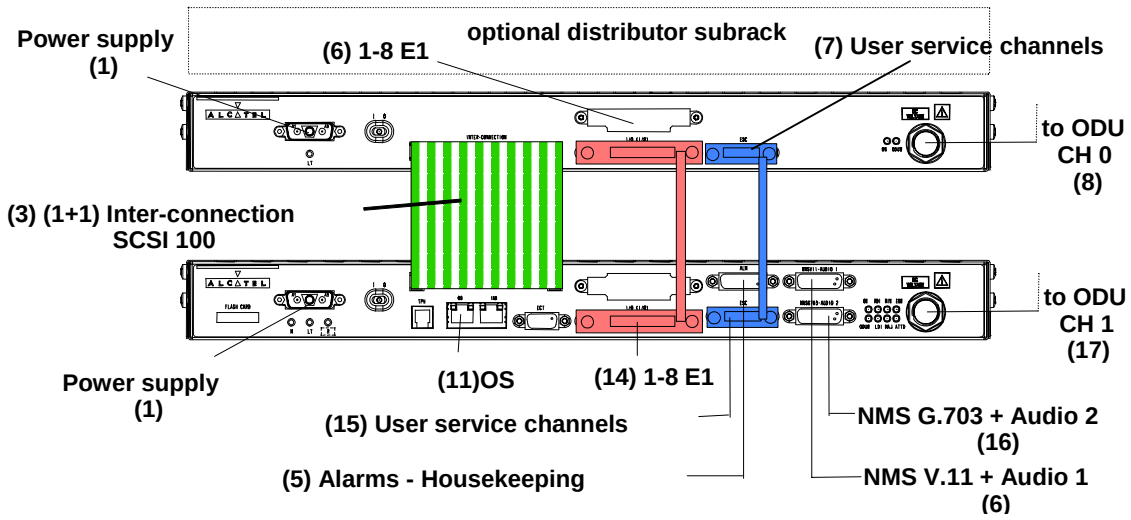


Figure 67 – 1+1 Interconnection view (8E1)

INTERFACES OF 16E1 IDU 1+1

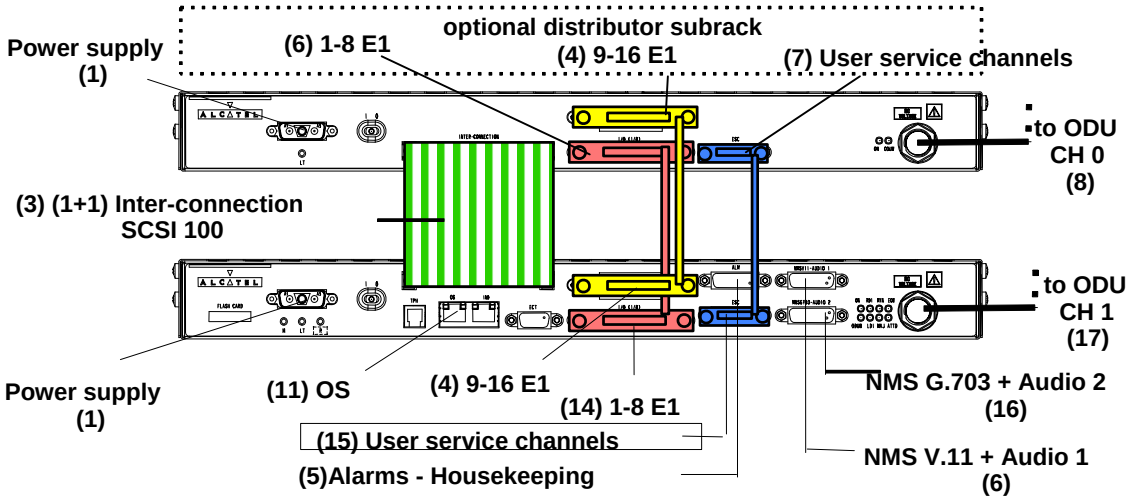


Figure 68 – 1+1 Interconnection view (16E1)

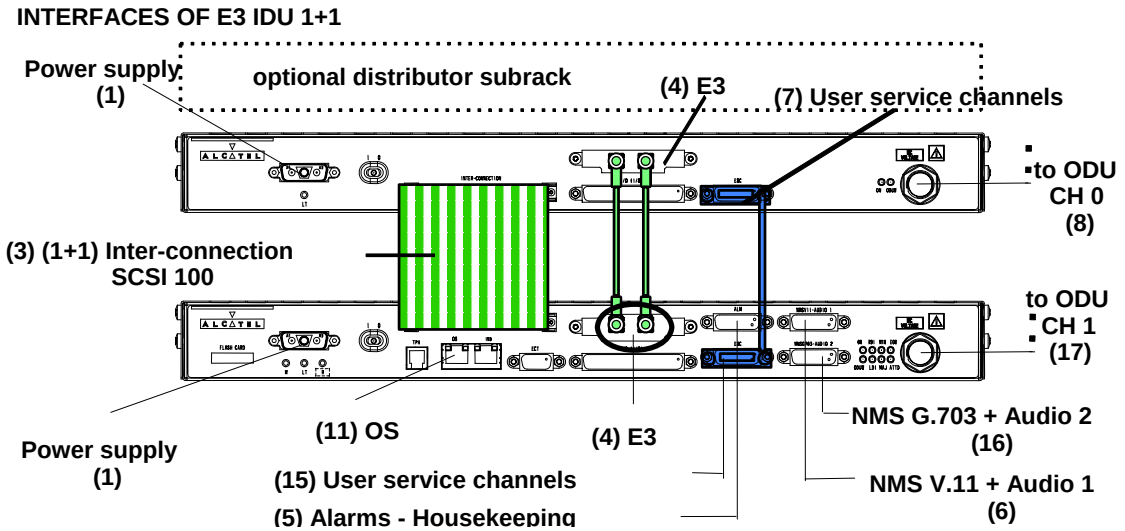


Figure 69 – Interconnection view (E3)

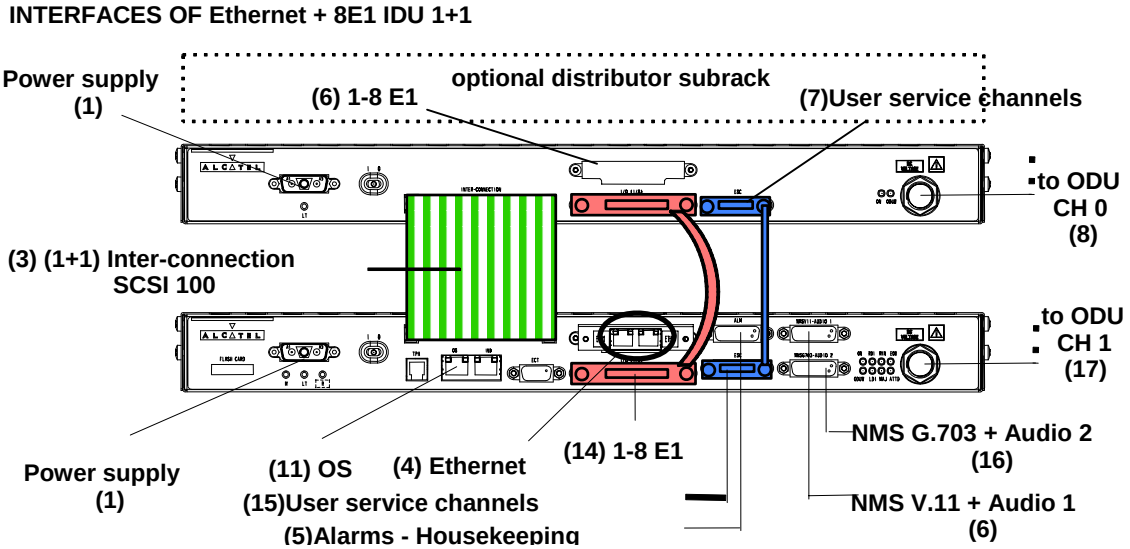


Figure 70 – Interconnection view (Ethernet

NOTE: Figures in parentheses correlate to Fig. Ref. Column in Table 16, page 90 and Table 19, page 94. The IDU is offered in two different configurations (1+0 and 1+1 configuration):

6.2. Numbering and functions referred to the Connection Points

Table 16 - Numbering and functions referred to the Connection Points (Main)

Ref Figure 63	FROM MAIN BOARD	TO	Or	TO
(1)	Battery input	T.R.U	or	Power Supply Battery
(4)	9-16 E1/*DS1* – 32wires (Plug-in)	Extension (1+1)		Station Distributor
(4)	E3/*DS3* (Plug-in)	Extension (1+1)		Station Distributor
(4)	Ethernet user data (Plug-in)	Extension (1+1)		Station Distributor
(5)	Alarms Housekeeping	Station Distributor		
(6)	NMS_V11 – AUDIO 1	Adjacent AWY N.E. Access NMS_V11- AUDIO 1 (EOW)		
(10)	Telephone	Handset		
(11)	OS 10/100 base T	Craft Terminal	or	T.M.N.
(12)	Debug	Only for internal use		
(13)	ECT – RS 232	PC - Craft Terminal		
(14)	8 E1/*DS1* – 32 wires	Customer Distributor (CDF)		
(15)	User Service Channel	Station Distributor		
(16)	NMS_G703 – AUDIO 2	Adjacent AWY N.E. Access NMS_G703 - Audio 2 (EOW)		
(17)	Connector N	ODU		

NB: (6) – (16) NMS INTERFACE AWY-MELODIE (see Figure 78 on page 103)

Table 17 - Numbering and functions referred to the Connection Points (Extension)

Ref Figure 64	FROM EXTENSION BOARD	TO	Or	To
(1)	Battery input	T.R.U.		Power Supply Battery
(3)	1+1 Inter-connection	Main		
(4)	9-16 E1/*DS1* – 32wires (Plug-in)	Main		
(4)	E3/*DS3* (Plug-in)	Main		
(4)	Ethernet user data (Plug-in)	Main		
(6)	8 E1/*DS1* – 32 wires	Main		
(7)	User Service Channel	Main		
(8)	Connector N	ODU		

Table 18 - Numbering and functions referred to the Connection Points (1+1 version)

Ref Figure 63	Ref Figure 64	Main Board	Extension Board	To	or To
(1)	(1)	Battery input	Battery input	T.R.U.	PSU
(3)	(3)	1+1 Inter-connection	Extension - 1+1 Inter-connection		
(4)	(4)	9-16 E1/*DS1* – 32wires (Plug-in)	Extension - 9-16 E1/*DS1* – 32wires (Plug-in)		
(4)	(4)	E3/*DS3* (Plug-in)	Extension – E3/*DS3* (Plug-in)		
(4)	(4)	Ethernet user data (Plug-in)	Extension – Ethernet user data (Plug-in)		
(5)		Alarms Housekeeping			
(6)		NMS_V11 – AUDIO 1			
(10)		Telephone			
(11)		OS 10/100 base T			
(12)		Debug			
(13)		ECT – RS 232			
(14)	(6)	8 E1/*DS1* – 32 wires	Extension 8 E1/*DS1* – 32 wires		
(15)	(7)	User Service Channel	Extension User Service Channel		
(16)		NMS_G703 – AUDIO 2			
(17)	(8)	Connector N	Connector N	ODU	

6.3. Summary and type connectors usage

		Interface	Connector	Type	Paragraph
IDU Main Unit	(1)	Battery Input	SubD3	Male	6.4.18
	(2)	ON – OFF Switch		Two position switch	6.4.19
	(3)	1+1 Inter-connection	SCSI 100 pin	Female	
	(4)	9-16 E1/*DS1* 32 wires	SubD37	Female	6.4.3
	(4)	E3/*DS3*	2x(1.0/2.3)	Female	6.4.11
	(4)	Ethernet user data	2xRJ45		6.4.13
	(5)	Alarms Housekeeping	SubD15	Female	6.4.10
	(6)	NMS_V11 – AUDIO 1	SubD15	Female	6.4.5
	(7)	M - Acknowledgment		Push – Button	6.4.12
	(8)	LT - Test Lamp		Push – Button	6.4.12
	(9)	R – Reset		Push – Button	6.4.12
	(10)	TPH – Telephone	RJ11		6.4.8
	(11)	OS 10/100 base T (or ECT)	RJ45		6.4.13
	(12)	Debug	RJ45		6.4.12
	(13)	ECT-RS232	SubD9	Female	6.4.14
	(14)	8E1/*DS1* – 32 wires	SubD37	Female	6.4.3
	(15)	User Service Channel	SubD15	Female	6.4.9
	(16)	NMS_G703 – AUDIO 2	SubD15	Female	6.4.6
	(17)	IDU-ODU Cable	N		6.4.16
		Leds	N° 6	Led	6.4.12
Only for 1+1 system					
IDU Extension Unit		**Interface**	**Connector**	**Type**	**Paragraph**
	(1)	Battery Input	SubD 3	Male	6.4.18
	(2)	ON – OFF Switch		Two position switch	6.4.19
	(3)	1+1 Inter-connection	SubD37	Female	6.4.3
	(4)	9-16 E1/*DS1* 32 wires	SubD37	Female	6.4.3
	(4)	E3/*DS3*	2x(1.0/2.3)	Female	6.4.11
	(4)	Ethernet user data	2xRJ45		
	(5)	LT - Test Lamp		Push – Button	6.4.12
	(6)	8E1/*DS1* – 32 wires	SubD37	Female	6.4.3
	(7)	User Service Channel	SubD15	Female	6.4.9
		Leds	N° 2	ON/ODUW	6.4.12

NB: (6) – (16) IDU MAIN UNIT – NMS INTERFACE AWY-MELODIE (see Figure 78 on page 103)

