INSTRUCTION MANUAL

CTXD-30-H

CONTROLLER FOR AISG TYPE ADJUSTABLE DOWNTILT ANTENNAS

Designed and Manufactured by
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REVISION STATUS

Rev	Changes	Date
A	Release	20 Feb 06
B	Add details to change AISG Versions	24 May 06
C	Add details to encompass software revision change up to 4.02	5 October 06

CONTENTS

1 Introduction

The CTXD-30-H is a hand held AISG communications device for reading information from Argus R-Type antennas. It will read and display all antenna information and the currently set down tilt angle. It is not able to edit this information, but can change the down tilt.

Figure 1. CTXD-30-H Remote Control Unit

1.1 Application

Argus antennas that have the capability of AISG communications and adjustment of electrical downtilt carry the suffix “R” in their part numbers. An example is the “CNPX308.10R”. Older antennas with electrical downtilt adjustment carry the suffix “DR”. This device is not compatible with antennas suffixed with “DR”.

All “R” type antennas contain a processor and up to three measurement boards, each of these boards is associated to one of up to three bands in the antenna to measure independent downtilt setting for each band.

The CTXD-30-H is used to remotely communicate with the antenna processor and can retrieve antenna information such as:

- Unique Identifier
- Model Number
- Serial Number
- AISG Band
- Antenna Beamwidth
- Antenna Gain
- Maximum Electrical Down Tilt
- Minimum Electrical Down Tilt
- Installation Date
- Installer ID number
- Base Station ID Number
- Sector of Antenna
- Bearing of the Antenna
- Applied Mechanical Down Tilt

In addition, the CTXD-30-H is capable of transmitting to the antenna instructions to change the current down tilt of any of the three bands, and maintains communication until the new downtilt is set.

The CTXD-30-H is also fitted with a USB port and can be used as a USB to AISG communications adapter for computers running the appropriate software.

The CTXD-30-H is a handheld, 14.4v NiMH battery operated unit with an external battery charger. This battery supplies both power to the CTXD-30-H circuitry and provides all power needs to any attached antenna.

2 Specifications

2.1 Electrical Specifications

Battery Power	14.4 V DC, NiMH Battery 1.5 Amp/Hours
Mains Power	100-240VAC 50-60Hz max 0.9A
Number of AISG ports	1
Number of USB Ports	1
Supply Voltage to Antenna	12V DC
Supply Current to Antenna	1.5AMP Maximum
Display	Mono Graphic LCD with Yellow backlight.
USB 1.1 Compatibility	Windows XP, 2000, NT.

2.2 Mechanical Specifications

Width	80 mm
Height	180 mm
Depth	60 mm
Weight	580gms
Material	ABS Plastic Injection Moulded Case

3 Items Supplied and Accessories

3.1 CTXD-30-H Kit contents.

The following items are supplied as standard with each CTXD-30-H Kit:

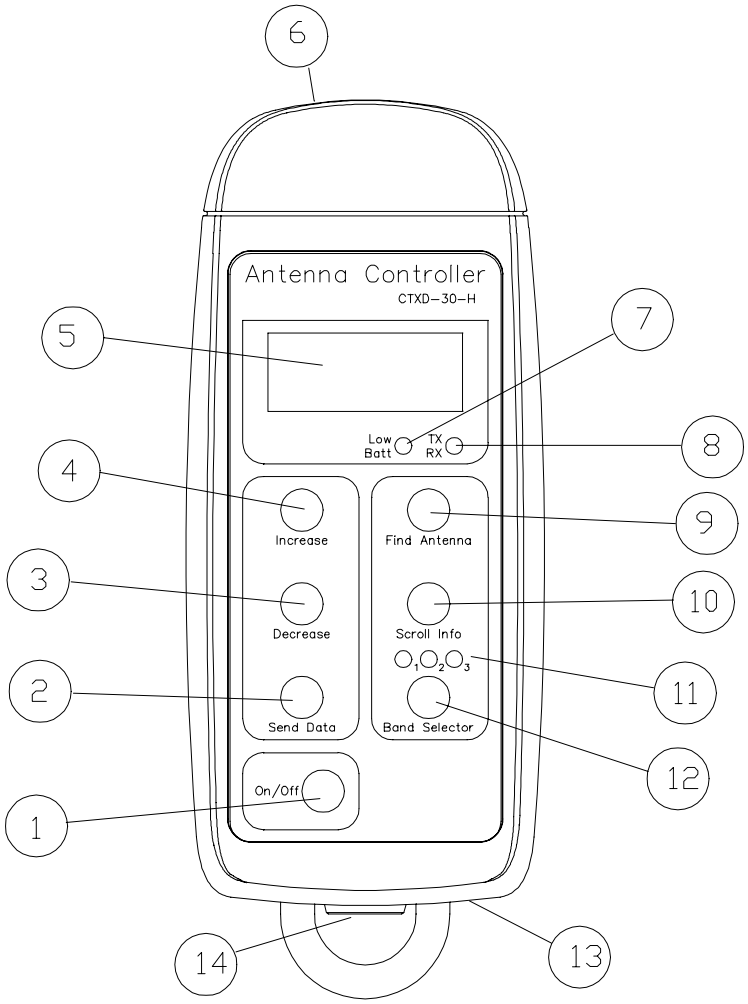
Item	Qty	Description
CTXD-30-H	1	AISG type antenna controller
AISG Cable	1	2m AISG cable
External Charger	1	Type 2215 Charger
Power cable	1	2m two pin AC power cable.
USB Cable	1	USB Mini-B cable
Case	1	Silver Type Briefcase with Foam Inserts and keys.
Remote CD	1	Argus CD containing various softwares.
Instruction manual	1	This manual

