

Installation item	Commercial code	Industrial code	Comments
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 11956 ABxx 3CC 12115 ABxx	28/425/B 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 11956 ACxx 3CC 12115 ACAA	28/425/C 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 11956 ADxx 3CC 12115 ADxx	28/425/D 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 10886 ABxx 3CC 11588 ABxx	28/500/B 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 10886 ACxx 3CC 11588 ACxx	28/500/C 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 10110 AAxx 3CC 11947 AAxx	28/723/A 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 10110 ABxx 3CC 11947 ABxx	28/723/B 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 10883 AAxx 3CC 11946 AAxx	28/1008/A 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 10883 ACxx 3CC 11946 ACxx	28/1008/C 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with an integrated antenna of 26 cm	9900RTA001	3CC 10883 ADxx 3CC 11946 ADxx	28/1008/D 28 GHz RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11541 AAxx 3CC 12507 AAxx	25/1008/A + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11542 AAxx 3CC 12507 ABxx	25/1008/B + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11543 AAxx 3CC 12507 ACxx	25/1008/C + adaptator RT with N connector RT with F connector

Installation item	Commercial code	Industrial code	Comments
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11544 AAxx 3CC 12507 ADxx	25/1008/D + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11545 AAxx 3CC 12508 AAxx	25/1480/A + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11921 AAxx 3CC 12508 ABxx	25/1480/B + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11546 AAxx 3CC 12509 AAxx	26/855/A + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11547 AAxx 3CC 12509 ABxx	26/855/B + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11534 AAxx 3CC 12506 ABxx	28/425/B + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11535 AAxx 3CC 12505 AAxx	28/500/A + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11535 AAxx 3CC 12505 ABxx	28/500/B + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11536 AAxx 3CC 12505 ACxx	28/500/C + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11537 AAxx 3CC 12500 AAxx	28/723/A + adaptator RT with N connector RT with F connector

Installation item	Commercial code	Industrial code	Comments
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11538 AAxx 3CC 12500 ABxx	28/723/B + adaptator RT with N connector RT with F connector
24-30 GHz-RT with adaptator for 60 cm antenna	9900RTC001	3CC 11540 AAxx 3CC 12504 AAxx	28/1008/A + adaptator RT with N connector RT with F connector
Version CO-POL			
RT installation tools			
Installation tools (E-RIT+cables +soft)	9900YTA001	3CC 10784 AAxx	
Splitter 8V	9900XTC003	3CC 11876 AAxx	



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Appendix 6 – Installation of the Terminal Station RT unit with a non integrated antenna

The installation of the RT unit should satisfy the following criteria:

- unimpeded direct line of sight between RT unit and RBS (Base Station),
- perfect mechanical rigidity,
- enabling precise antenna alignment.

The 7390RT is designed for outdoor installation without any particular protection. However, the following recommendations must be respected:

- do not install equipment below bird nesting areas,
- do not attach equipment to a surface prone to vibrations (machinery, lift housing, air conditioning, etc.),
- do not attach equipment to chimneys which give off fat deposits, dust and other aerosols which are liable to come to rest on the equipment,
- do not install equipment in proximity of sources of heat,
- do not place the equipment in proximity to corrosive gas outputs,
- do not place the equipment below roof run-offs not equipped with guttering (high risk of microwave short-circuit),
- do not install at man-height to prevent human collisions against the antenna. This could cut the radio link with the central station.

The antenna is screwed on the pole mounting 1+0 (**9900UX1102**). The RT is mounted with quick latches.

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

- Azimuth: 360 degrees around the pipe.

The steer obtained by the turnbuckles is:

- Elevation: ± 25 degrees,
- Azimuth: ± 10 degrees.

To avoid obstacles (wall too close, etc), you can fix the pole mounting on any side of the pipe.