6.4. Suggested cabling

Table 19 - Suggested cabling

Cable Type	Connection type	Alcatel P/N
100 wire SCSI cable for 1+1		3DB06592AA**
HP 37 wires 8E1/DS1 cable for 1+1		3DB06632AA**
37 wires 8E1/DS1 cable for 1+1 (Split Cable)		3CC13659AA**
E3/DS3 cable for 1+1	Male	3DB06593AA**
User Service Channel cable for 1+1	SubD-15 Male	3DB06594AA**
Connection cable 24 V 3X10²	SubD-3 Male	3CC08212AAAA
Connection Cable 48 V (3X4²)	SubD-3 Male	3CC08211AAAA
FILOTEX COAX CABLE 50 OHM		1AC001100022
CABLE 8XE1/DS1 IDU/DISTR-1.0/2.3-75 OHM UNB	1.0/2.3 Male	3DB05354AA**
CABLE 8XE1/DS1 IDU/DISTR - 120 OHM BAL		3DB05355AA**
CABLE 8XE1/DS1 IDU/DISTR 1.6/5.6-75 OHM UNB 2m	1.6/5.6 Male	3CC07885ABAA
CABLE 8XE1/DS1 IDU/DISTR - 120 OHM 2m	120 ohm	3CC07658AAAB
CABLE 8XE1/DS1 IDU/DISTR-BNC-75 OHM UNB 2m	BNC Male 75 ohm	3CC07759ABAA
HA-HC/SC cable L=15m	SubD-15 Male	3DB05594AA**
NMS/AUDIO CABLE L=1.6 m	SubD-15 Male	3DB05922AA**
NMS/AUDIO CABLE L=6.4 m	SubD-15 Male	3DB05923AA**
NMS INTERFACE AWY-MELODIE IDU L= 1.6m		3DB10063AAAA
NMS INTERFACE AWY-MELODIE IDU L= 6.4		3DB10064AAAA
2MHz 75OHM cable L=1m		1AC001100013
RS232CT cable	SubD-9 Female	1AB054120027
RJ45 8p connector	RJ45	1AB074610008
75 OHM COAX CABLE 8XE1/DS1 IDU/DISTR NO CONNECTORS L=10M	SubD-37 Male	3DB05588AAAA
Male Coax Connector 1.0/2.3	Male	1AB061220005
Male Coax Connector 1.6/5.6	Male	1AB009870002
Male Coax Connector BNC 75 ohm	Male	1AB006420060
Panel Coax Connector 1.0/2.3	Female	1AB009790019
Panel Coax Connector 1.6/5.6	Female	1AB002130006
Panel Coax Connector BNC 75 ohm	Female	1AB006020076
120 OHM 8x2 twisted pair cable		1AC011980001
100 OHM CABLE for 8XDS1		1AC021980001
120 OHM Cable L904/16p lg 15m w connector		3CC08951ACAA
Power Supply connection 24V (3X2.5^2)		3CC0829AAAA
Power Supply connection 48V (3X1.5^2)		3CC08165AAAA
Cable 4 pair shielded		1AC01676003

6.4.1. Split Cable

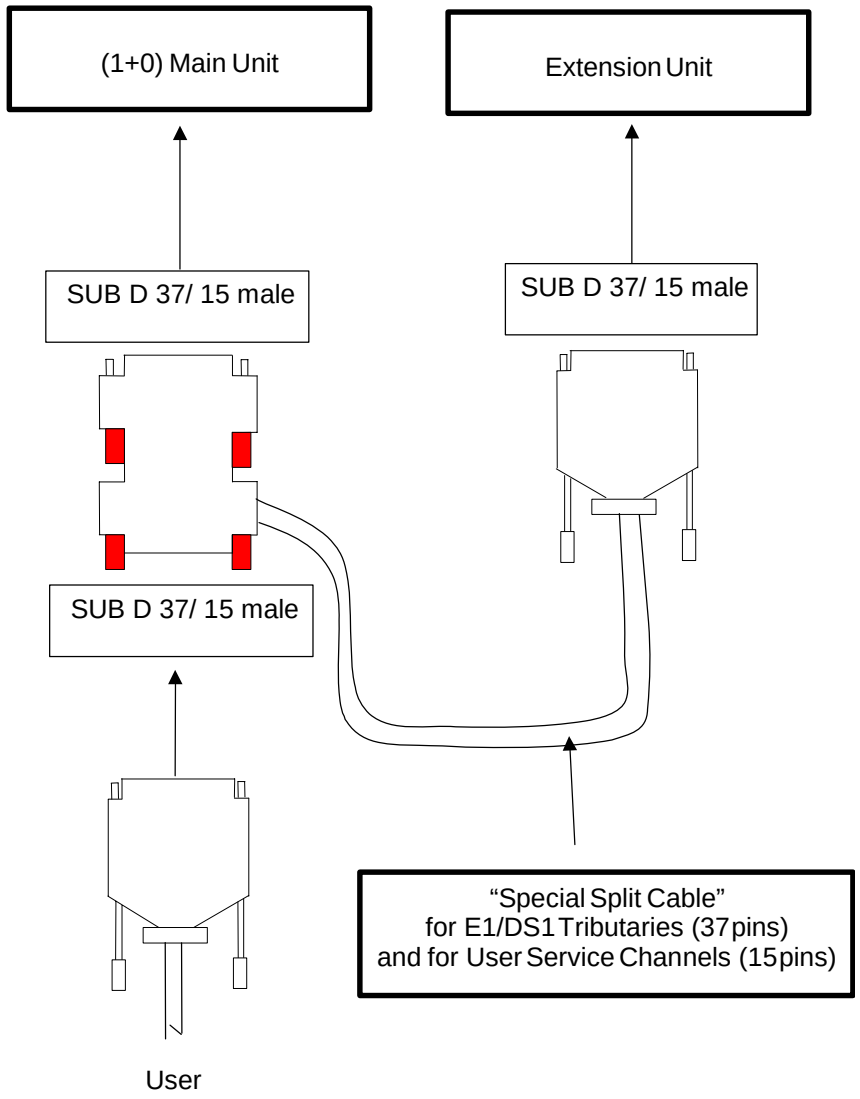


Figure 71 – E1 / *DS1* and User Service Channel Split-Cable

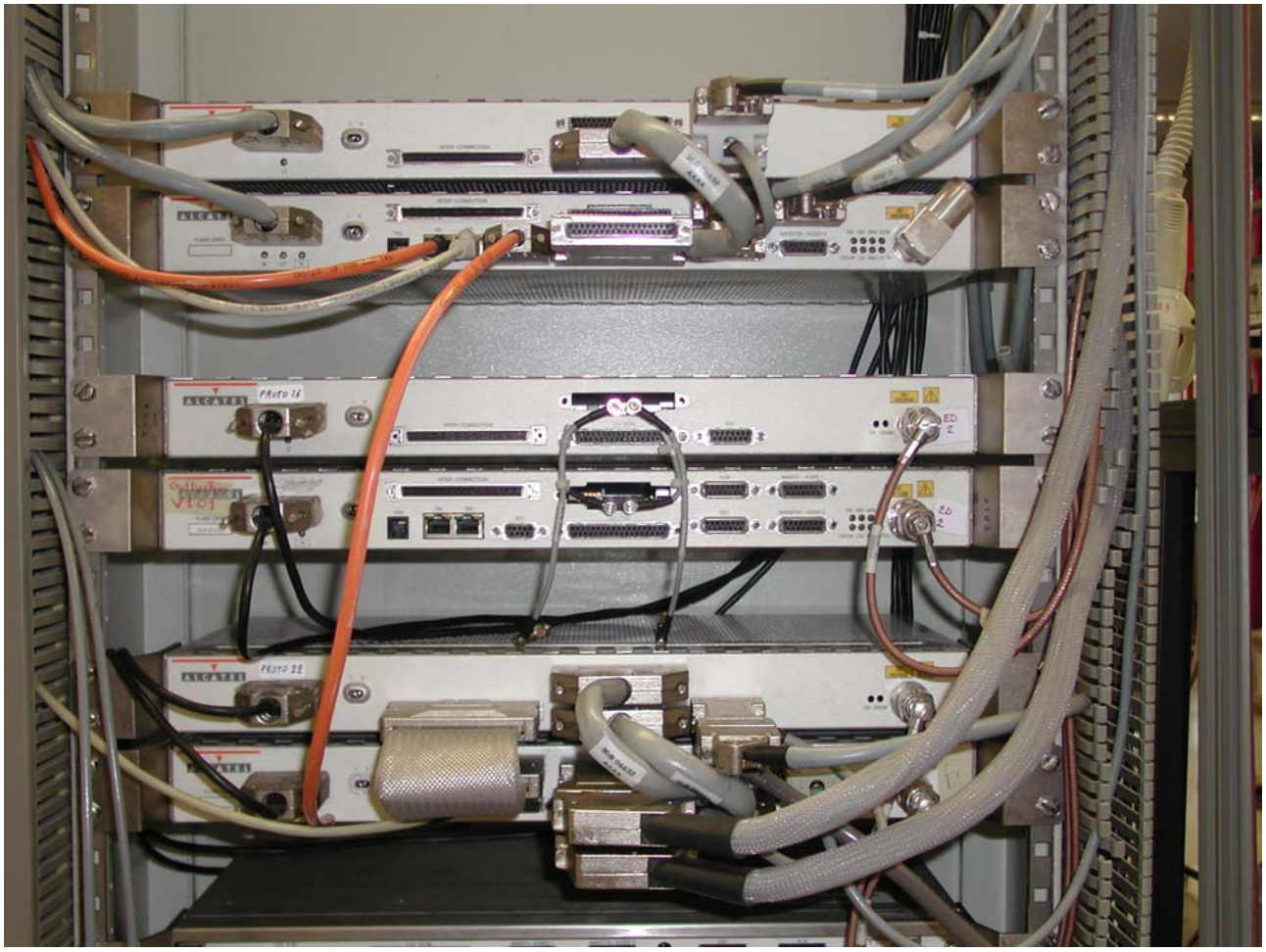


Figure 72 – Cable connections (example)

6.4.2. Inter- connection Main – Extension flat cbale

In 1+1 configuration the two subracks (Main and Extension) are inter-connected by means of auxiliary flat cable (100-wires SCSI)

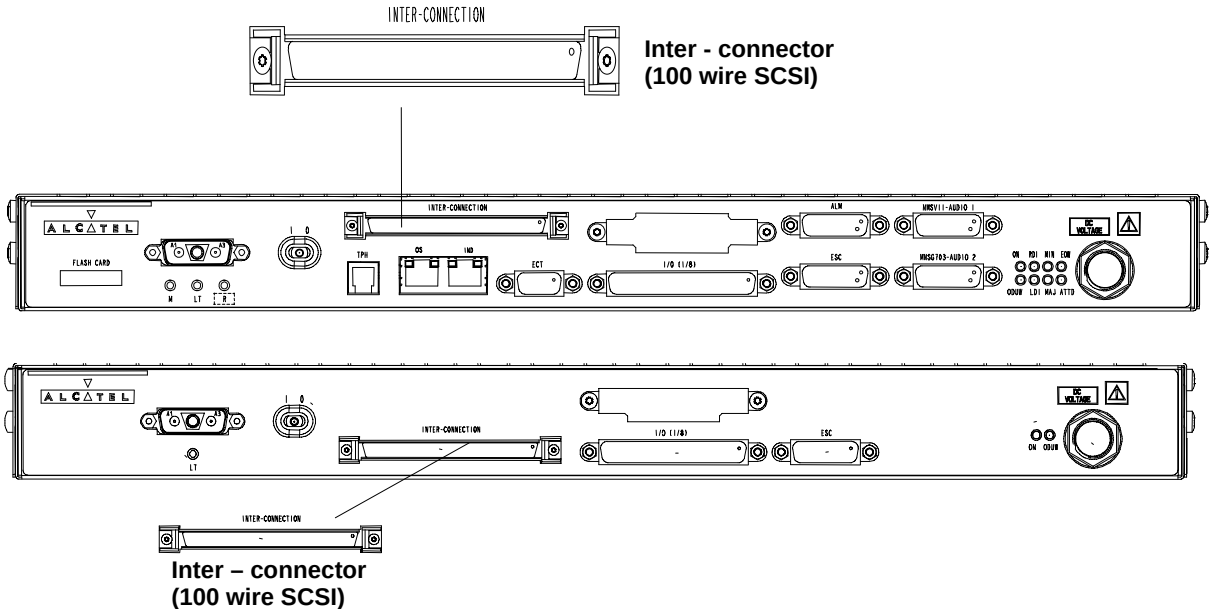


Figure 73-1+1 Inter-connection

6.4.3. I/O 1 through 8 and I/O 9 through 16

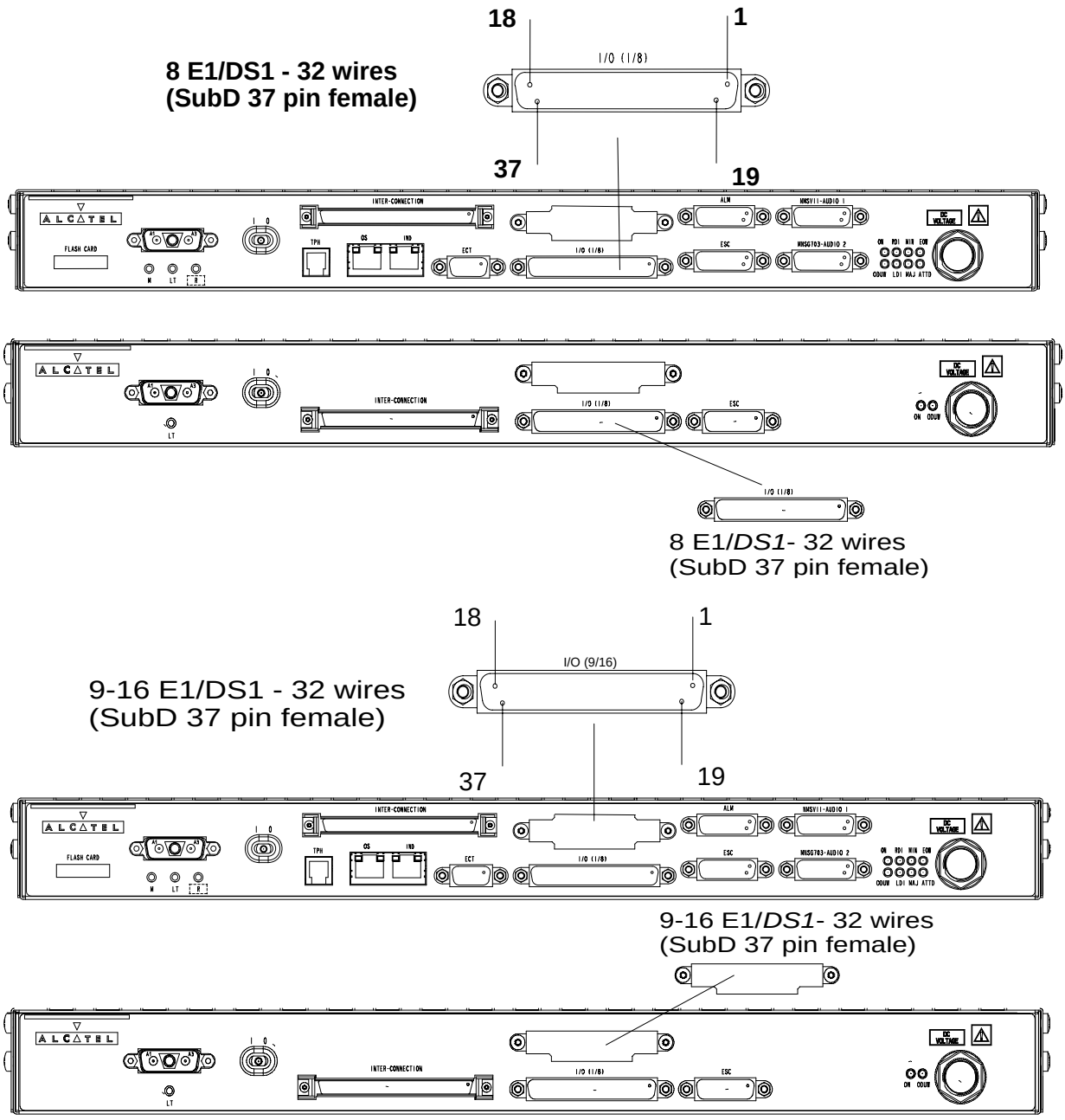


Figure 74 - I/O 1 through 8 and 9 through16 connections (Main – Extension)

16E1 – 16*DS1*

Two 37-pin SubD connectors allow for the connection of 16 tributaries.