3.2 AISG Cable Connections.

PIN	DESCRIPTION
1	+12V
2	-48V
3	RS485 B
4	RS485 GND Optional
5	RS485 A
6	+24V
7	DC Return
8	Not connected

4 Operation

4.1 CTXD-30-H Front Panel and Connector Location.



1. Power On / Off Button
2. Send Data Button
3. Decrease Button
4. Increase Button
5. LCD Display
6. AISG Connector
7. Low Battery Light
8. TX/RX Indicator
9. Find Antenna Button
10. Scroll Data Button
11. Selected Band Indicator
12. Band Selector Button
13. USB Connector and Cover
14. Battery Charger Connector

Figure 3. Controller Details.

4.2 Connecting the CTXD-30-H.

The CTXD-30-H is connected to the AISG capable device(s) by the AISG connector, using the supplied AISG cable.

The CTXD-30-H may also be connected to a PC running the appropriate software for extended data capabilities using the supplied USB cable.

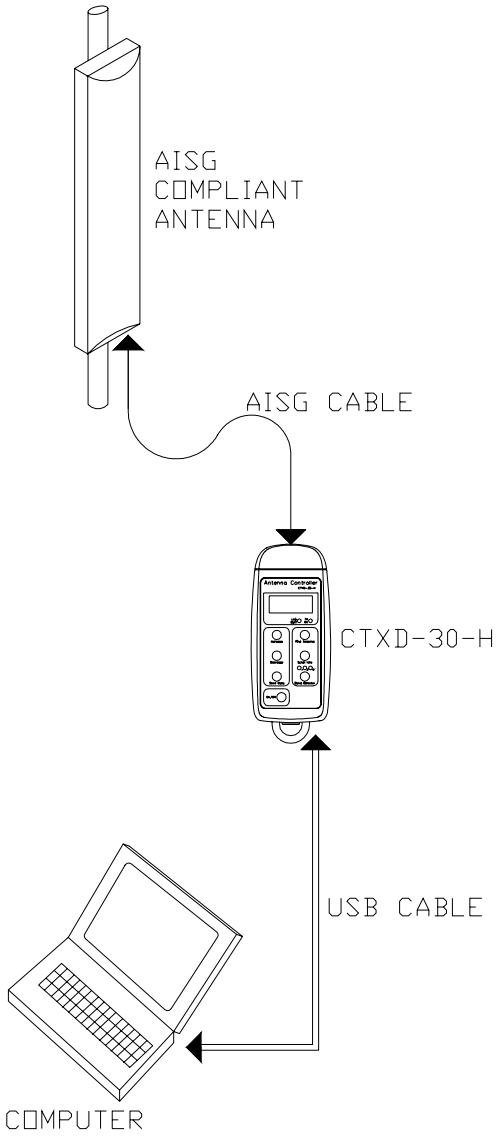


Figure 4. Controller Interconnection Showing Optional PC Interface

4.3 Operation of CTXD-30-H.

4.3.1 Turning the unit On.

To turn on the unit, press and hold the ON/OFF button until the unit starts. The LCD will then read:

BOOTING…

for approximately 3 seconds, then the screen will change to:

ARGUS TECHNOLOGIES
HDWR VERSION: xxx
SFTWR VERSION: x.xx
AISG VERSION: x.x

for approximately 2 seconds, then the screen will change to:

ARGUS TECHNOLOGIES

PUSH FIND TO OPERATE

and the CTXD-30-H is ready to use.