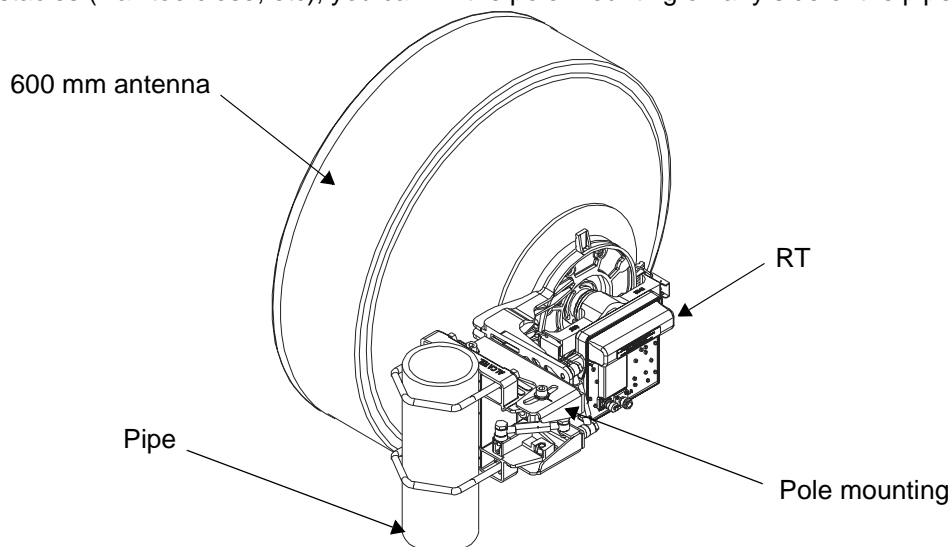



Figure 63 – Typical installation


The pole mounting is supplied complete, mechanically assembled, with screw fastenings kit and ground terminals included in a plastic bag inside the casting.

The mechanical system is mounted on a pipe with a diameter of 114 mm. The pole/tube selected should be sufficiently rigid to prevent antenna misalignment and resist vibrations.

	CAUTION: verticality of ± 1 degree is required for polarization
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The weights of the radio subsystem components are:

- Pole mounting 1+0 (9900UX1102): 4.7 Kg
- RT unit 1.5 Kg
- 600 mm antenna: 12 Kg
- Overall weight: 18.2 Kg

	CAUTION: The pole mounting 1+0 (9900UX1102) is not designed to be fixed directly to the wall
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A.6.1 – Choosing antenna polarization

	CAUTION: Use the same polarization on Terminal Station and Base Station
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The antennas are normally tuned for vertical polarization.

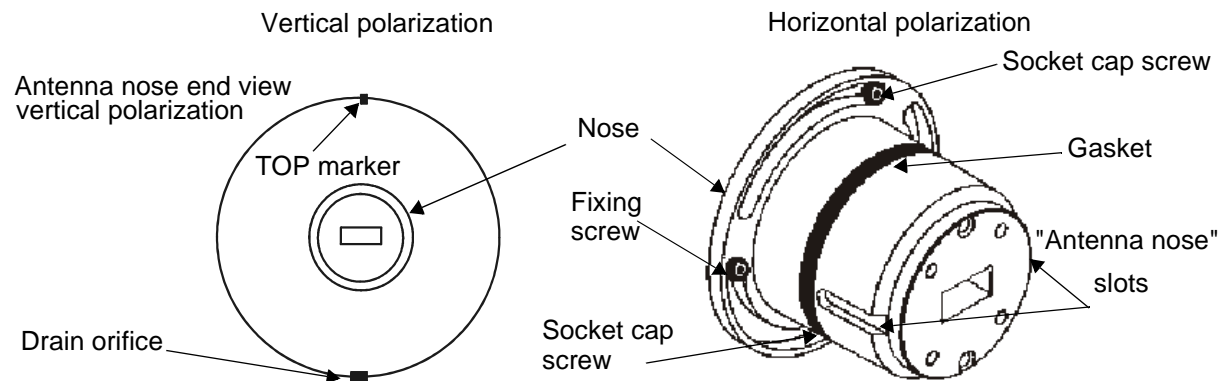
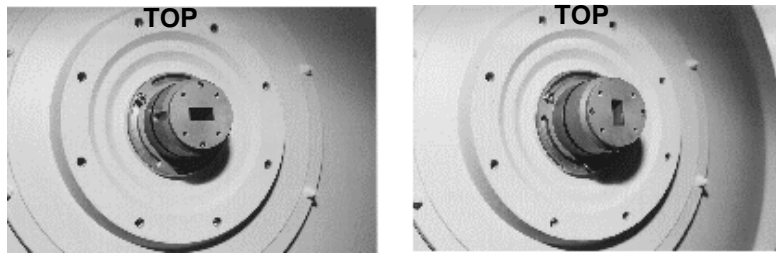