For E1 tributaries the same input and output wires are reused for 120 Ω balanced and 75 Ω unbalanced (see Table 19, page 94 and Table 20, page 99).

For *DS1* tributaries one impedance is foreseen (100 Ω balanced).

NOTE: to reduce the DIAFONIA phenomena one cable (8 pair twisted cable) is used to connect all TX pins (A) and other one cable (8 pair twisted cable) is used to connect all RX pins (B).
See the Table 20/Table 21 on page 99.
See the Table 22 – Distributor Subrack and Cable type on page 100

Table 20 - I/O (1 through 8) connections

Description	Pin #	Description	Pin #	Cable
Reserved	1	Reserved	20	See par. 6.4 on page 94
IN+Trib. 1	2	IN-Trib. 1	21	
IN+Trib. 2	3	IN-Trib. 2	22	
IN+Trib. 3	4	IN- Trib. 3	23	A (TX)
IN+Trib. 4	5	IN- Trib. 4	24	
IN+Trib. 5	6	IN- Trib. 5	25	
IN+Trib. 6	7	IN- Trib. 6	26	
IN+Trib. 7	8	IN- Trib. 7	27	
IN+Trib. 8	9	IN- Trib. 8	28	
GND	10	Reserved	29	
Reserved	11			
OUT+Trib. 1	12	OUT-Trib. 1	30	
OUT+Trib. 2	13	OUT-Trib. 2	31	
OUT+Trib. 3	14	OUT-Trib. 3	32	
OUT+Trib. 4	15	OUT-Trib. 4	33	B (RX)
OUT+Trib. 5	16	OUT-Trib. 5	34	
OUT+Trib. 6	17	OUT-Trib. 6	35	
OUT+Trib. 7	18	OUT-Trib. 7	36	
OUT+Trib. 8	19	OUT-Trib. 8	37	

Table 21 - I/O (9 through 16) connection

Description	Pin #	Description	Pin #	Cable
Reserved	1	Reserved	20	See par. 6.4 on page 94
IN+Trib. 9	2	IN-Trib. 9	21	
IN+Trib. 10	3	IN-Trib. 10	22	
IN+Trib. 11	4	IN-Trib. 11	23	
IN+Trib. 12	5	IN-Trib. 12	24	A (TX)
IN+Trib. 13	6	IN-Trib. 13	25	
IN+Trib. 14	7	IN-Trib. 14	26	
IN+Trib. 15	8	IN-Trib. 15	27	
IN+Trib. 16	9	IN-Trib. 16	28	
GND	10	Reserved	29	
Reserved	11			
OUT+Trib. 9	12	OUT-Trib. 9	30	
OUT+Trib. 10	13	OUT-Trib. 10	31	
OUT+Trib. 11	14	OUT-Trib. 11	32	
OUT+Trib. 12	15	OUT-Trib. 12	33	B (RX)
OUT+Trib. 13	16	OUT-Trib. 13	34	
OUT+Trib. 14	17	OUT-Trib. 14	35	
OUT+Trib. 15	18	OUT-Trib. 15	36	
OUT+Trib. 16	19	OUT-Trib. 16	37	

6.4.4. Mini Distributor connection

The user ports are implemented on two 37–way connectors: for the 2 Mbit/s tributary ports. The user must choose from the configurations listed below.

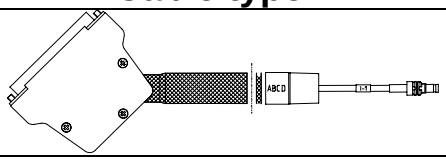
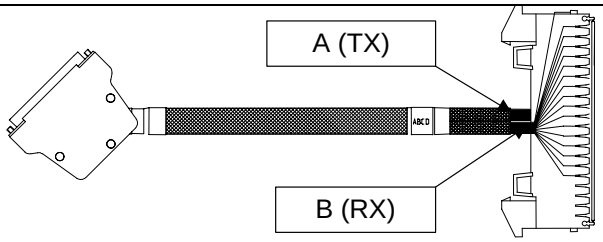
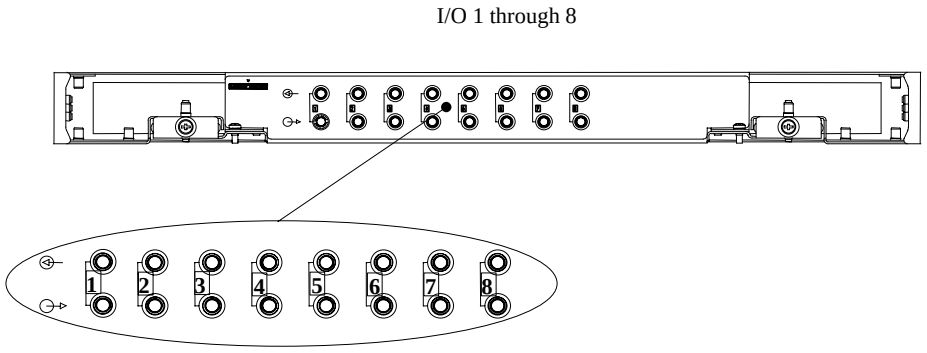
Distributor Subrack	Cable type
Distributor Subrack for 1.0/2.3 (3DB05583AAAA). *(Cable 8XE1/DS1 IDU/DISTR-1.0/2.3-75ohm UNB 3DB10008AAAA)*	
Distributor Subrack for 1.6/5.6 (3CC08061AAAA). *(Cable8X1/DS1 IDU/DISTR-1.6/5.6 – 75 ohm UNB 3CC07885ABAA)*	
Distributor Subrack for 120 ohm (3DB05585AAAA). *(Cable 8XE1/DS1 IDU/DISTR- 120 ohm BAL 3DB010007AAAA)*	
Distributor 1U Subrack for 120 ohm NO EMC (3CC08062AAAA). *(Cable 8XE1/DS1 IDU/DISTR- 120 ohm 3CC07658AAAB)*	
Distributor 3U Subrack for 120 ohm EMC (3CC07810AAAA). *(Cable 8XE1/DS1 IDU/DISTR- 120 ohm 3CC07658AAAB)*	
Distributor Subrack for BNC (3CC08061ABAA). *(Cable8X1/DS1 IDU/DISTR-BNC – 75 ohm UNB 3CC07759ABAA)*	

Table 22 – Distributor Subrack and Cable type

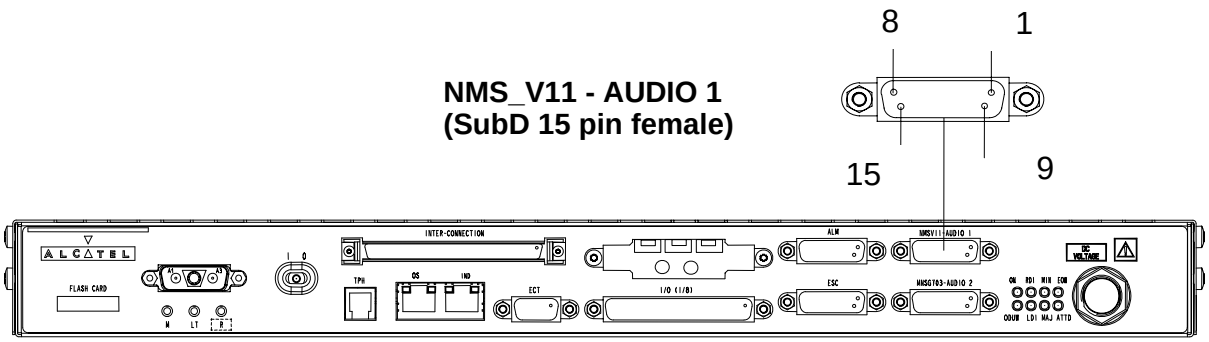


Example of front view interconnections equipped with 1.0/2.3 and 1.6/5.6 75 ohm.

Figure 75 - Front view MINI DISTRIBUTOR

For more information see TECHNICAL HANDBOOK 9400 AWY Rel.2.0 (3DB06687BAAA) “Distributor Subracks” chapter.

6.4.5. NMS V11 - AUDIO 1 (EOW)



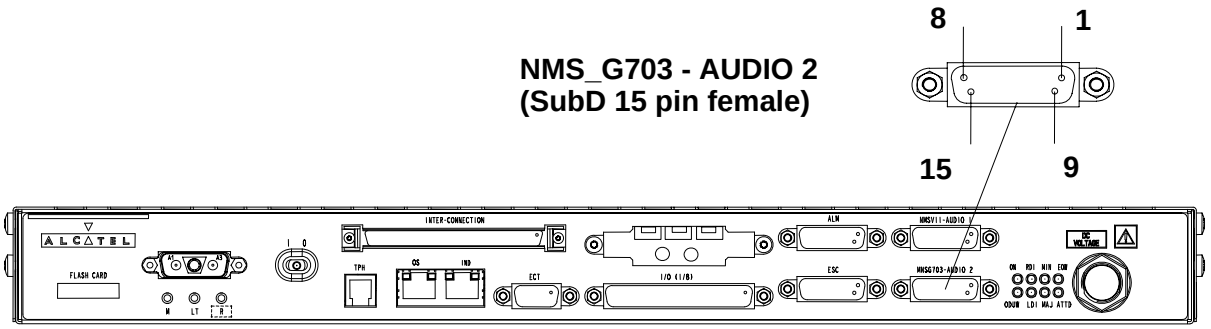
"(NMS_V11+Audio1)" interface has 9 pins dedicated to NMS and 6 pins dedicated to EOW analog party line.

NMS_V11 channel is a 64Kb/s co directional and TX and RX are totally asynchronous.

Pin #	Description	Cable
1	RS422 data in (+)	See par. 6.4 on page 94
2	RS422 clock in (+)	
3	RS422 data out (+)	
4	RS422 clock out (+)	
5	GND NMS	
6	AUDIO 1 (EOW) signal from user (+)	
7	AUDIO 1 (EOW) signal to user (+)	
8	GND Audio	
9	RS422 data in (-)	
10	RS422 clock in (-)	
11	RS422 data out (-)	
12	RS422 clock out (-)	
13	AUDIO 1 (EOW) signal from user (-)	
14	AUDIO 1 (EOW) signal to user (-)	
15	Not used	

Figure 76 - NMS V11 – Audio1 (EOW) connections

6.4.6. NMS G703 + Audio 2 (EOW)



"(NMS_G703 + Audio2)" interface has 5 pins dedicated to NMS and 6 pins dedicated to EOW analog party line.

NMS_G703 channel is a 64Kb/s; its working mode can be selected between:

- DTE *G703 data in* and *G703 data out* have to be synchronous, *G703 data out* being the slave,
- Asynchronous: *G703 data in* and *G703 data out* are totally asynchronous.

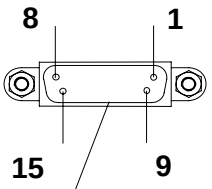
Pin #	Description	Cable
1	G703 data in (+)	See par. 6.4 on page 94
2	Not used	
3	G703 data out (+)	
4	Not used	
5	GND NMS	
6	AUDIO 2 (EOW) signal from user (+)	
7	AUDIO 2 (EOW) signal to user (+)	
8	GND Audio	
9	G703 data in (-)	
10	Not used	
11	G703 data out (-)	
12	Not used	
13	AUDIO 2 (EOW) signal from user (-)	
14	AUDIO 2 (EOW) signal to user (-)	
15	Not used	

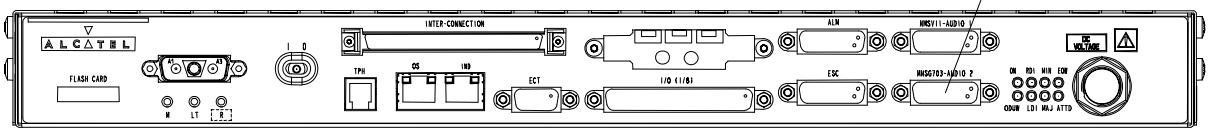
Figure 77 - NMS_G703 + Audio2 (EOW) connections

6.4.7. NMS INTERFACE AWY-MELODIE

NMS INTERFACE AWY-MELODIE

(SubD 15 pin female)





NOTE:

AWY SIDE: in this connection there are both signal Audio (party-line) and Supervision G703 or V11 in alternative

MELODIE SIDE: the party line connection is stand-aloneas stand-alone the NMS connector.

