Appendix 5 – Correspondence between commercial codes and industrial codes relating to the BS

Installation item	Commercial code	Industrial code	Comments
DBS basic configuration			
Rack 22 U	9900CAB001	3CC 10067 AAxx	
DBS installation items			
Power S. cable	POWCAB0001	77096649	15 m 3x10 mm^2
Distributor Panel 16x2 Mbits/s	9900XXI416	3CC 08061 AAxx 2x3CC 11236 AAxx	75 Ohms / 1.6 / 5.6
	9900XXI416	3CC 08061 ABxx 2x3CC 11237 AAxx	75 Ohms / BNC
	9900XXI416	3CC 10316 ABxx 2x3CC 11238 AAxx	120 Ohms - EMC
RBS installation items			
Grounding cable (20 meters)	9900XXC502	3CC 08166 AAxx (per meter)	
Consummable	9900UXT002	3CC 06503 AAxx	
50 Ohms coaxial cable (50 meters)	9900UXI202	50 m of 1AC 001100022	
Coaxial connector	9900UXI203	2 x 1AB 095530021	(x2)
Grounding kit	9900UXI204	1AB 128500002	
114 mm tube (2 meters)	SUPOUTD001	3CC 04658 AExx	
2 pole-mounting fastening kit (1+1)	9900UXI104	3CC 11681 AAxx	
Self supporting mast 114 mm (1.5 meter)	SUPMAST001	3CC 05148 AAxx	
Cable tray cablofil (6 m)	INFRA00003	3CC 07580 AAxx	
Cable tray PVC (4 m)	INFRA00004	3CC 06511 AAxx	
Cable tray CES (12 m)	INFRA00005	3CC 06759 AAxx	
Gaine Capri (12 m)	INFRA00006	3CC 06512 AAxx	
Cable LDF 4-50	9900WVG001	77 096 434	50 Ohms (10 m)
N Connector kit	9900UXX022	77 096 433	N male right, 1 for each cable LDF4-50

Installation item	Commercial code	Industrial code	Comments
Jumper	9900WVG004	3CC 09514 AAAA	N male bented/ Nmale right (3 m)
Jumper	9900WVG005	3CC 09514 ABAA	N female bented/ N male right (3 m)
RBS installation tools			
Tool kit	9900UXT103	3CC 08409 AAxx	
PC 9900LT			
Laptop PC French (incl. Ethernet module)	9900LTH001	3CC 10939 AAxx	
Desktop PC French (incl. Ethernet module)	9900LTH002	3CC 10626 AAxx	
Laptop PC English (incl. Ethernet module)	9900LTH001	3CC 11200 AAxx	
Desktop PC English (incl. Ethernet module)	9900LTH002	3CC 11201 AAxx	
NFS Server software LT application software CDROM Embedded software package CDROM CDROM User Manual 2.1 of 2.2.a	9900LTS001	1AH 00845 AAxx 3CC 12142 AAxx 3CC 12012 AAxx 3CC 12144 AAxx	

Appendix 6 – Error messages and corrective actions

The tables below list the main **error messages** when **operating 7390 LT.**
The purpose of this chapter is to give, for each message, an additional information and to suggest one or more corrective actions. However, various causes may originate malfunction and it may occur and derive one from another; thus the corrective action suggested may not be the only solution. Furthermore, the operator is, in some cases, free to take initiative to solve the problem, considering that troubleshooting should take into account the configuration context.
Whenever the malfunction is not fixed, please contact TAC (see page 3).

A.6.1 – Error messages for 7390LT software

Message	Definition	Corrective actions
Error in craft.ini file	7390LT software can not be launched, its configuration file contains errors. The errored parameter name is displayed on the screen.	The solution requires an intervention at the craft.ini file level. Only qualified personnel should intervene. For this purpose, please contact the TAC (see page 3).
An error occured when opening the Data Base	7390LT can not retrieve its data base files.	Make sure the .mdb files are installed in the database directory. If not, install again 7390LT (see Appendix A.2).
Info model version compatible	When connecting to a BS, the data base versions differ on agent and manager side: e.g.: the 7390LT is version 2.1 whereas the base station is version 2.0.	Perform download of the appropriate software version (see § 7.3.10).

A.6.2 – NT management error messages

Message	Definition	Corrective actions
Error when declaring the new NT	Declaring the new NT is denied.	Make sure that: . the serial number is valid, (preceded by 4 dashes then CU follow-up by 1 dashe) . the associated AMD board configuration is fully carried out.
An NT with this index already exists	The NT identification number entered is already assigned to another NT.	Assign a free number. Contact the scheduler.
Waiting NT characteristics	This message displays a system status and shows no anomaly. At the end of the NT creation, the system is waiting for information about it.	Please, wait until the relevant information is transmitted.
Error at the reception of SNMP message: Error when destroying the NT.	The NT destroy control is denied, one of its ports being used by an IP cross-connection or leased lines (LL).	Delete all IP or LL cross-connections that use the NT ports before initiating the NT destroy control.