Figure 64 – Antenna nose end view

	<p style="text-align: center;">CAUTION: The seal should be coated with silicon grease before fitting. The grease is provided with the antenna.</p>
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To change the polarization:

- slacken the three socket cap screws,
- turn the nose through 90 degrees,
- tighten the screws again.

A.6.2 – Installing the configuration with pole mounting 1+0 (9900UXI102)

The installation takes place in 4 steps:

- Installing the antenna on the pole mounting (§ A.6.2.1 – *Installing the antenna on the pole mounting*),
- Installing the RT unit (§ A.6.2.2 – *Installing the RT unit*),
- Installing on the pipe (§ A.6.2.3 – *Installing on the pipe*),
- Coarse alignment of the antenna, (§ A.6.2.4 – *Coarse alignment of the antenna*).

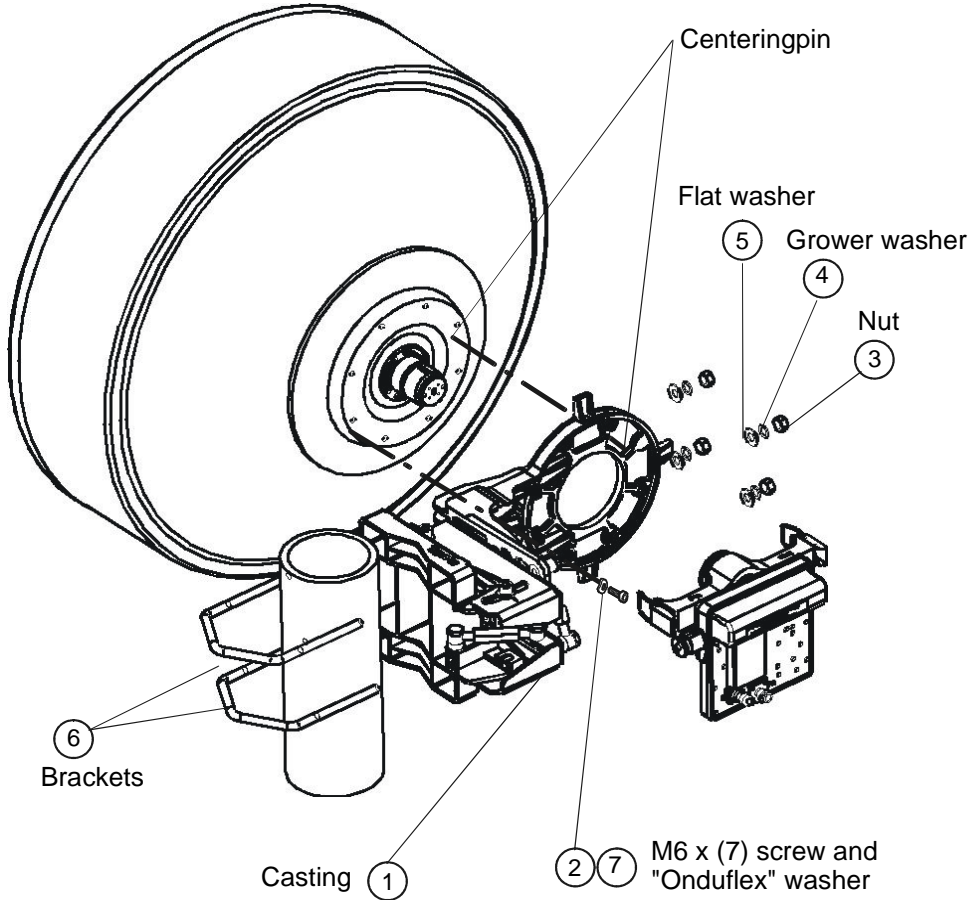



Figure 65 – 9900UXI102 configuration

A.6.2.1 – Installing the antenna on the pole mounting

1. Position the antenna vertically (nose horizontal), with the drain hole in the bottom part and free of obstacles.
2. Position the pole mounting centering pin in hole on the antenna.
3. Insert the M6 screws (7 in all) ② and "Onduflex" springy crinkle washers ⑦, tighten and secure the screws (these screws can be found in a plastic bag located inside the casting ①).