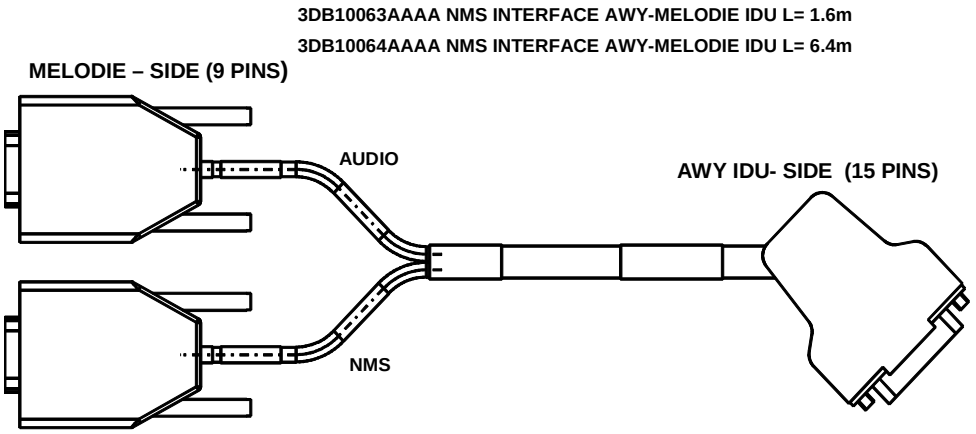
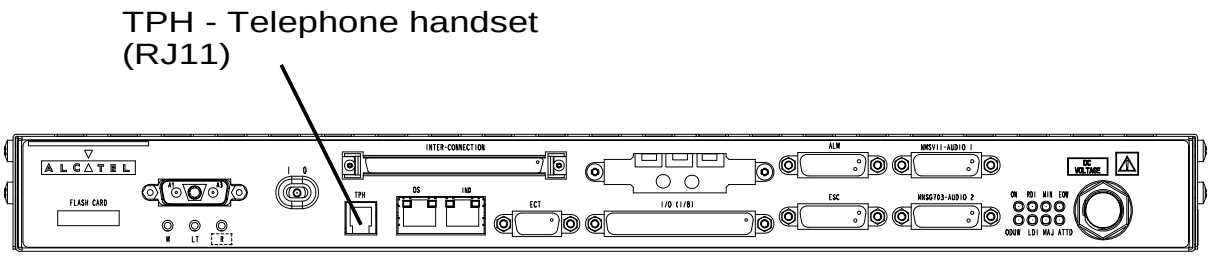
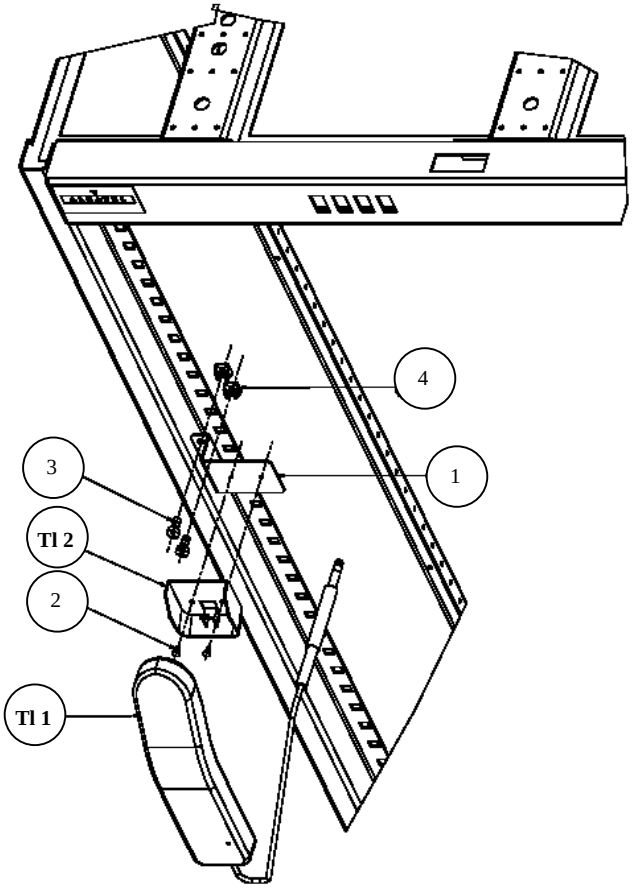


Figure 78 – NMS INTERFACE AWY-MELODIE

6.4.8. Telephone handset installation



The handset connects to the IDU via the handset jack (3CC07946AAAA) DTMF (tone) dialling. The handset is held by a support piece fixed by two screws (see Figure 79 on page 104).



1 - Still support for Handset support
2 - NUTS
3 - NUTS
4 - BOLTS

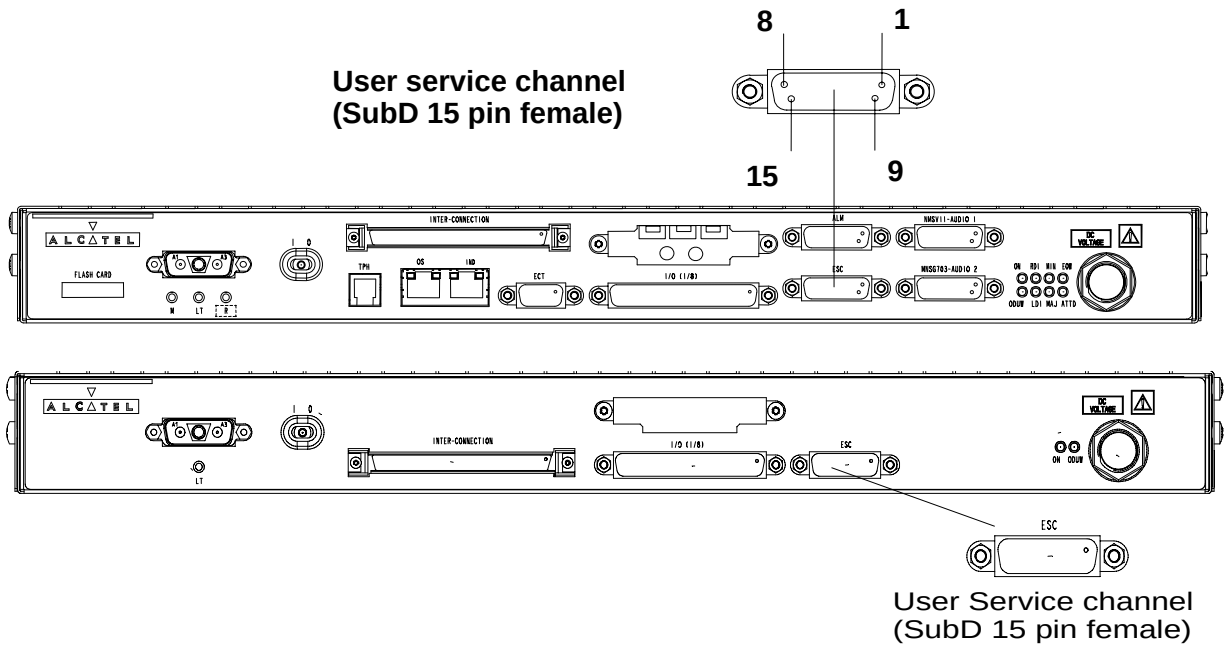
TI 1 - TELEPHONE HANDSET
TI 2 - TELEPHONE HANDSET PLASTIC SUPPORT

Figure 79 - Telephone handset installation

6.4.9. Service Channel

User service channel external interface (SubD15) is located both 9400AWY Main and Extension board.

A special user service channel cable (linking externally the SubD15 connectors on Main and Extension subrack) is used to support EPS protection in (1+1) configuration; no wires are thus necessary to be exchanged on the auxiliary (1+1) flat cable.

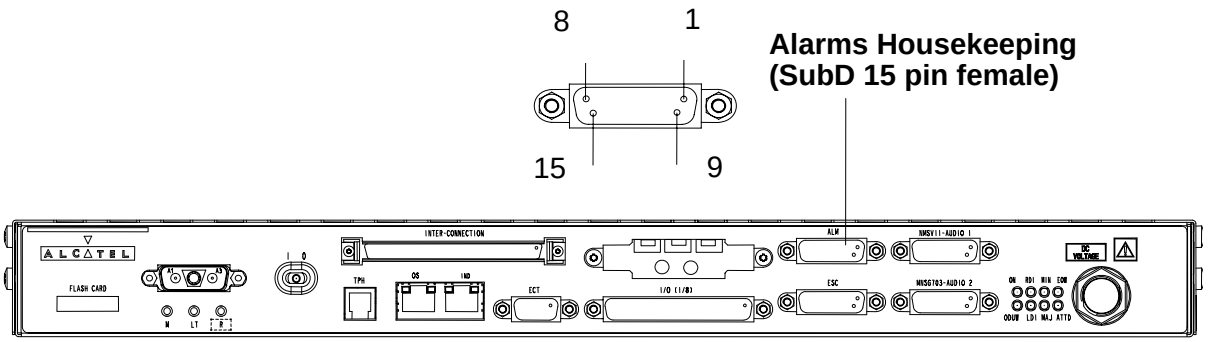


SERVICE channel provides external access for auxiliary channel by means of a 15-pin SubD 15 female connector.

Pin #	Connector	Signal	Direction	Cable
2	M1	COD_RXP	INPUT	See par. 6.4 on page 94
9	M1	COD_RXN	INPUT	
3	M1	COD_TXP	OUTPUT	
10	M1	COD_TXN	OUTPUT	
4	M1	RX_ASY	INPUT	
11	M1	TX_ASY	OUTPUT	
5	M1	CC_RXP	INPUT	
12	M1	CC_RXN	INPUT	
6	M1	RX_CKP	BID	
13	M1	RX_CKN	BID	
7	M1	CC_TXP	OUTPUT	
14	M1	CC_TXN	OUTPUT	
8	M1	CC_TCKP	OUTPUT	
15	M1	CC_TCKN	OUTPUT	
1	M1	GND	/	

Figure 80 - SERVICE CHANNEL connections (Main – Extension)

6.4.10. Housekeeping Alarms



The " Housekeeping Alarms-" SubD15 connector is divided into:

3 summarizing discrete alarms – equipment outputs;

4 housekeeping controls – equipment outputs;

6 housekeeping alarms – equipment inputs;

1 common wire dedicated to equipment outputs;

1 common wire dedicated to equipment inputs.

Pin	Connector	Signal	Direction	Cable
6	M2	HK_I1	INPUT	See par. 6.4 on page 94
13	M2	HK_I2	INPUT	
7	M2	HK_I3	INPUT	
14	M2	HK_I4	INPUT	
8	M2	HK_I5	INPUT	
15	M2	HK_I6	INPUT	
4	M2	HK_O1	OUTPUT	
11	M2	HK_O2	OUTPUT	
5	M2	HK_O3	OUTPUT	
12	M2	HK_O4	OUTPUT	
9	M2	COM -COMMON WIRE (FOR ALARM OUTPUTS)		
1	M2	A_1	OUTPUT	
2	M2	A_2	OUTPUT	
3	M2	A_3	OUTPUT	
10	M2	GROUND (ALARM INPUT COMMON PONIT)	/	

Figure 81 - Housekeeping- Alarms- connections

6.4.11. E3 - *DS3*

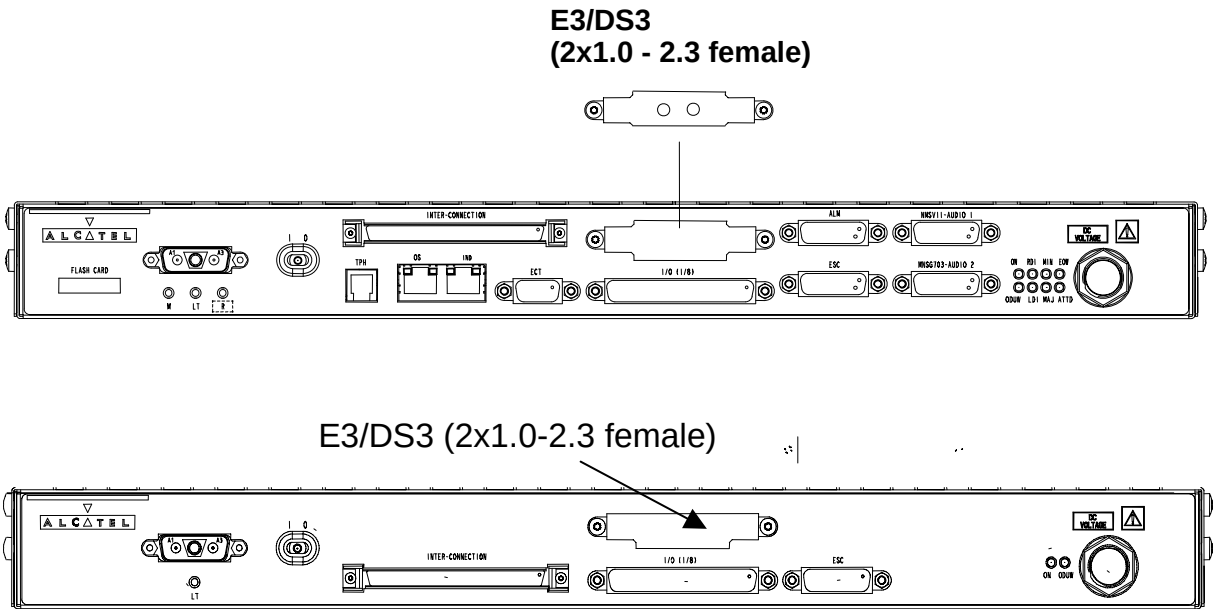


Figure 82 - E3 *DS3* Interface connections (Main – Extension)

Two 1.0 /2.3 Siemens adapter connectors are dedicated to the E3/*DS3* input/output; the impedance is always 75 Ω unbalanced. The first adapter is a 100 cm cable with a 1.0/2.3 "locking" connector and a BNC connector (cod. 041.992.634), the second adapter is a 100 cm cable with a 1.0/2.3 "locking" connector and a 1.6/5.6 connector (cod. 041.992.635).