4.3.2 Changing the AISG Communications Version and the Scan Type

To access the setup menu, after turning the unit on, whilst the screen displays:

ARGUS TECHNOLOGIES
HDWR VERSION: xxx
SFTWR VERSION: x.xx
AISG VERSION: x.x

press the ‘Increase’ and the ‘Find Antenna’ buttons simultaneously. This action will put the unit into the setup menu. The screen will display the following:

SETUP MENU
AISG VERSION: 2
SCAN TYPE: UNIQUE ID

To toggle the option selected (highlighted), press the ‘Scroll Info’ button.
To toggle between ‘AISG VERSION’ and ‘SCAN TYPE’ press the ‘Increase’ and ‘Decrease’ buttons.

The AISG version will toggle between ‘1’ and ‘2’. The CTXD-30-H is compatible with both AISG Version 1.1 and Version 2. If the antenna to be controlled is

AISG Version 1.1, toggle the option AISG VERSION to ‘1’. If the antenna to be controlled is AISG Version 2, toggle the option AISG VERSION to ‘2’.

The SCAN TYPE will toggle between ‘UNIQUE ID’ and ‘HDLC’. The CTXD-30-H has the ability to do two types of scans.

The ‘UNIQUE ID’ option scans for antenna serial numbers, and once it has found an antenna, it assigns it an HDLC address, starting at HDLC address 1, then 2 etc. This scan is typically done on installation of the antennas.

The ‘HDLC’ option scans for antenna HDLC addresses, scanning from 1 to a user defined limit.

Once the setup options are set to the user’s preferences, press the ‘SEND DATA’ button to exit. If there has been a change made to the preferences, the bottom line of the LCD will read ‘SAVING CHANGES’. This will save the user’s preferences so that the unit will remember them.

4.3.3 Scanning for antennas via HDLC address

With “PUSH FIND TO OPERATE” on the LCD. Press the ‘FIND’ button once, this brings up the scan range setting screen.

The screen reads

“PRESS INC/DEC TO”
“CHANGE NO. OF DIGITS TO”
“SCAN: 1”
“PRESS FIND TO START”

You can change the number of units to scan for by pressing the ‘Increase’ and ‘Decrease’ buttons.

Press the ‘Increase’ button and the screen reads:

“PRESS INC/DEC TO”
“CHANGE NO. OF DIGITS TO”
“SCAN: 2”
“PRESS FIND TO START”

Now press the ‘Decrease button and the screen reads:

“PRESS INC/DEC TO”
“CHANGE NO. OF DIGITS TO”
“SCAN: 1”
“PRESS FIND TO START”

With a 1 selected, the unit scans from 1 to 10. With a 2 selected the unit scans from 1 to 100. With a 3 selected, the unit scans from 1-254.

When you have selected the appropriate number of units to scan for, press the ‘FIND’ button again to commence scanning.

4.3.4 Scanning for antennas via Unique Identifier

With “PUSH FIND TO OPERATE” on the LCD. Press the ‘FIND’ button once, this brings up the scan range setting screen.

The screen reads

“PRESS INC/DEC TO”
“CHANGE NO. OF DIGITS TO”
“SCAN: 3”
“PRESS FIND TO START”

You can change the number of units to scan for by pressing the ‘Increase’ and ‘Decrease’ buttons.

Press the ‘Increase’ button and the screen reads:

“PRESS INC/DEC TO”
“CHANGE NO. OF DIGITS TO”
“SCAN: 4”
“PRESS FIND TO START”

Now press the ‘Decrease button and the screen reads:

“PRESS INC/DEC TO”
“CHANGE NO. OF DIGITS TO”
“SCAN: 3”
“PRESS FIND TO START”

With a 2 selected, the unit scans from xxxxxx00 to xxxxxx99
With a 3 selected, the unit scans from xxxxx000 to xxxxx999.
With a 4 selected, the unit scans from xxxx0000 to xxxx9999. etc

The unit scans for unique serial numbers, using a predetermined algorithm which minimises the time spent scanning.

When you have selected the appropriate number of units to scan for, press the ‘FIND’ button again to commence scanning. When an antenna is located, a new HDLC address will be assigned to it, with the first antennas HDLC address starting at 1.

Depending upon the number of antennas connected and their serial numbers, the user may have to choose a higher number of digits to scan antennas with. If

there are more AISG compliant devices to be found, the user will be alerted by the unit with the following screen:

“THERE ARE MORE DEVICES”
“TO BE FOUND. INCREASE”
“THE NUMBER OF SCANS”

in which case the user should repeat a scan with a higher number digit to scan with.

NOTE: to interrupt a scan in progress press and hold the On/Off button. This will interrupt the scan and switch the unit off.

4.3.5 Completion of Scanning

Once the scanning process has finished, the unit will have found all antennas that are connected via the AISG cable and will remember their HDLC address, regardless of which type of scan was chosen.