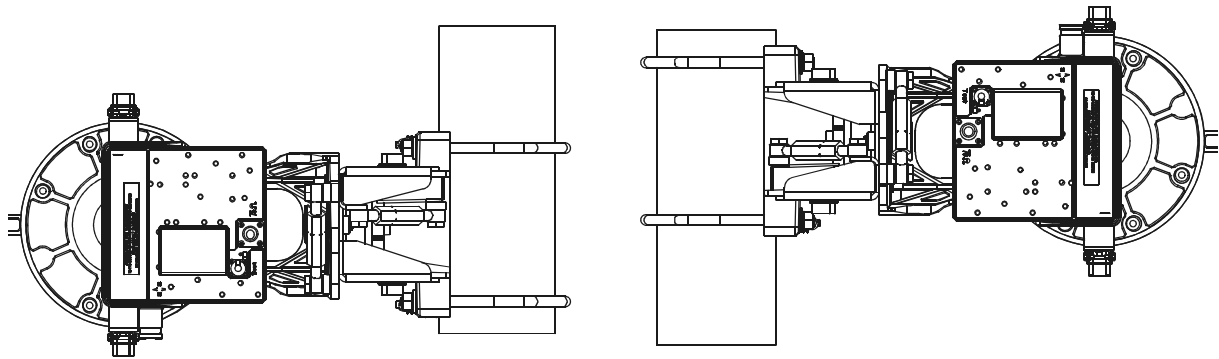
	<p>CAUTION: Take care not to damage the O-Ring on the nose of the antenna connection. If the RT is not to be mounted immediately after the pole mounting of the antenna, protect the connection nose (from water, dirt and impact).</p>
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A.6.2.2 – Installing the RT unit

This installation can be done only during commissioning.

Two choices per polarization are possible:

Vertical polarization



Horizontal polarization

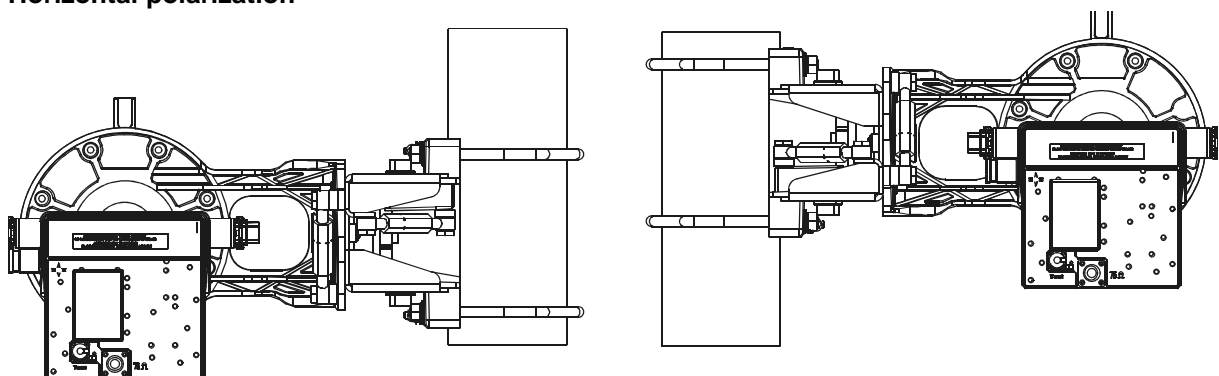


Figure 66 – Installing the RT unit

- remove the plastic protection on the "nose" of the unit,
- offer up the two bosses on the "nose" of the unit to the two slots in the "nose" of the antenna,
- hold onto the RT unit, and
- lock the two catches in the position shown below.