6.4.12. M, LT, LEDs (housekeeping, Summarizing)

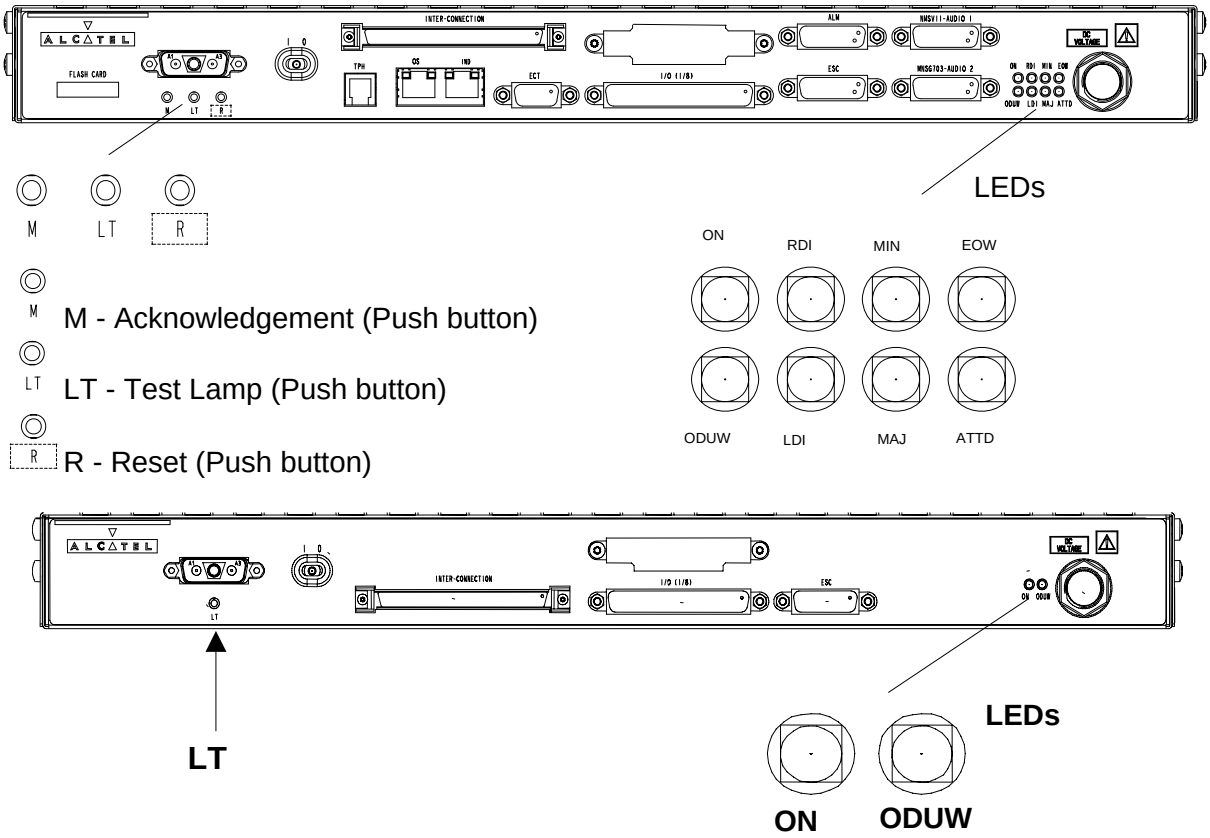


Figure 83 - M, LT and LEDs meanings

The **M** pushbutton turns off the LEDs alarms.
The **LT** (lamp test) pushbutton verifies if the LEDs alarms are turn on.
The following **LEDs** are present on the front panel of the Main and Extension Board

LED meanings			
POS.	**LED**	**MEANING**	**COLOUR**
1	ON	Power – on	Green
2	RDI	Remote Defect Indication	Red
3	MIN	Minor alarm	Red
4	EOW	Engineering Order wire / RPS position	Busy (Yellow), FREE (Green) / RPS on (Green)
5	ODUW	ODU working	Green
6	LDI	Local Defect Indication	Red
7	MAJ	Major Alarm	Red
8	ATTD	Attended	Yellow

6.4.13. OS – DEBUG

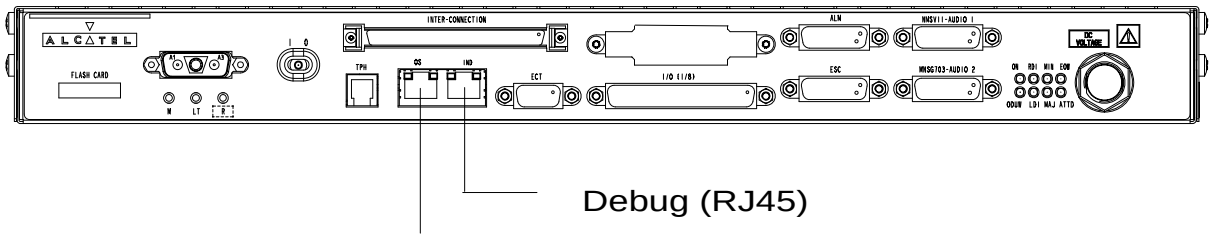
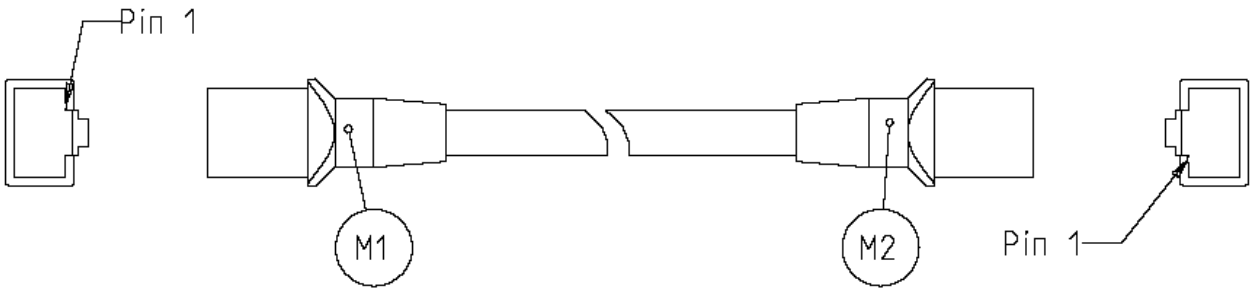


Figure 84 – OS - DEBUG connections cable pin out table

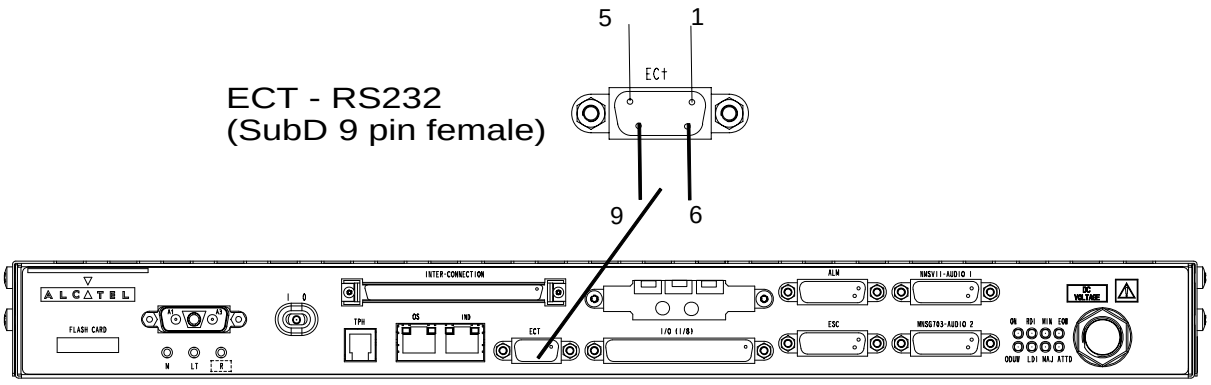
These connections are directly made on the RJ45 connectors mounted on the main unit, and use the 10/100 base T interface.

Ethernet pin out cable					
M1 RJ45 MAIN side	**Signal**	**Color used**	**M2 RJ45 Eth1 Eth2**	**M2 RJ45 CT side**	**CABLE**
1	Tx +	White/Orange	1	3	See par. 6.4 on page 94
2	Tx -	Orange	2	6	
3	Rx +	White/Green	3	1	
4		Blue	4	4	
5		White/Blue	5	5	
6	Rx -	Green	6	2	
7		White/Brown	7	7	
8		Brown	8	8	
Pins 4,5,7 and 8 are not used					



CT Ethernet cable

6.4.14. CT access



In Figure 85 on page 110 is detailed the pinout for the RS 232 - 9 pins connector to interconnect the Personal Computer to the CT .

RS 232 IDU MAIN side	RS 232 (PC side)
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Figure 85 - CT connections

6.4.15. R - Reset pushbutton

This pushbutton resets the unit software.

6.4.16. IDU – ODU connections

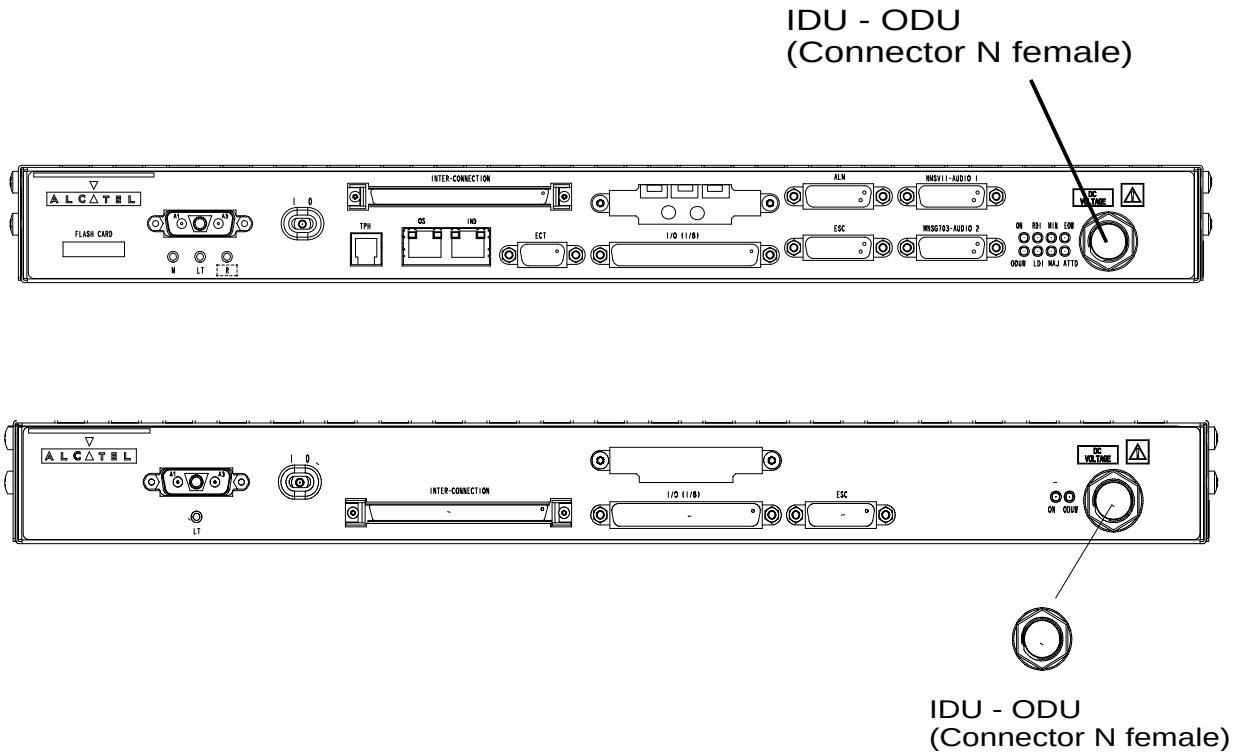


Figure 86 - IDU ODU interconnections (Main – Extension)

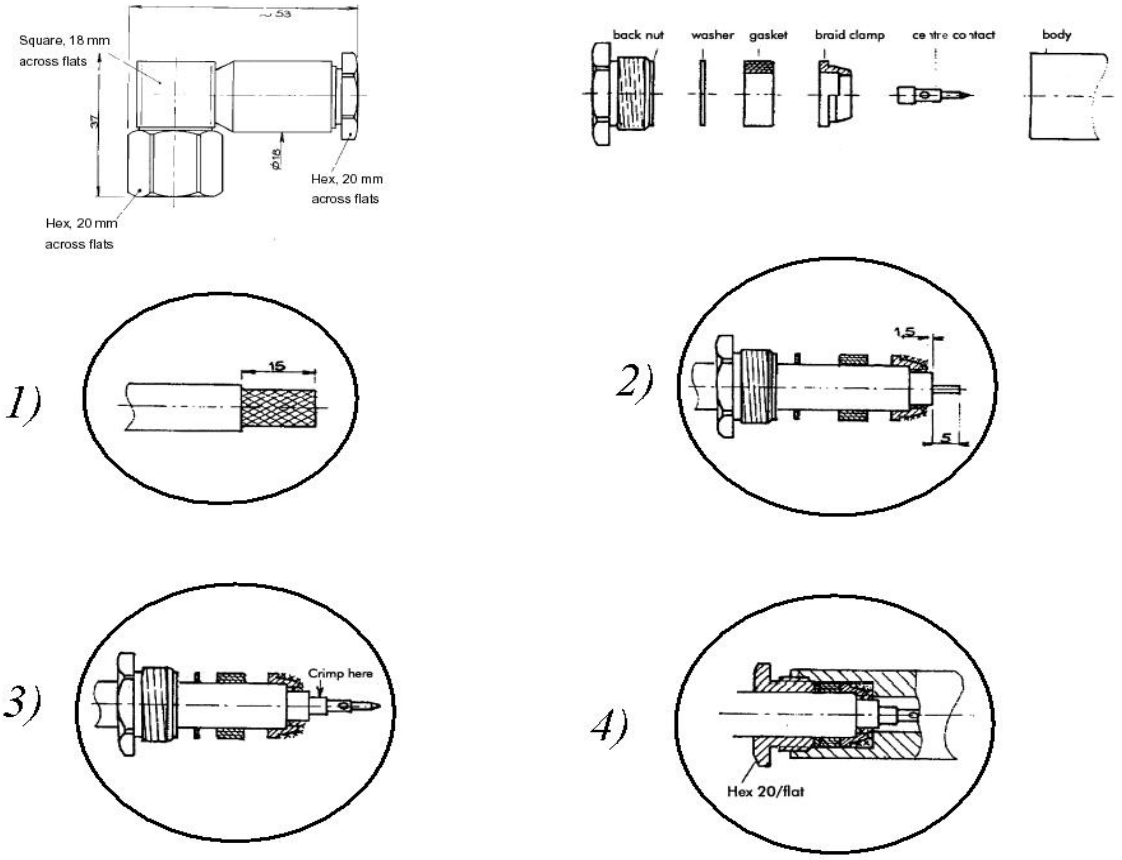
The transceiver inside the ODU module is connected to the IDU side through an IDU-ODU interconnecting 50 ohm coaxial cable (1AC001100022). The connector used is a N male connector (1AB095530023) plus a 90° N-Male / N-Female adapter Code(1AB119780021).
In order to assemble the connector to the coaxial cable, refer to the leaflet enclosed into the supplied connector beg, however hereafter are reported some of the main connector assembling descriptions .