A.6.3 – Error messages for communication between BS and 7390LT

Message	Definition	Corrective actions
An error occured at the BS connection: Error when declaring the manager	Declaring the manager is denied.	Make sure that no other LT session is active (see section 4.3.1).
Connection failure: NE not found	The communication establishment with BS at the IP level failed.	. Check the IP level link with BS. . Check if the cable fits to your network configuration (crossed or no Pc-DBS ethernet cable).
TIMEOUT on request	No answer to SNMP request when timeout expired. One of the causes may be a communication interruption between the BS and the PC on which 7390 LT is installed. This interruption may be brief. If this problem is persistent, the message "The connection with the NE has been lost. The Craft will be re-initialized" comes to confirm a permanent cut.	If the interruption is brief, the malfunction will disappear without any intervention being required. In case of a permanent cut, refer to the following message: "The connection with the NE has been lost. The Craft will be re-initialized".
The connection with the NE has been lost. The Craft will be re-initialized	Permanent cut of communication between the BS and the PC on which 7390LT is installed.	Start again the 7390LT. If the problem persists, check all elements involved in the connection between BS and PC.

A.6.4 – Error message linked with client services

A.6.4.1 – Error messages linked with E1 leased lines

Message	Definition	Corrective actions
Already involved in another cross-connection	Creation control for a leased line denied, assigned TSs being already used by other cross-connections.	Try to create another leased line using available TSs.
A cross-connection exists on the TNT port N°xxx	Creation control for a leased line denied, another line using the port N°xxx of the TNT.	Try to create another leased line using available TNT port (see the cross-connections list in section 4.11.4.1).
A cross-connection exists on the NT port N°xxx	Creation control for a leased line denied, another line using the port N°xxx of the NT.	Try to create another leased line using available NT port (see the cross-connections list in section 4.11.4.1).
Error when creating the cross-connection: not enough downstream resources allocated.	Creation control for a leased line denied because of a lack of resources for the upstream communication.	Check the upstream channel traffic using the supervision (see section 4.7).
Error when creating the cross-connection: not enough upstream resources allocated.	Creation control for a leased line denied because of a lack of resources for the downstream communication.	Check the allocation with the scheduler.

Message	Definition	Corrective actions
The selected ports must be configured identically before selecting a TS (Time Slot).	Creation control for a leased line denied because the selected ports have a different configuration.	Check the configuration of the NT and TNT ports (see section 4.11.1.3). Perform any relevant modification.
E1 slots must be consecutive	Creation control for a leased line denied because the time slots numbers are not consecutive.	Assign contiguous numbers to time slots (TS).
Time out on creating the leased line	Creating the leased line did not succeed at the time out.	Carry out data downloading (see section 4.4.1).
Time out on deleting the selected leased line	Deleting the selected leased line did not succeed at the time out.	Carry out data downloading (see section 4.4.1).
Error when deleting the Cross-connection: the cross-connection on leased line is not locked	Creation control for a cross-connection on leased line denied because it is liable to route traffic.	Lock the cross-connection before triggering the deletion control (see § 4.11.4.5).

A.6.4.2 – Error messages linked with IP "cross-connection"

Message	Definition	Corrective actions
Error when creating the Cross-connection: Down Resource Problem.	Creation control for an IP cross-connection denied because of a lack of upstream resources.	Check upstream traffic using the supervision (see section 4.7).
Error when creating the Cross-connection: Up Resource Problem.	Creation control for an IP cross-connection denied because of a lack of down-stream resources.	Check allocation with the scheduler.
Error when creating the Cross-connection: Ethernet Port already involved.	Creation control for an IP cross-connection denied because the NT Ethernet port is already used.	see the IP cross-connection list that displays the used ports (see section 4.12.2.1). Carry out any relevant modification.
Error when creating the Cross-connection: ATM Port Value error.	Creation control for an IP cross-connection denied because one of the following values is false: either "VCL Vpi" or "VCL Vci".	Assign a value within the range of the possible values (see section 4.12.2.3).
Error creating the cross-co : ATM Medium type is not configured		Configure the ATM medium type (see section 4.9.1).

A.6.4.3 – Error messages linked with circuit emulation

Message	Definition	Corrective actions
CES link configuration failed	Creation control for an CES denied because the TNT port is unlocked.	lock TNT port (see section 4.11.1.4)

A.6.5 – Download error messages

Message	Definition	Corrective actions
Software download done with problems detected.	An error occurred during data down-load.	. Check the NFS server status is operational, . Chek hardware description for the BS boards. . Check the exported directory has been added to the omni-NFS server during a session with adminis-trator rights.
Package commit done with problems.	An error occurred during referen-cing.	Check for any current board alarms. If so, rectify the problem in all cases (whether or not the card presented an alarm) carry out again a complete download.

A.6.6 – Error message at backup / restore

Message	Definition	Corrective actions
Error when transfering the sRam File	NFS server problem (directory not recognized by the server)	Export the directory in R/W to the NFS server.