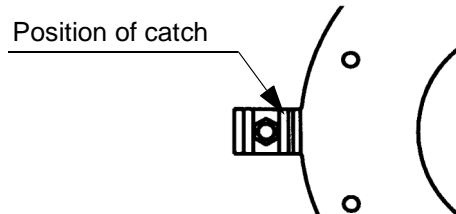



Figure 67 – Position of catch

REMINDER:

- The RT unit/antenna assembly requires **no additional seal on the flanges**; the two ends are smooth. Sealing is provided by the O-ring seal around the male "noses".
- When the RT unit is fitted, the polarization of both antenna and RT unit can be ascertained, looking the rear of the RT unit.

If the letter "H" can be read naturally, polarisation is horizontal.

If the letter "V" can be read naturally, polarisation is vertical.

	<p>CAUTION: Once the RT unit is fitted on the pole mounting, never handle the assembly by the radio but by the pole mounting.</p>
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A.6.2.3 – Installing on the pipe

Note:

- Be aware that azimuthal coarse alignment of antenna is done at this phase.
- To avoid obstacles (wall too close, etc.), you can fix the pole mounting on any side of the pipe (**see Figure 66 – Installing the RT unit**).
- Check the polarization indicator to check correct polarization.

A.6.2.4 – Coarse alignment of the antenna

- **Azimuthal coarse alignment** has to be carried out when installing the pole mounting.
- Prepoint antenna visually and/or using a compass and a map.
- Orientate the pole mounting so that the antenna is pointed towards the Base Station antenna.

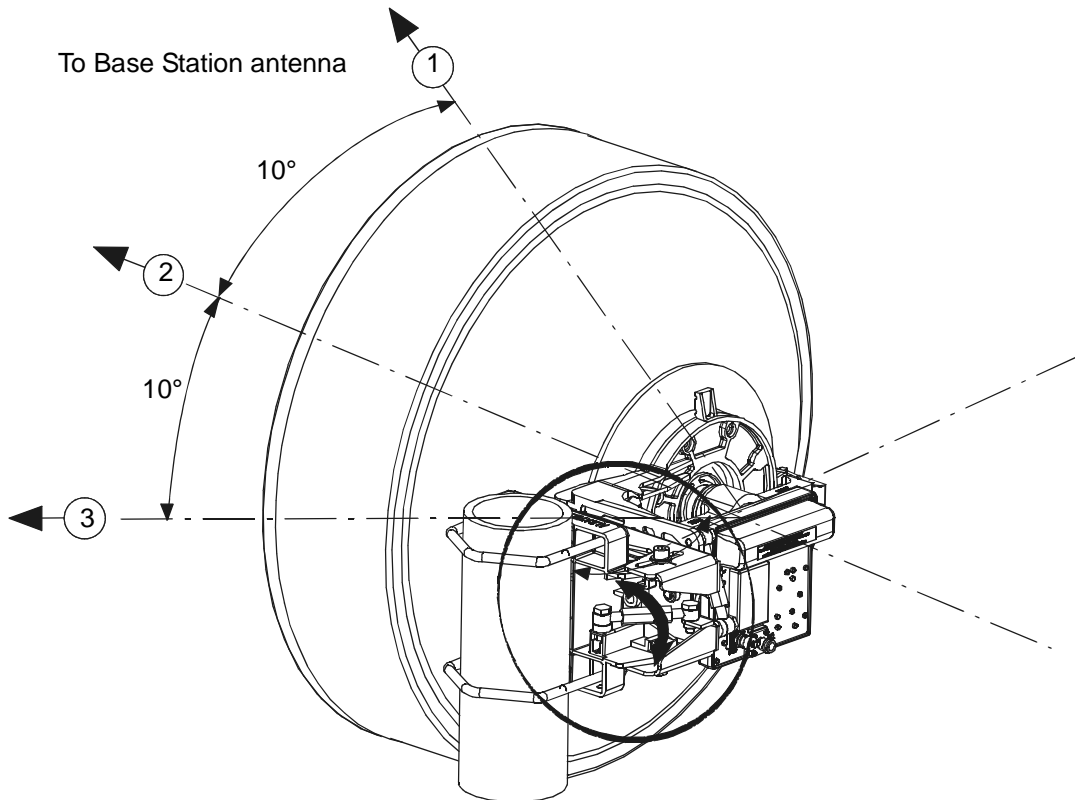



Figure 68 – "Azimutal " alignment of antenna

	<p>CAUTION: The bracket nuts must be fastened to torque of 3 mdaN, \pm 10%. The bracket must be clean and without grease, except on the threads.</p>
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Elevation alignment is performed only with the elevation turnbuckles. If the elevation angle is higher than (+ 5°) or lower than (- 5°), it is necessary to:

- remove completely one of the 2 screws fixing the antenna support on the azimuth support and,
- insert it in the third hole accessible.

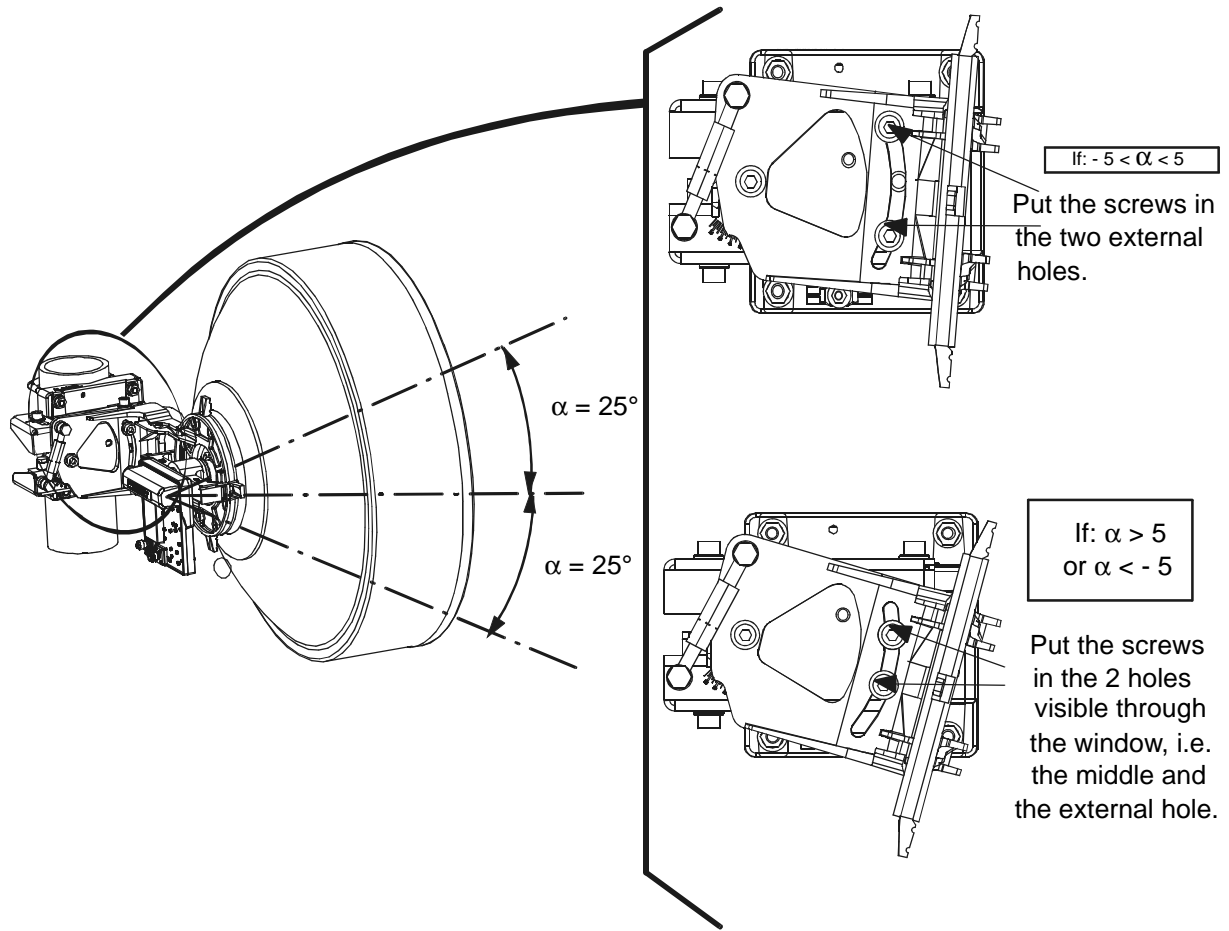


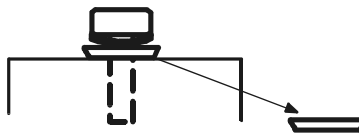


Figure 69 – Elevation coarse alignment of antenna

	<p>CAUTION: In either case, the support must be fixed with 3 screws, 2 put in the window and 1 corresponding to its axis of rotation. All screws must be tightened and secured only after fine tune alignment of the antenna</p>
	<p>CAUTION: Take care to put the 2 screws in the window with the flat washers positioned as shown in the figure below.</p>



A.6.3 – Grounding the RT unit

Considerations

- It is not necessary to establish special grounding connection for the RT casing. However the RT unit can be grounded.
- On the RT unit, the ground terminal is in the form of a tapped hole (see *Figure 70 – Grounding the RT unit*).
- The RT unit can be grounded using the grounding lug and screw hardware supplied with the equipment.
- On the pole mounting, the ground terminal comprises a screw, two washers and two nuts which fix the two crimp terminals. It must be installed at the bottom of the pole mounting.

Steps

1. Crimp lugs (ref.: 16-6 CT) on to the grounding cables (16 mm² minimum cross-section).
2. Screw the cable lug into the tapped hole of the RT. Use an M6 screw and ondudflex washers.
3. On the pole mounting side, put the 2 lugs and the washers on to the grounding screw and tighten the nut (nut, lugs and washers are supplied with the pole mounting). Use a 10 mm flat wrench.