6.4.17. 50 Ohms connector assembling

NB: Hereafter we show some example of connector assembling , however each connector is delivered with it's own description leaflet enclosed into the connector delivering plastic bag.

6.4.17.1. ROSENBERGER CONNECTOR MOUNTING Straight

50 Ohms connector assembling description



1) Strip 15 mm of outer insulation from the cable and comb out the braid.

2) Fit the nut, washer, flat gasket and braid clamp onto the cable, then fold back the braid over the braid clamp and cut away the excess. Strip the core of the cable to the dimensions opposite.

3) Fit the center contact fully home on the core of the cable. Crimp with DANIELS M225/5-01 tool fitted with jaws Y215P (hex:.128 across flats). If not possible, solder. CAUTION: DO NOT MELT THE CABLE INSULATION.

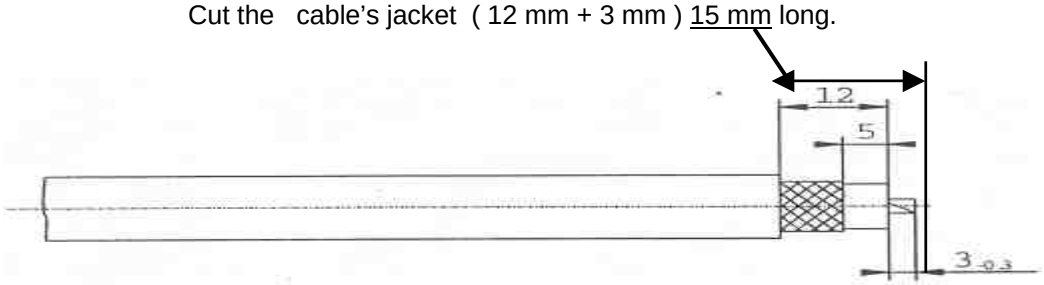
4) Abut the gasket and washer against the braid clamp then offer up the end of the cable into the body of the connector making sure that the contacts mate correctly with each other. Screw the nut into the body of the connector (torque: 500 N/cm or 44.254 lbf.in). The connector is now ready for use.

Figure 87 - Details for assembling "N" connector to coaxial cable

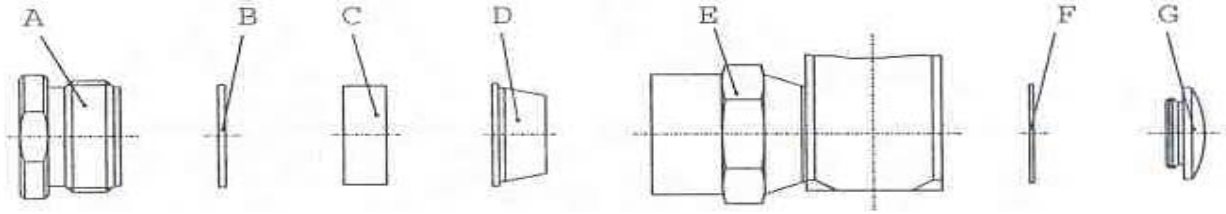
6.4.17.2. ROSENBERGER CONNECTOR MOUNTING - 90° Male

50 Ohms connector assembling description

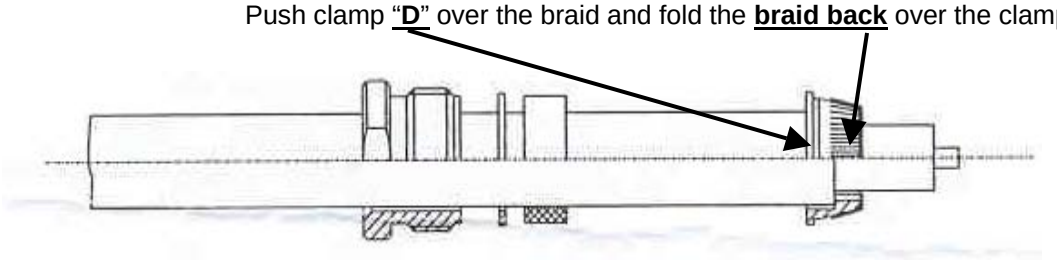
1 Prepare the cable according to the diagram.
Cut the cable's jacket (12 mm + 3 mm) 15 mm long.



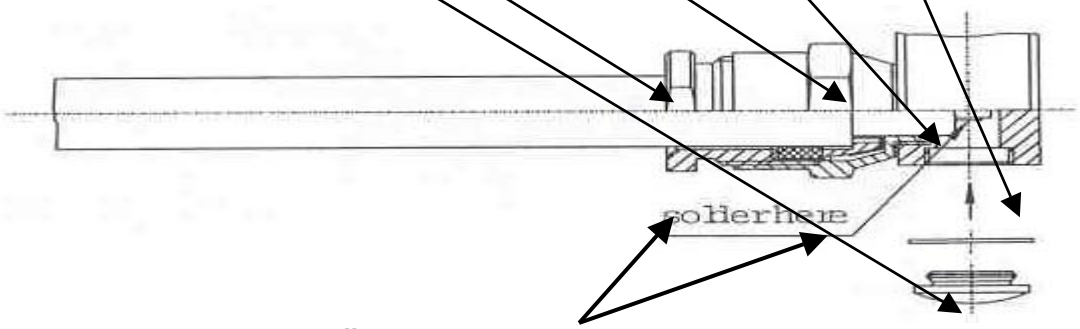
2 Disassemble the connector as shown in the figure.



3 Slide nut "**A**", washer "**B**" and gasket "C" onto the cable.
Push clamp "**D**" over the braid and fold the **braid back** over the clamp.



4 Insert the prepared cable fully into the connector body "**E**" and position the inner conductor of the cable in the slot of the central pin.
5 Thread nut "**A**" and tighten down with torque **4 Nm**.
6 Solder central pin to the inner conductor of the cable.
7 Place washer "**F**" and tighten down cover "**G**" into the rear aperture of the connector body.

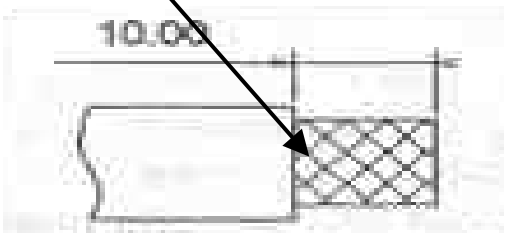


NB. **Coupling torque: 15N.m to 35N.m.**

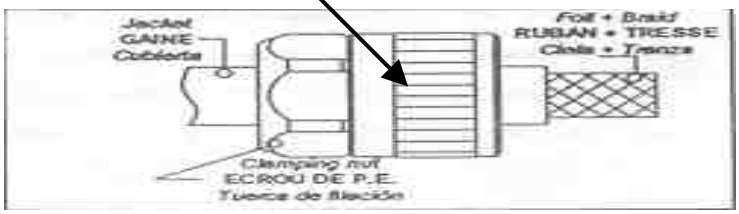
6.4.17.3. DELTA OHM CONNECTOR Mounting- STRAIGHT and 90° -Male

50 Ohms connector assembling description

1 Cut the cable's jacket 10 mm long.

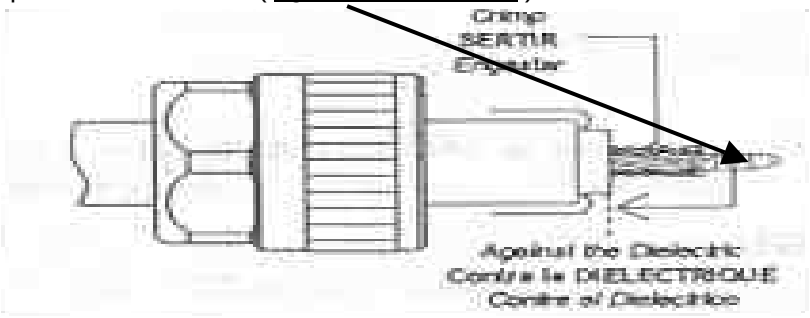


2 Put the clamping nut on the cable.

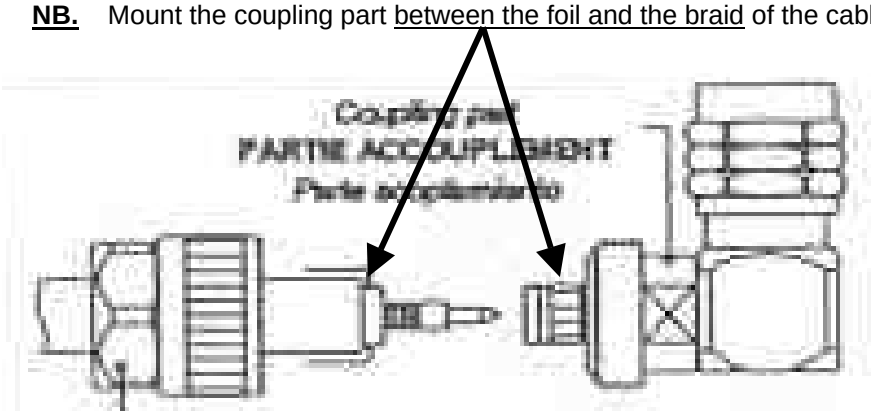


3 Cut the dielectric 4 mm long.
Cut the inner conductor 6 mm long.
Fold beck the inner Braid and leave the foil straight in place.

4 Central contact crimping or welding.
Crimp the central contact (against the dielectric) on the inner conductor.

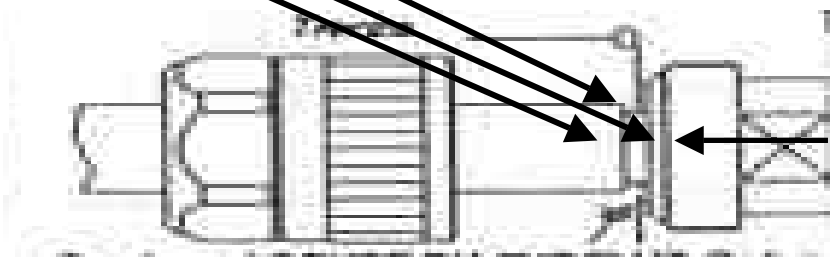


5 Connector mounting.
NB. Mount the coupling part between the foil and the braid of the cable.



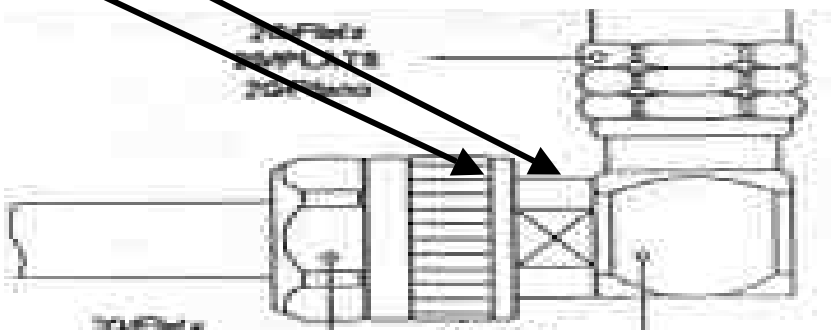
6 Widen the cable end by inserting the connector.
Slide the connector inside the cable's jacket.
Inserted the connector, cut the remaining braid.

NB. Coupling torque: 15N.m to 35N.m.



7 **Mount the clamping nut and the coupling part by holding the body**.
Press with end wrenches the clamping nut.

NB.
Coupling torque: 15N.m to 35N.m.



6.4.18. Power Supply connector, On / Off switch

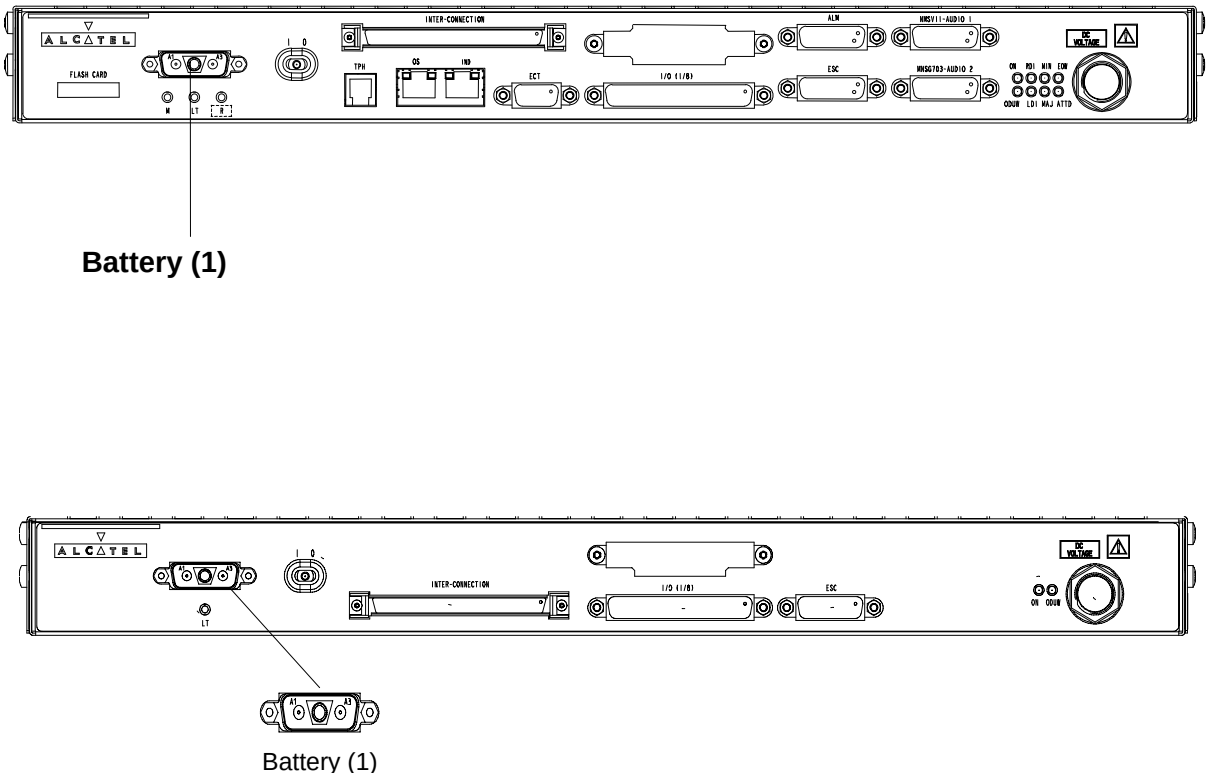


Figure 88 – Power Supply Connector

The PSU is a plug-in of the IDU "Main/extension Board".