A.6.7 – Error messages for radio management

A.6.7.1 – Error messages linked to the radio configuration

Message	Definition	Corrective actions
Error when setting the radiolink characteristics	The modification of the radio link characteristics displayed cannot be taken into account.	Before modifying the bandwidth, suppress the NTs linked to this radio link (see 4.6.3)

A.6.7.2 – Radio Resources Manager (RRM)

Message	Definition	Corrective actions
Bad static Value down-stream	Inconsistency between the services already created and the modified static zone in the downstream	- Cancel the modification - Update the static zone with a value compatible with the static services already created
Bad static Value ups-tream	Inconsistency between the services already created and the modified static zone in the upstream (x from 1 to 4)	- Cancel the modification - Update the static zone with a value compatible with the static services already created
Bad dynamic max Value downstream	Inconsistency between the services already created and the modified dynamic zone in the downstream.	Update the dynamic zone with a value compatible with the dynamic service already created and the overbooking factor limit

Message	Definition	Corrective actions
Bad dynamic Value upstream x	Inconsistency between the services already created and the modified dynamic zone in the upstream.	Update the dynamic zone with a value compatible with the dynamic service already created and the overbooking factor limit
Bad dynamic max Value upstream x	(x from 1 to 4)	Update over booking factor limit with a value compatible with the dynamic services created and the dynamic zone.

A.6.8 – ASAP error messages

Message	Definition	Corrective actions
Error removing ASAP	The ASAP cannot be removed because at least one NT is attached to the ASAP table.	Before removing, the ASAP table has to be deleted for each NT attached to the table.

A.6.9 – Miscellaneous error messages

Message	Definition	Corrective actions
Error when destroying the board	Board deletion control denied.	The corrective action is related to the type of board: . **AMD board:** make sure that no NT is associated with the board. . **TNT board**: make sure that no port is used either by a leased line or as a potential source of synchronization. . **NT board**: make sure that no port is used either by a leased line or by an IP cross-connection.
Error when modifying the TNT board	The modification of the TNT board characteristics cannot be taken into account.	All circuit emulation services must be suppressed before modifying the configuration of a TNT board.
Error when updating the BS	In BS's local network screen one parameter is not correct.	- Check that BS's IP address is a real IP address. - Check that Ethernet and ATM networks are different.
Error when setting synchro parameters	Synchronization configuration is not allowed.	Check that the reserved channels are configured (see § 4.11).
Error when enabling/ disabling E1 traffic on a TNT port	Enabling/disabling is not allowed.	If the TNT port is used for system synchronization, the TNT port cannot be locked.

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Appendix 7 – Pole mounting 9900UXI101