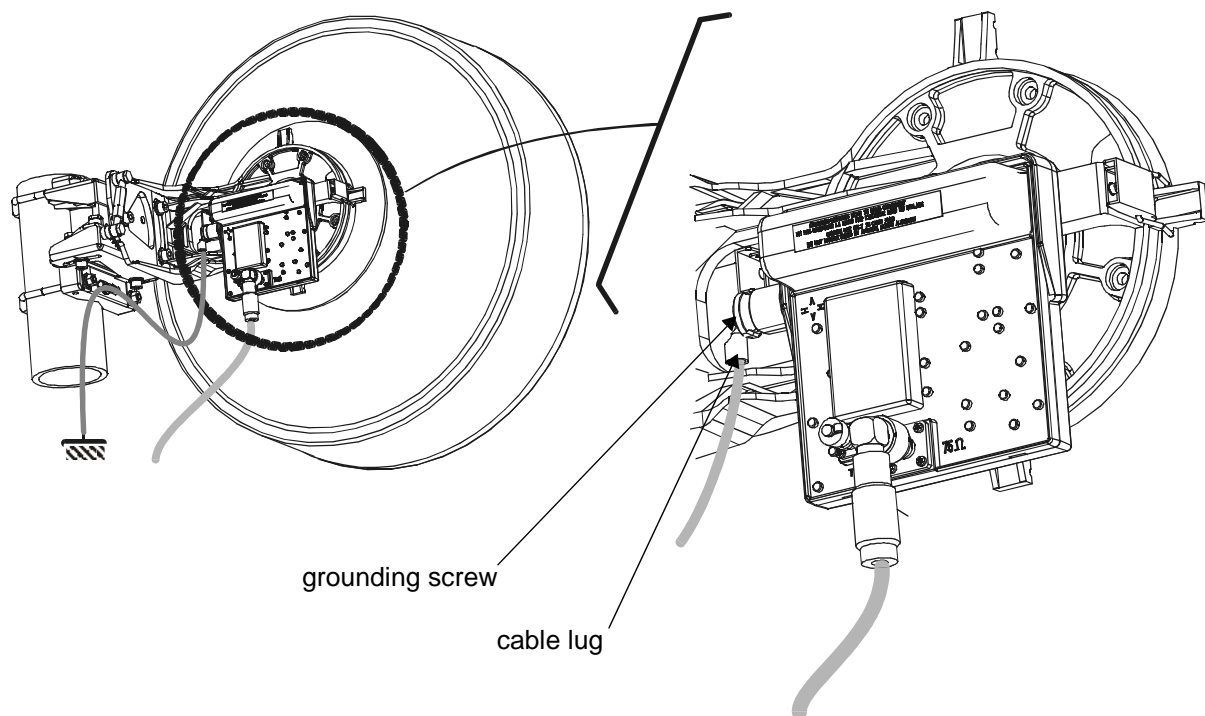


Figure 70 – Grounding the RT unit

Note: Position of the grounding screw may differ according to mechanical variants being either close to the 75 ohm connector or on the side as shown here.

Appendix 7 – List of abbreviations

MNEMONIC	ENGLISH	MNEMONIC	ENGLISH
AAL	ATM Adaptation Layer	FAS	Frame Alignment Signal
AIS	Alarm Indication Signal	FEC	Forward Error Correction
AL	Alarm	HDB3	High Density Binary 3 code (3rd order)
AMD	ATM Modulator Demodulator	IBS	Intermediate frequency Base Station
ANT	ATM Network Termination	ICS	Identifier Change Status
ASAP	Alarm Severity Assignment Profile	I ² C or IIC	Inter Integrated Circuit
ATM	Asynchronous Transfer Mode	ID	IDentifier
AT	Attend alarm on LT	IEC	International Electrotechnical Commission
AVC	Attribute Value Change	IM	Information Model
BER	Bit Error Rate	IP	Internet Protocol
BNC	Bayonet-locking Connector	ISDN	Integrated Services Digital Network
BS	Base Station	ITU	International Telecommunication Union
CBR	Constant Bite Rate	LAIS	Line Alarm Indication Signal
CCIR	International radio consultative comitee	LAN	Local Area Network
CEPT	Conference of European Post and Telecommunications administrations	LED	Light Emitting Diode
CPL	Coupler	LMDS	Local Multipoint Distribution Service
CRC	Cyclic Redundancy Check	LMFA	Loss of MultiFrame Alignment
DBS	Digital Base Station	LOF	Loss Of Frame
EMC	ElectroMagnetic Compatibility	LOP	Loss Of Pointer