It is a module including DC/DC converters and filters. It is plugged onto the main board by means of suitable connectors. Three versions exist:

1) ± 48Vdc to ± 60Vdc ±20%;

2) ± 24Vdc -20% +50%

3) ± 24Vdc to ± 60Vdc ±20%

according to the IDU MAIN UNIT and IDU EXTENSION UNIT.

SAFETY RULES

Due to possible very high currents in case of short-circuit at the battery power input; it is essential that the battery power distribution line be provided with a short circuit back-up protection with adequate breaking capacity

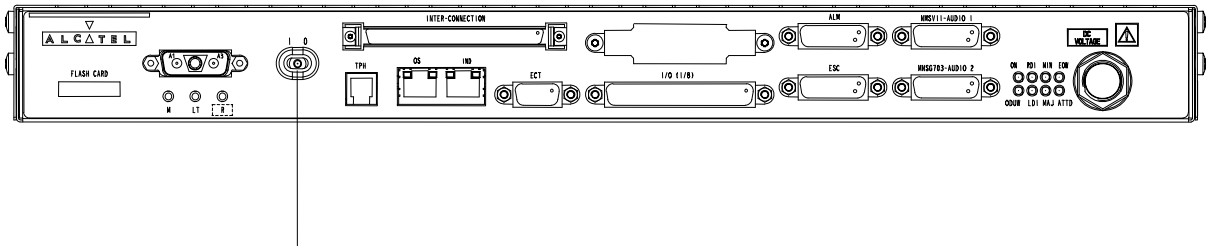
Max rating of branch circuit protection is 15A (USA/CANADA) or 16A (Others)

Battery		
Pin	**Function**	**Cable**
A1	**+ BATTERY**	See par. 6.4 on page 94
A2	**GROUND**	
A3	**- BATTERY**	

Figure 89 - Power supply connections

6.4.19. ON-OFF switch

Powers the unit on and off.



ON – OFF Switch

Figure 90 – ON-OFF Switch

ANNEXES

Annex A W.T.D. Rack installation

A.1. Mechanical installation

Installation has been sub–divided into the following phases:

- **Rack Positioning and Fastening**
- **Fixing the rack to floor using expansion bolts or Fixing to floating floor;**
- **T.R.U. fastening to W.T.D rack.**

A.1.1. Rack Positioning and Fastening

Proceed as follows:

- Refer to the plant documentation to see rack row assignment
- Fasten the rack to the station structure according to one of the following procedures:
- Fixing the rack to floor (see paragraph 2.2.3)
- Fixing the rack to floating floor (see paragraph 2.2.4)

A.1.2. Fixing the rack to floor using expansion bolts

(See Figure 91 on page 119)

- Mount the rack in a vertical position in the desired place.
- Mark the base–plate with six holes (**1**) to be drilled on the floor
- Temporarily remove the rack and drill the holes at the points drawn on the floor (see Figure 92 on page 120).
- Place the inserts into the holes
- Secure the expander bolts to the floor through the base–plate holes.

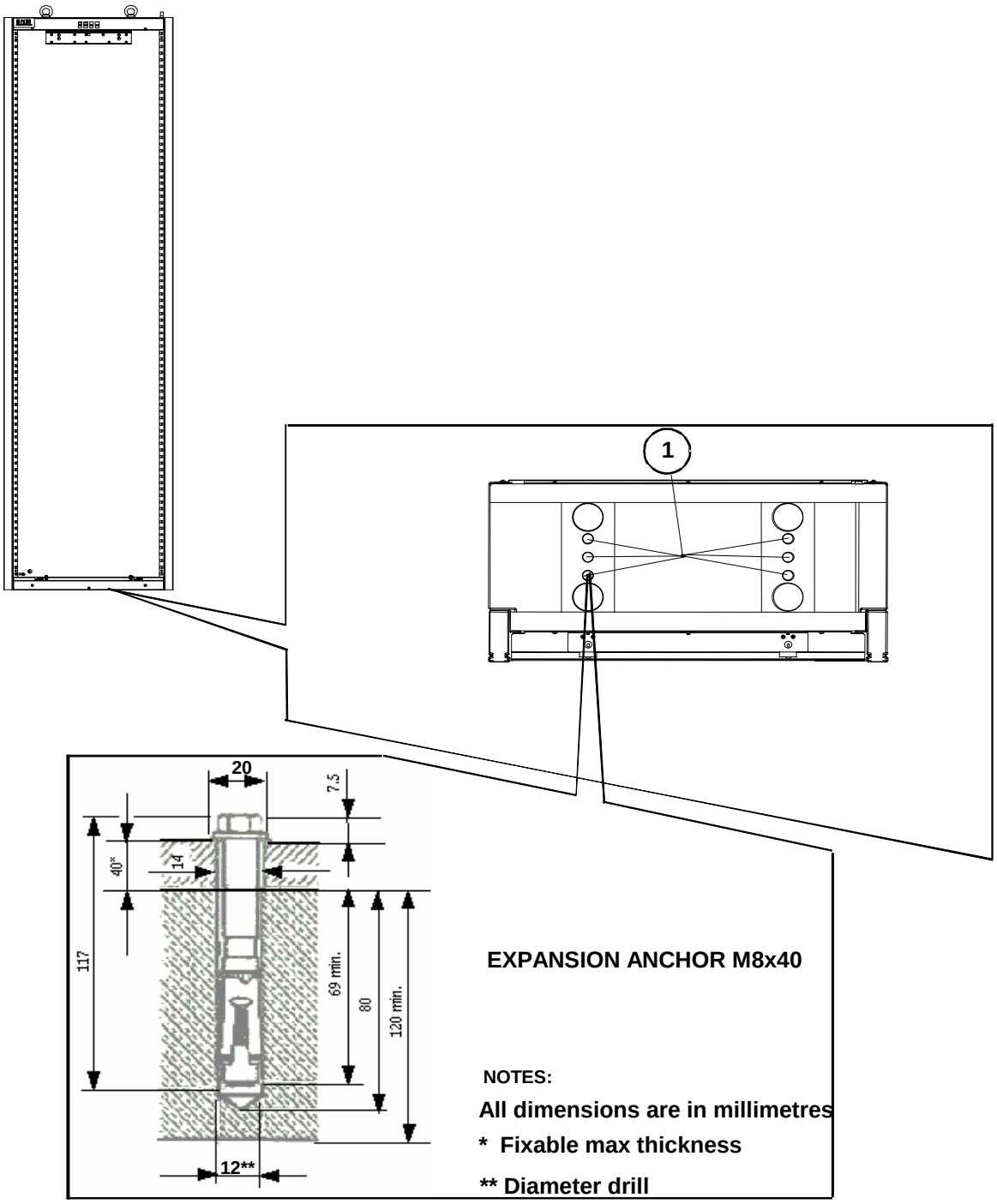


Figure 91 - Fixing the W.T.D. rack using expansion anchors

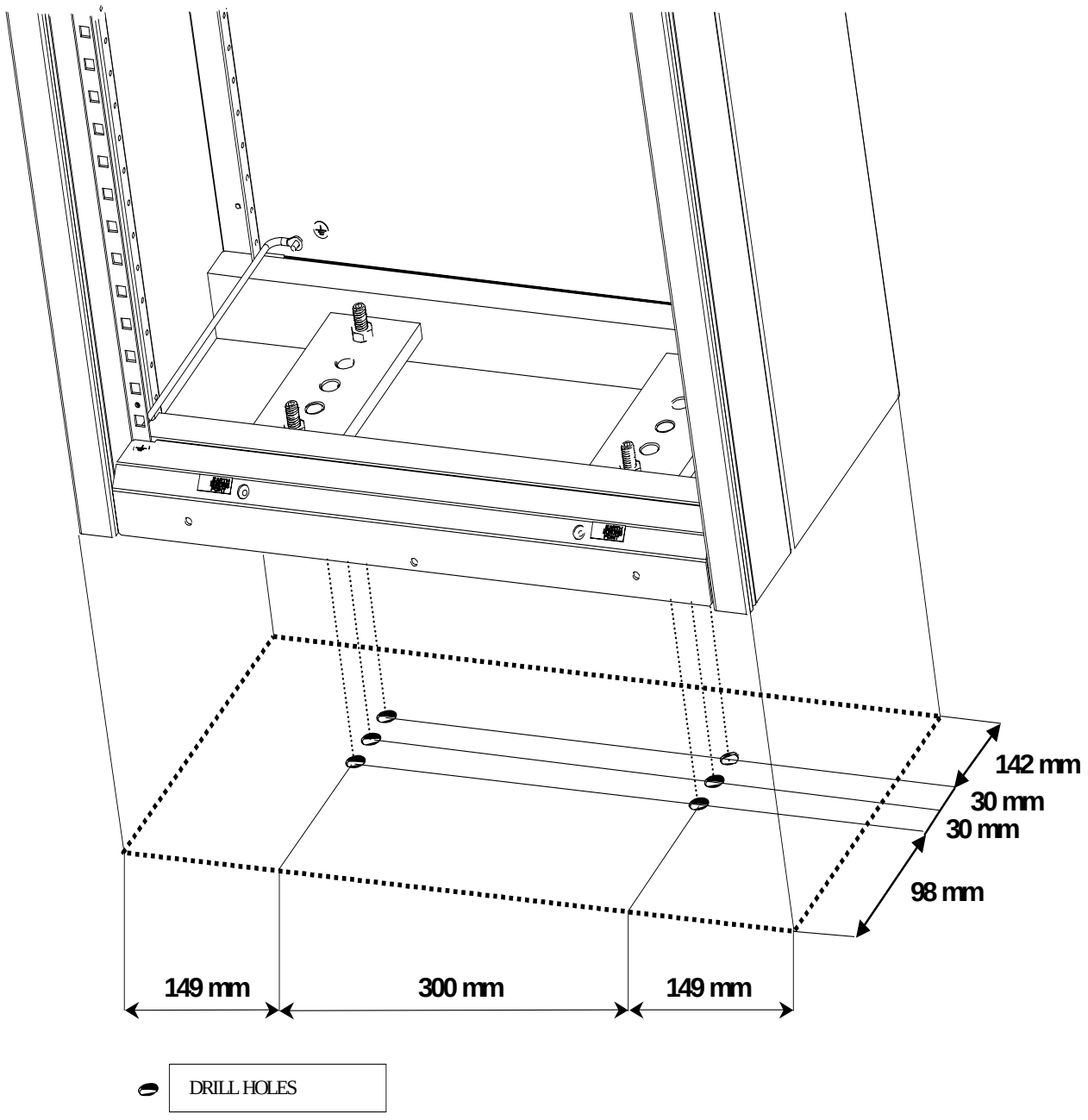


Figure 92 - rack - Drill Holes for Anchoring to the Floor (single rack)

A.1.3. Fixing to floating floor

The drilling mask is the same used for concrete floor fastening (

Figure 92 on page 120). In this case a hole must be created for the cables coming from the bottom according to Figure 93 on page 121. The rack fastening is to be mounted on the concrete floor below using a suitable stud as shown in

Figure 94 on page 122.

Using the row layout drawing, mark out the cable entry areas in the floor tiles and cut out with a jigsaw. Remember that the beginning of the row must be approved by the customer.

N.B. Unused or incompletely used cable entry areas should be blocked off with foam rubber.