A.7.1 – Definition

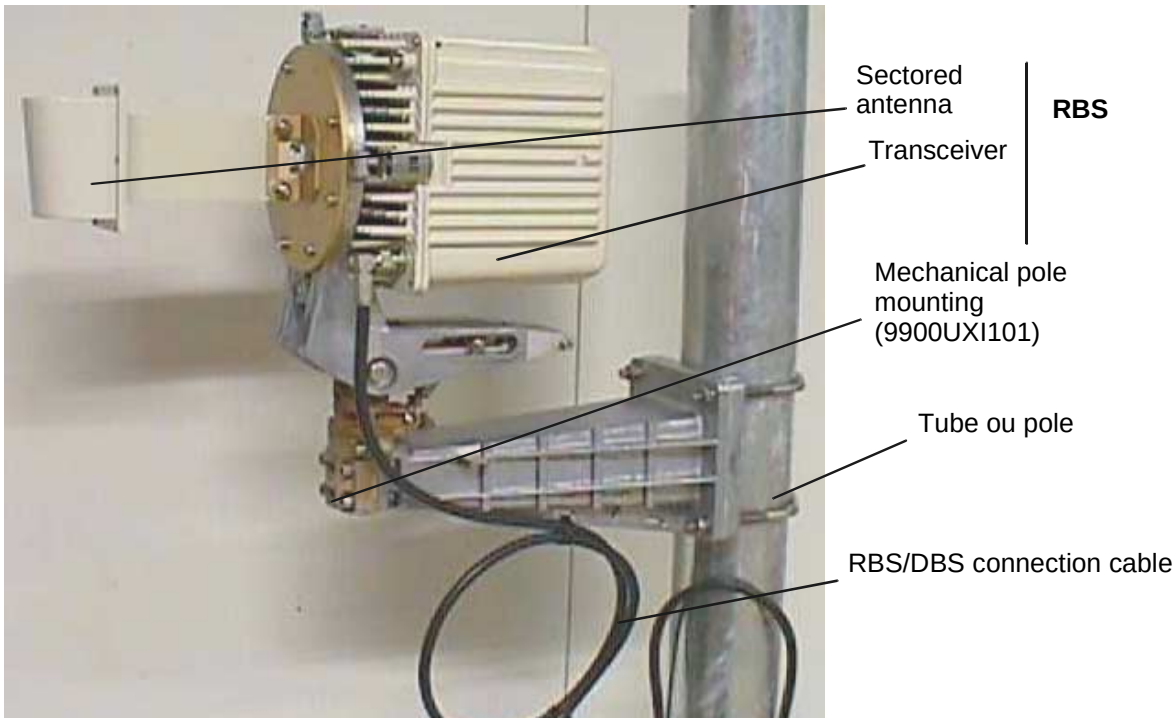


Figure 61 – Definition of 7390BS outdoor equipment

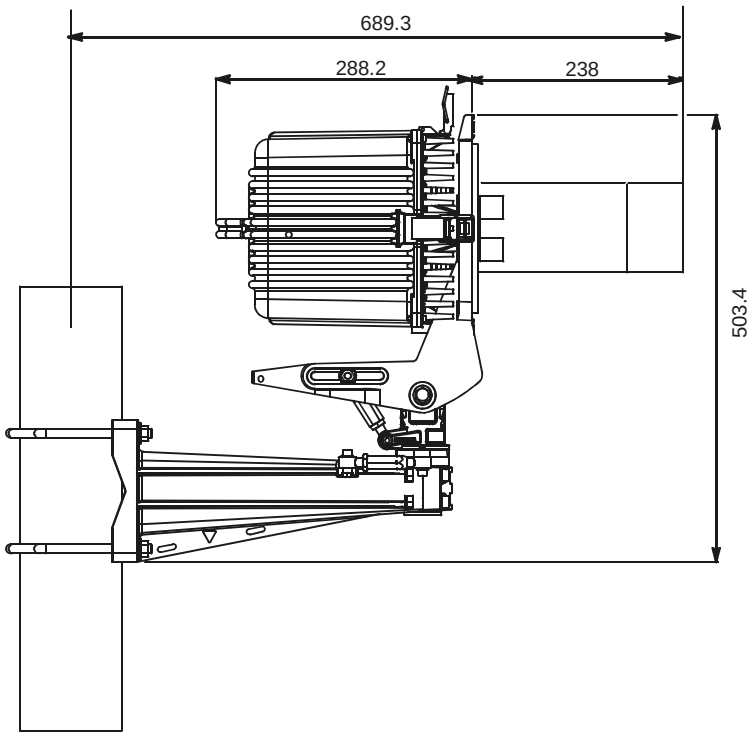


Figure 62 – Dimensions of the RBS on pole mounting (99UXI101)

A.7.2 – Installation of the RBS mechanical support on a wall or flat surface

Considerations:

- If attaching the support using wall plug and bolt, select the fixing elements with respect to the mounting surface.
- The surface chosen should not be subject to vibrations (e.g., avoid mounting on machine housing).