EPROM	Electronically Programmable Read-Only Memory	LOPC	Loss Of Polling Cell
ETSI	European Telecommunications Standards Institute	LORF	Loss Of Radio Frame
ETH	Ethernet	LOS	Loss Of Signal

MNEMONIC	ENGLISH	MNEMONIC	ENGLISH
LRDI	Line Remote Defect Indicator	QAM	Quadrature amplitude Modulation
LT	Local Terminal	RAI	Remote Alarm Indicator
MAC	Medium Access Control	RBS	Radio of Base Station
Mbps	Mega Bit Per Second	RDI	Remote Defect Indication
MIB	Management Information Base	REI	Remote Error Indication
MMI	Man Machine Interface	RF	Radio Frequency
MSC	Message Sequence Chart	RIT	Radio Installation Tool
MUX	Multiplexer	RT	Radio Terminal
NE	Network Element	SC	State Change
NFS	Network File System	SDH	Synchronous Digital Hierarchy
NIT	Network Installation Tool	SMD	Surface Mounted Device
NRZ	Non return to zero	SNMP	Simple Network Management Protocol
NT	Network Terminal	SNTP	Simple Network Time Protocol
OC	Object Creation	STP	Shielded Twisted Pair
OD	Object Deletion	TAC	Technical Assistance Center
OOF	Out Of Frame	TCP	Transmission Control Protocol
OS	Operation System	TDM	Time Division Multiplex
PAIS	Path Alarm Indication Signal	TE	Transaction End
PC	Personal Computer	TNT	TDM Network Termination
PCR	Peak Cell Rate	TS	Terminal Station
PDH	Plesiochronous Digital Hierarchy	UNI	User Network Interface
PLL	Phase Locked Loop	VPI	Virtual Path Identifier
PSU	Power Supply Unit	VCI	Virtual Channel Identifier
PVC	Permanent Virtual Circuit	WAN	Wide Area Network

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