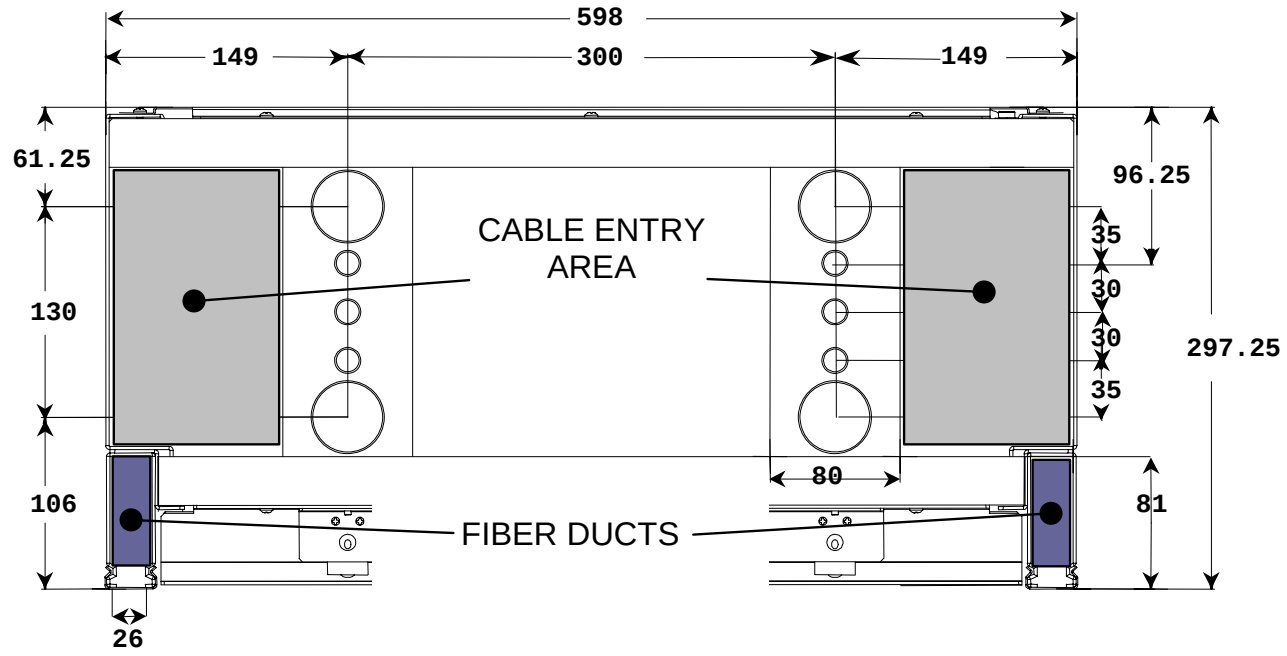


Figure 93 - rack - Floor tile drilling template

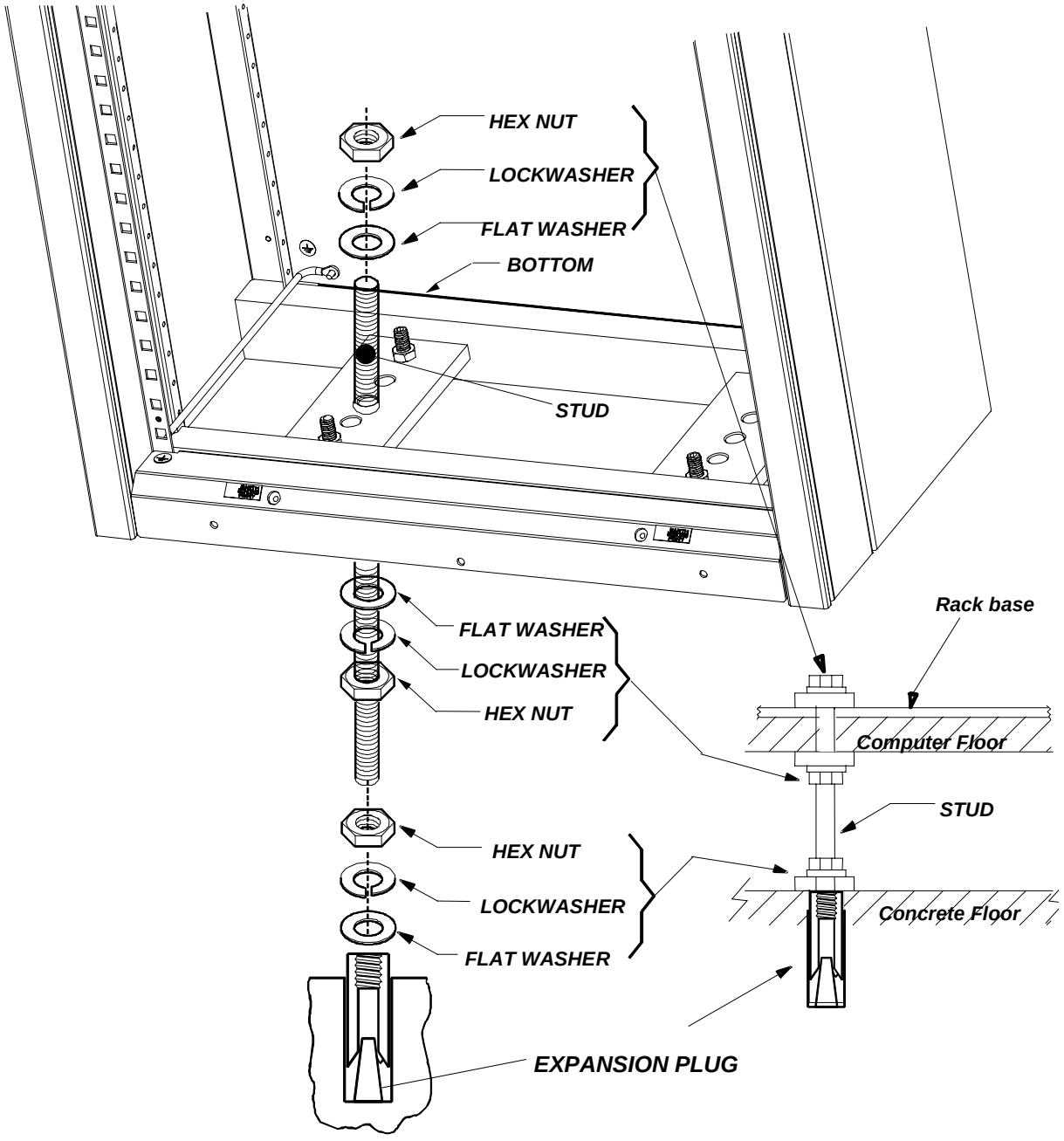


Figure 94 - rack - Example of securing rack assembly to computer floor

A.1.4. T.R.U. fastening to the W.T.D rack

SAFETY RULES

T.R.U. fastening to the rack guarantees the connection to the protection ground in that the rack is wired to the station protection ground.

See Figure 95on page 123.

Fix the T.R.U. **(1)** to the rack by inserting screws **(2)** into the holes of the adapter **(4)**, screw them into the relative holes on side-wall **(3)**.

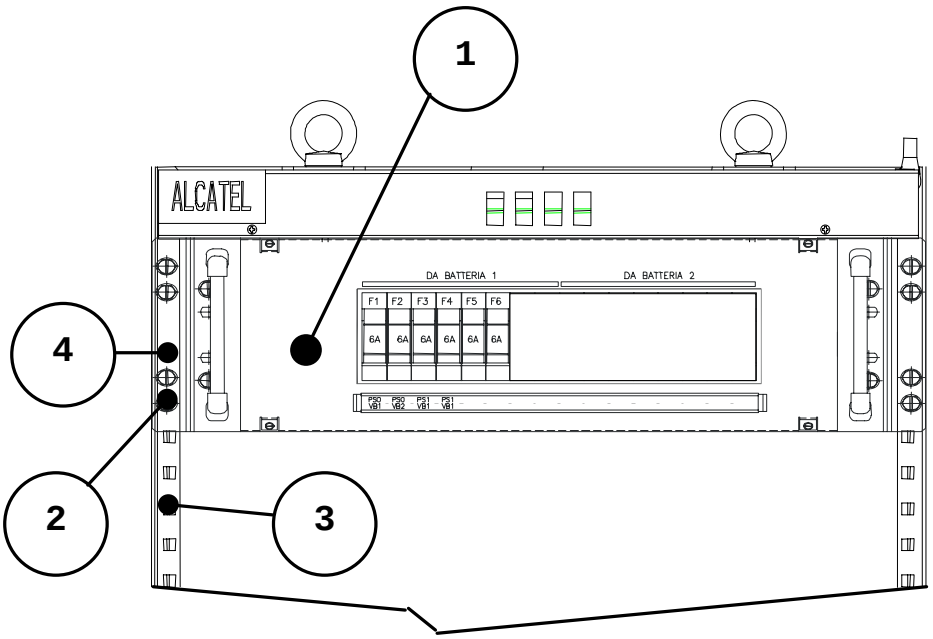


Figure 95 - rack - T.R.U. fastening to the rack

Figure 96 - W.T.D rack - Front plate 6 circuit breakers

A.2. Electrical connections

Electrical Installation has been sub–divided into the following phases:

- **Protection ground Connections**
- **Power supply connection**

A.2.1. Protection ground Connections

The rack must be grounded by means of a connection to the protection ground terminal of the site electrical plant.

SAFETY RULES

The rack must be connected to the protection ground before performing any other electrical connection.

In Figure 97 on page 123 is shown the connection of the ground on the topside of the rack.

The rack is grounded to the station through a 16 to 25 mm^2 (1 to 2 AWG) section cable **(1)** terminated onto the cable terminal lug **(2)**.

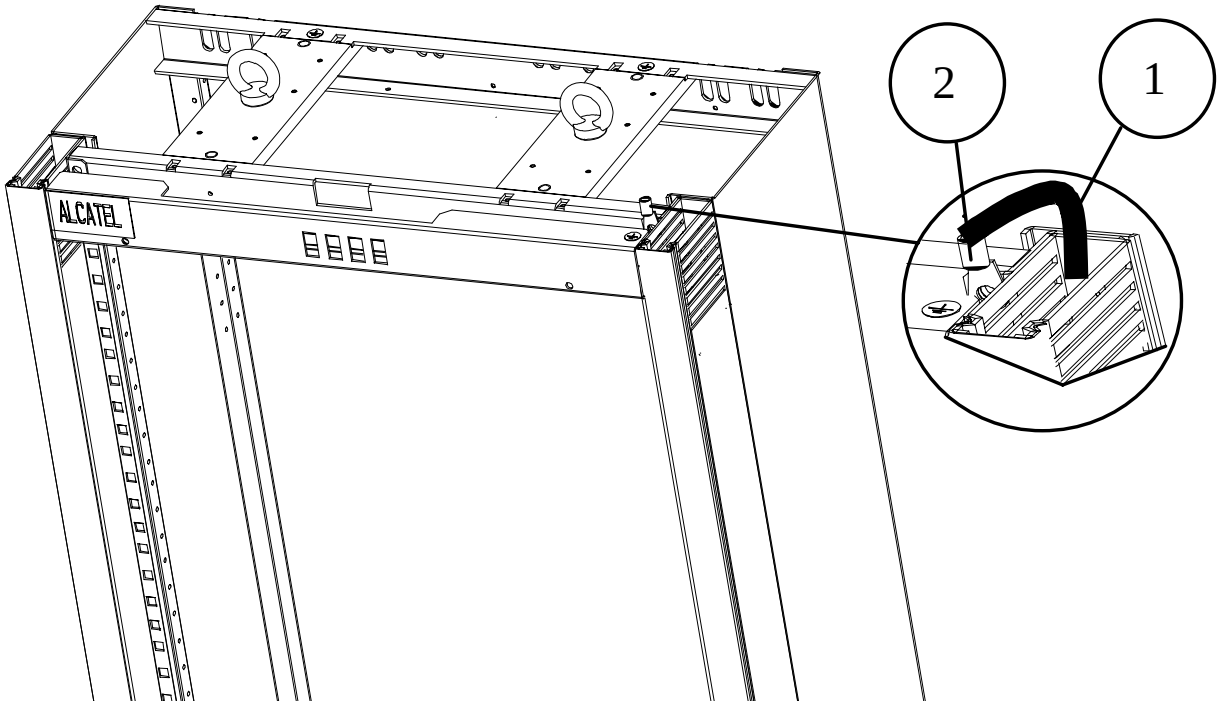


Figure 97 - Rack - Ground connections

A.2.2. AWY supply voltage & Grounding section cables

System	AWY 1+0	AWY 1+1
Cables length	Up to 20 m	Up to 20 m
BB Unipolar cable section Power Supply	2 x 1.5 mm^2 shielded	2 x 1.5 mm^2 shielded
BB Unipolar cable section Grounding Cable	1 x 3 mm^2	1 x 3 mm^2
TRU Unipolar cable section Power Supply		
TRU 16 circuit breakers full equipped with AWY sys.	2 x 16 mm^2	2 x 16 mm^2
Grounding Cable section	1 X > =16 mm^2	1 X > =16 mm^2
TRU Unipolar cable section Grounding Cable	1 X > =16 mm^2	1 X > =16 mm^2
RACK Unipolar cable section Grounding Cable		

NB: For WTD rack the TRU doesn't require any cable ground connection to the rack.

A.3. Repair form

ALCATEL

REPAIR FORM

Fill in this form and affix it to the faulty unit to be returned to Alcatel

TO BE FILLED IN BY THE SENDER

CUSTOMER NAME

ORDER NUMBER/CONTRACT NUMBER

SITE

BRANCH/UNIT/COUNTRY

SYSTEM/EQUIPMENT

PRODUCT RELEASE

EQUIPMENT SOFTWARE PART NUMBER

STATION/RACK

SUBRACK

SLOT

MNEMONIC

ALCATEL PART NUMBER

SERIAL NUMBER

FAULTY UNIT SOFTWARE VERSION

FAULT PHASE

- INSTALLATION / TURN ON ☐
- OPERATION ☐
- MAINTENANCE ☐

REASON FOR REPAIR

- CLEAR FAULT ☐
- DROP IN PERFORMANCE ☐
- INTERMITTENT FAULT ☐
- UPGRADE/QUALITY ALERT ☐
- TEMPERATURE FAULT ☐

PRESUMED CAUSE

- INTERNAL ☐
- EXTERNAL
  - LIGHTNING ☐
  - AIR COND. ☐
  - OTHER ☐

FAULT STILL PRESENT AFTER REPAIR ☐

DATE

NAME OF SENDER

COMMENTS

TO BE FILLED IN BY THE REPAIR OPERATOR

PROCESSING

- NO FAULTS FOUND ☐ A
- STANDARD REPAIRING ☐ B-D
- QUALITY ALERT ☐ I
- UPGRADE ☐ I
- NOT REPAIRABLE (REJECTED) ☐ M
- SUBSTITUTED ☐ S-X

FAULTS DETECTED

- SOLDERING / WIRING ☐ C
- MECHANICAL ☐ V1
- COMPONENT ☐ F-L
- PRINTED CIRCUIT BOARD ☐ V1
- CORROSION ☐ V3
- ADJUSTMENT ☐ P
- DIRT ☐ V2
- OTHER ☐

NOTE : LETTERS ARE FOR FACTORY USE

COMMENTS

DATE | REPAIRING NUMBER | REPAIRING CENTRE | NAME OF REPAIR OPERATOR

END OF DOCUMENT

Installation Handbook

Alcatel 9400AWY

Rel.2.0

7–8–11–13–15–18–23–25–28–32–38GHz
Short–haul low/medium capacity digital microwave radio links

3DB 06687 DAAA Ed.02

Documentation set for 9400AWY Rel.2.0

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9400AWY Rel.2.0 Installation Handbook	3DB 06687 DAAA	this handbook
9400AWY Rel.2.0 Line–up Guide	3DB 06687 EAAA	
Interference investigation procedure	3DB 04165 EAAA	
9400AWY CT Operator's Handbook **SWP 2.0**	3DB 06687 CAAA	
1320CT Rel.3.x Basic Operator's Handbook	3AL 79551 AAAA	
1330AS Rel.6.5 Operator's Handbook	3AL 88876 AAAA	
ELB Rel.2.x Operator's Handbook	3AL 88877 AAAA	

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