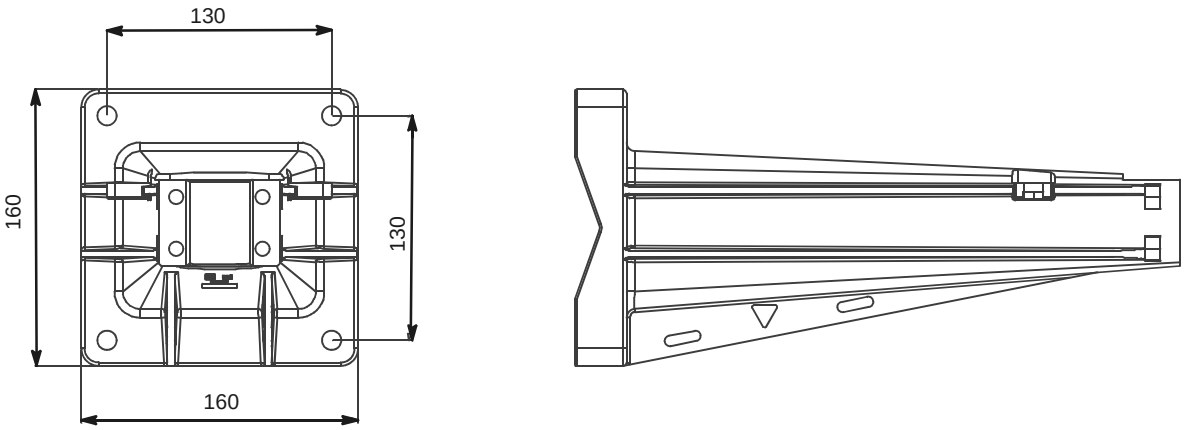


Figure 63 – Direct wall mounting

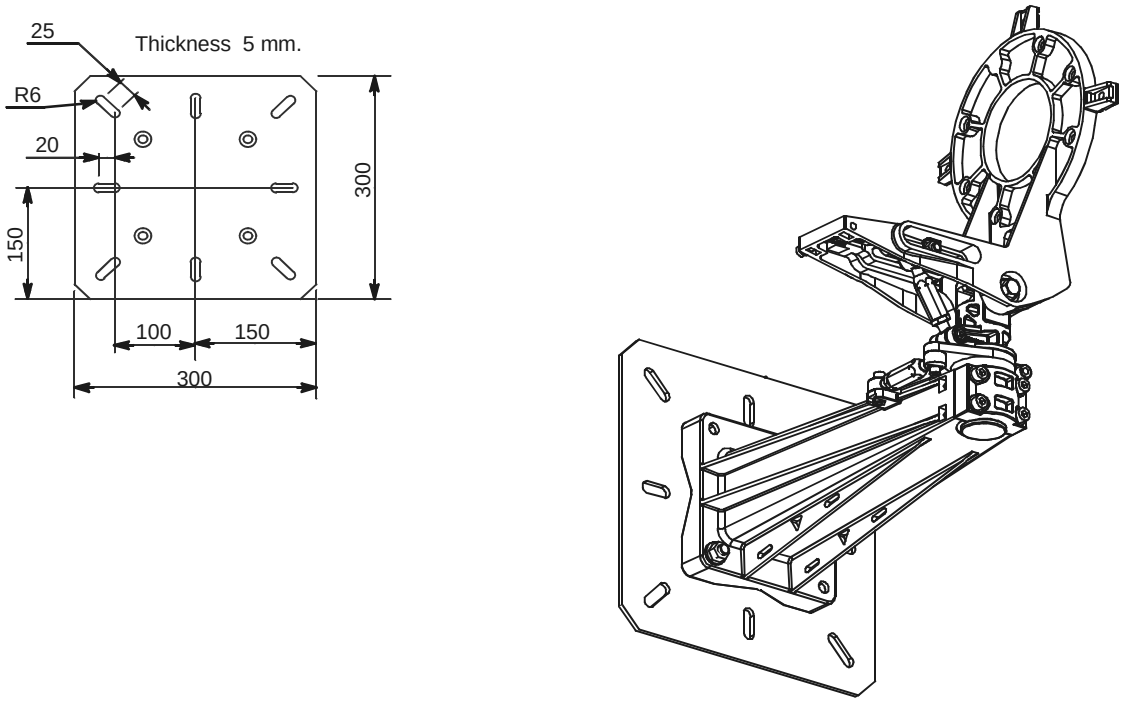


Figure 64 – Wall mounting option with mounting plate 9900UXI101

Stages

1. Select the installation location.
2. Drill 4 holes according to the dimensions given in *Figure 63 – Direct wall mounting*.
3. Insert 4 wall plugs.
4. Install and secure the wall support using 4 x M10 screws with washers.

	IMPORTANT: THIS MUST NOT DEPART FROM ± 1° TO THE VERTICAL FOR THE PURPOSE OF POLARISATION

	USE BOLT SIZE M10 (MINIMUM 10 mm DIAMETER). CHECK RELEVANT LOCAL REGULATIONS BEFORE INSTALLING.

A.7.3 – Installation and orientation of the mechanical system (9900UXI101)

	VERTICALITY OF THE BEARING: ± 0.5 ° FOR STANDARD ANTENNAS. ± 0,25 ° FOR LARGE GAIN ANTENNAS.

	NEVER INSTALL THE BEARING AXIS HORIZONTALLY; THE RBS UNITS MUST BE ABOVE THE POLE MOUNTING AND NOT PROJECT LATERALLY.

Considerations

- Installation can be carried out on an existing or newly installed tube or pole.
- The external diameter of the tube or pole is maximum 114 mm in standard configuration.

Note: *Other tube diameters may be used depending on the loads to be supported: minimum diameter 76 mm and maximum 114 mm.*

- The tube or pole along with the U-bolts must be clean and (apart from threads) grease-free.
- Wall mounting possible with or without wall plate: see *Figure 63 – Direct wall mounting* and *Figure 64 – Wall mounting option with mounting plate 9900UXI101*.

Stages (*Figure 65 – Installation and orientation of the mechanical system 9900UXI101*)

1. On the pole mounting (ref. **1**), loosen the four "bearing" locking screws (ref. **6**) and the coarse "bearing" locking screw (ref. **7**) to facilitate the subsequent RBS unit mounting.
2. Fit the pole mounting (ref. **1**) on the tube or pole (ref. **2**) using the U-bolts (ref. **3**). Secure it using flat washers, "grower" washers, nuts and lock-nuts (ref. **4**).
3. **Roughly orientate the bearing** of the pole mounting in the desired topographical direction. The bearing turnbuckle (ref. **8**) should remain in mid-position. Use the "top" marking of the antenna and a compass, then tighten the U-bolts (ref. **3**). U-bolt tightening torque = 3daN.m.
4. **Roughly orientate the elevation** of the antenna support by loosening the "elevation" locking screw (ref. **9**). The elevation turnbuckle (ref. **5**) should remain in mid-position; pivot the antenna support through the vertical to adjust, then tighten the "elevation" locking screw (ref. **9**).

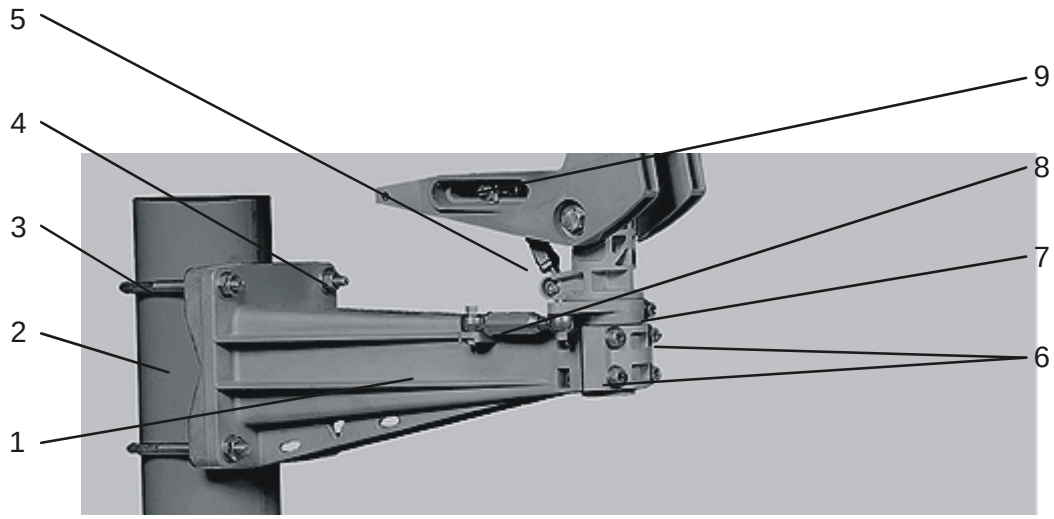


Figure 65 – Installation and orientation of the mechanical system 9900UXI101

A.7.4 – Antenna alignment

A.7.4.1 – Mechanical adjustments and deflection characteristics

The mechanical adjustment mechanisms are shown in *Figure 66 – Antenna alignment adjustment mechanisms* :

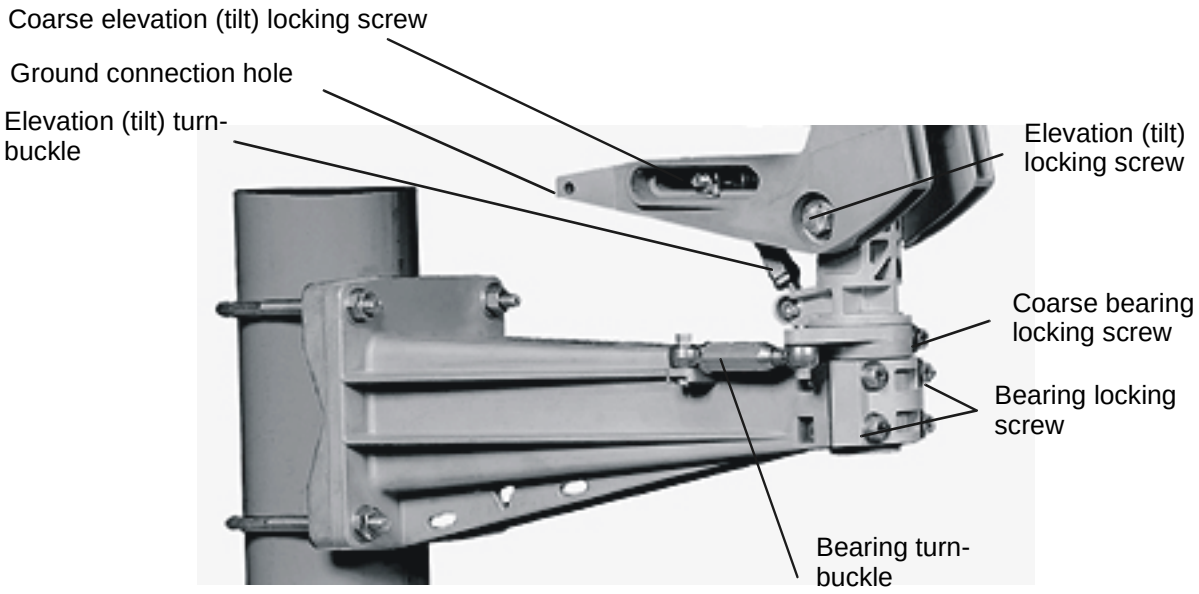


Figure 66 – Antenna alignment adjustment mechanisms

Deflection characteristics:

- The total deflection is: bearing = 270°, elevation = ± 25°; these values are obtained with the turnbuckles set to "maximum".
- The deflection obtained with the turnbuckles is: elevation = ± 9° bearing = ± 9°.

A.7.4.2 – Alignment adjustment procedure

Stages

1. Using a control system (graduated level or inclinometer) positioned on the straight part of the antenna (*Figure 67 – Checking antenna positioning*), ensure that it is perfectly horizontal (tilt 0°).
2. Make a bearing alignment in the direction intended by the radio planners (compass, "TopoChaix", etc.).
3. To avoid obstacles during installation, the "bearing" turnbuckle may be mechanically reversed on the pole-mounting. However, the bearing axis ***must*** remain vertical.
4. Tighten the "coarse" bearing locking screw. Turn the bearing turn-buckle. Tighten the four bearing front screws (alternate diagonal tightening) torque of 1.5m daN.
5. Check that the rough elevation screw is locked to a torque of 1.5m daN.
6. Using the "fine" elevation adjustment on the pole mounting (site elevation turnbuckle), set the tilt angle intended by the radio planners (e.g., tilt down 5°). Check this value with the control system (graduated level, inclinometer, "TopoChaix", etc.) positioned on the straight horizontal part of the antenna or the pole mounting.

Note: *to minimize the unscrewing of the elevation turnbuckle, make careful use of the "coarse" adjustment in the first stage. The turnbuckle must remain in the mid-position (≃85mm center distance).* ***Never exceed a center distance of 94 mm****.*

7. Secure the two "elevation" side locking screws. Tighten completely the screws to lock the assembly in position, to a torque of 3 mdaN. Finish the operation by tightening the turnbuckle counter-screws to a reference torque of 2 mdaN. This ends the antenna alignment.
8. Check the bearing and elevation of the antenna once the assembly has been firmly secured. If a shift is noted, repeat the adjustement(s) in question.

Figure 67 – Checking antenna positioning

A.7.5 – Grounding of the outdoor equipment

Grounding of the outdoor equipment consists of:

- connecting the grounding of the RBS Unit with the pole-mounting grounding,
- connecting the coupled RBS unit and pole-mounting grounding to the earthing system.

Considerations

- For grounding the RBS unit, a green/yellow cable with insulating sheath must be used. The minimum cross-section of the conducting wire is 16 mm^2 .
- On the pole-mounting assembly, the ground terminal comprises two tapped holes at the rear of the metal cast supporting the RBS (see *Figure 68 – Grounding the outdoor equipment on 9900UXI101 pole mounting*). According to the installation, choose the most suitably positioned tapped hole. The grounding screw screws on in one of the two nuts inserted into the metal cast. **When changing the grounding position block the nut to avoid loosing it.**

Stages

1. Crimp a terminal lug (ref. 16-6 CT) at each end of the cable linking the RBS unit ground and pole-mounting ground connections.
2. Screw one of the grounding cable lugs into the tapped hole on the front of the RBS unit (see *Figure 68 – Grounding the outdoor equipment on 9900UXI101 pole mounting*). Use an M6 screw.
3. Crimp a lug (ref. 16-6 CT) on to the grounding cable of the pole-mounting and RBS assembly.
4. Connect both grounding cables to the one of the holes on the support back panel.

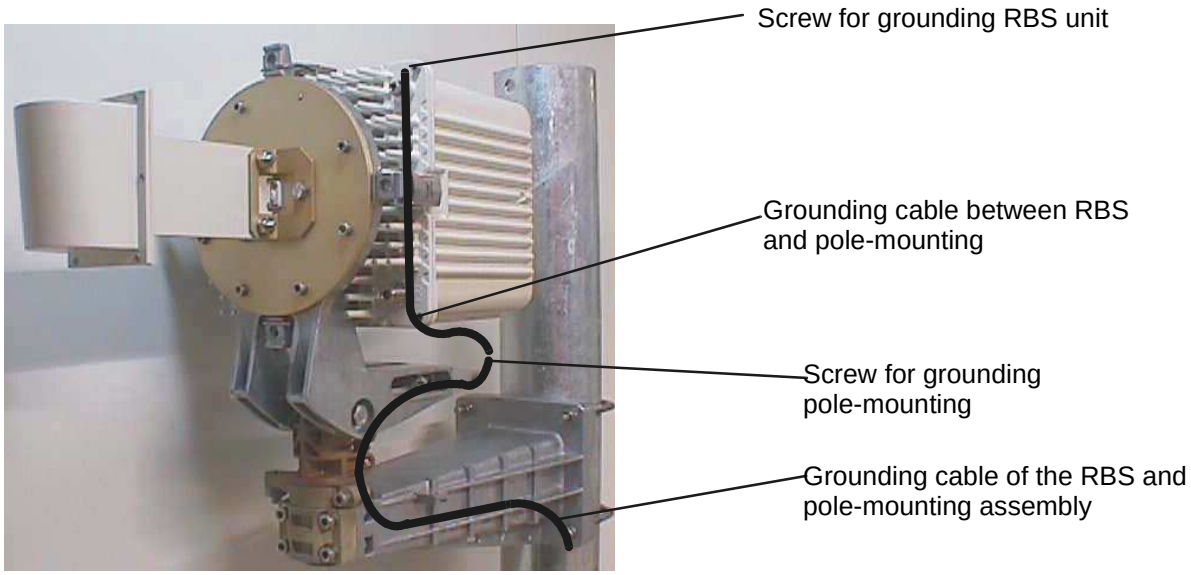


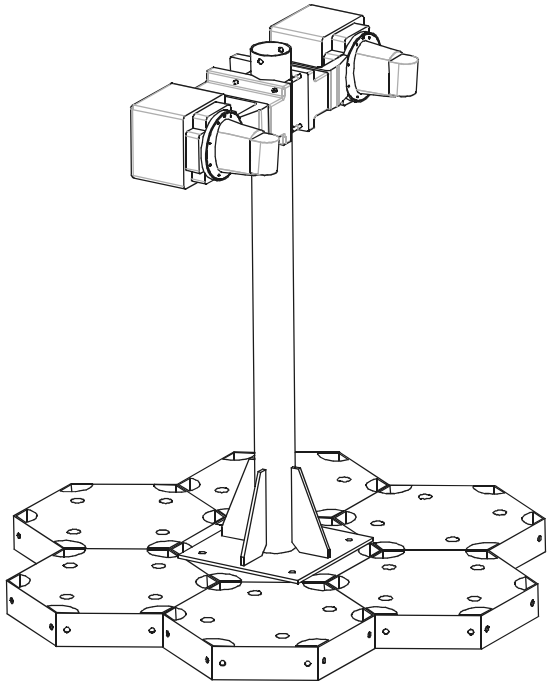
Figure 68 – Grounding the outdoor equipment on 9900UXI101 pole mounting

Appendix 8 – Using the DALLET® system by SOFRER for 1 m & 1.5 m high mast on rooftop

Recommendations according to Snow and Wind Rules **NV 65** are only indications and should be verified according to the sites.

Feet weight : about 50 Kg for each DALLET.

Zones 1, 2 and 3



7 DALLET

⚠	**BEFORE ANY USE, VERIFY THE RULES APPLICABLE LOCALLY AND COMPUTE ACCORDING TO THE REGULATIONS.**

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Appendix 9 – List of abbreviations

MNEMONIC	ENGLISH
AAL	ATM Adaptation Layer
AIS	Alarm Indication Signal
AL	Alarm
AMD	ATM Modulator Demodulator
ANT	ATM Network Termination
ASAP	Alarm Severity Assignment Profile
ATM	Asynchronous Transfer Mode
AT	Attend alarm on LT
AVC	Attribute Value Change
BER	Bit Error Rate
BNC	Bayonet-locking Connector
BS	Base Station
CBR	Constant Bite Rate
CCIR	International radio consultative comitee
CEPT	Conference of European Post and Telecommunications administrations
CPL	Coupler
CRC	Cyclic Redundancy Check
DBS	Digital Base Station
EMC	ElectroMagnetic Compatibility
EPROM	Electronically Programmable Read-Only Memory
ETSI	European Telecommunications Standards Institute
ETH	Ethernet
FAS	Frame Alignment Signal

MNEMONIC	ENGLISH
FEC	Forward Error Correction
HDB3	High Density Binary 3 code (3rd order)
IBS	Intermediate frequency Base Station
ICS	Identifier Change Status
I^2C or IIC	Inter Integrated Circuit
ID	IDentifier
IEC	International Electrotechnical Commission
IM	Information Model
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ITU	International Telecommunication Union
LAIS	Line Alarm Indication Signal
LAN	Local Area Network
LED	Light Emitting Diode
LMDS	Local Multipoint Distribution Service
LMFA	Loss of MultiFrame Alignment
LOF	Loss Of Frame
LOP	Loss Of Pointer
LOPC	Loss Of Polling Cell
LORF	Loss Of Radio Frame
LOS	Loss Of Signal
LRDI	Line Remote Defect Indicator
LT	Local Terminal

MNEMONIC	ENGLISH
MAC	Medium Access Control
Mbps	Mega Bit Per Second
MIB	Management Information Base
MMI	Man Machine Interface
MSC	Message Sequence Chart
MUX	Multiplexer
NE	Network Element
NFS	Network File System
NIT	Network Installation Tool
NRZ	Non return to zero
NSM	Network Service Management
NT	Network Terminal
OC	Object Creation
OD	Object Deletion
OOF	Out Of Frame
OS	Operation System
PAIS	Path Alarm Indication Signal
PC	Personal Computer
PCR	Peak Cell Rate
PDH	Plesiochronous Digital Hierarchy
PLL	Phase Locked Loop
PSU	Power Supply Unit
PVC	Permanent Virtual Circuit
QAM	Quadrature amplitude Modulation
RAI	Remote Alarm Indicator

MNEMONIC	ENGLISH
RBS	Radio of Base Station
RDI	Remote Defect Indication
REI	Remote Error Indication
RF	Radio Frequency
RIT	Radio Installation Tool
RRM	Radio Resource Management
RT	Radio Terminal
SC	State Change
SDH	Synchonous Digital Hierarchy
SMD	Surface Mounted Device
SNMP	Simple Network Management Protocol
SNTP	Simple Network Time Protocol
STP	Shielded Twisted Pair
TAC	Technical Assistance Center
TCP	Transmission Control Protocol
TDM	Time Division Multiplex
TE	Transaction End
TNT	TDM Network Termination
TS	Terminal Station
UNI	User Network Interface
VPI	Virtual Path Identifier
VCI	Virtual Channel Identifier
WAN	Wide Area Network
VoIP	Voice over IP

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