The antenna found first in the scanning process(HDLC address 1) will have its information displayed on the LCD, as follows:

“AR ----------xxxxxxxxxx”	the devices unique identifier number
“MDL: xxxxxxxx”	the model of the device.
“SET DOWNTILT xx.x”	this is the new angle to set.
“READ DOWNTIL xx.x”	this is the actual down tilt set.

NOTE: both the set downtilt and the read downtilt should be the same unless actually changing the antenna downtilt. Once any change is complete both downtilt should again be the same but at the new downtilt.

If there are more than one AISG compliant devices connected to the CTXD-30-H, the user may scroll through the antennas by pressing the ‘FIND’ button until the desired antenna is displayed on the LCD.

To initiate a new scan, the user must first turn off the unit, the turn on the unit, then repeat the scanning process.

4.3.6 Scrolling Antenna Information.

Once you have found an antenna and set its HDLC address you may scan through the antenna data by pressing the SCROLL DATA button for different information which is displayed on the second line of the LCD

“MDL: xxxxxxxx” is the model number.

Press SCROLL DATA

“S/N: xxxxxxxxx” is the serial number.

Press SCROLL DATA

“BANDS: x” is the number of bands.

Press SCROLL DATA

“BEAMWIDTH: xx,xx,xx,xx” is the beamwidth.

Press SCROLL DATA

“GAIN xx.xx” is the antenna gain.

Press SCROLL DATA

“MAXTILT: +/- xx.xx” is the maximum amount of adjustable electrical tilt.

Press SCROLL DATA

“MINTILT: +/-xx.xx” is the minimum amount of adjustable electrical tilt.

Press SCROLL DATA

“DATE: xx/xx/xx” is the installation date.

Press SCROLL DATA

“INSTAL ID: xxxxxxxxx” is the installer’s ID.

Press SCROLL DATA

“BTS ID: xxxxxxxx” is the base station ID.

Press SCROLL DATA

“SECTOR: xxxxxx” is the sector of the antenna.

Press SCROLL DATA

“BEARING: x” is the bearing of the antenna.

Press SCROLL DATA

“MECHTILT: xx.xx” is the amount of mechanical tilt of the antenna.

Press SCROLL DATA

Returns to the first option in the list of antenna data.

4.3.7 Selecting a band.

Once an antenna is found the CTXD-30-H automatically selects band 1. If the antenna has numerous bands(maximum of 3) then you can press the BAND SELECTOR button and this will cycle through the available bands of the antenna. Each time you select a new band, the unit displays that bands downtilt value on the fourth line:

"READ DOWNTILT: +/-xx.x" the angle of downtilt currently set.

When you at the last available band pressing the BAND button again will return you to band 1 of the antenna.

4.3.8 Setting new down-tilt angle.

You can change the downtilt of any band on any antenna that the CTXD-30-H is connected to by selecting the desired antenna, then the desired band. The unit should read out the currently set angle on the fourth line.

"READ DOWNTILT: +/-xx.x" the angle of downtilt currently set.

The third line on the LCD will read

"SET DOWNTILT: +/-xx.x" the angle of desired downtilt.

and also shows the current downtilt angle. By pressing the up or down buttons you can change the angle on this line. Once this line reads the desired angle press the send button and the antenna will change its downtilt. The CTXD-30-H constantly updates the current angle during this process so you can see the angle changing on the fourth line

"READ DOWNTILT: +/-xx.x" the angle of downtilt currently set.

4.3.9 USB mode.

The CTXD USB function is for use with the ARGUS PCUW software. The software requires WINDOWS XP, 2000 or NT to operate. The CTXD-30-H is fully plug and play and requires no driver installation.

The CTXD-30-H automatically switches into USB mode when connected to a computer USB port. The LCD shows the following graphic to indicate that the unit is in USB mode. Once the unit is in USB mode, the buttons no longer perform any functions.

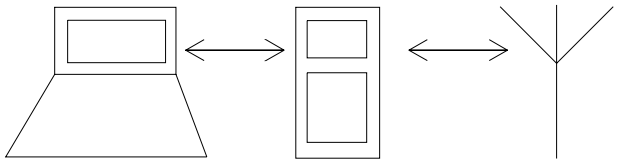


Figure 5. USB Graphic

There are three ways in which the CTXD-30-H can be used in USB mode.

1. Connected to a PC running the ARGUS PCUW software. The unit acts as a power source for the antenna, as well as a USB to AISG converter. This is the most common way to use the unit in USB mode. To use the CTXD-30-H in this mode, refer to the ARGUS PCUW software
2. Connected to a PC running the ARGUS upld_CTXD-30-H.exe software. This program allows the user to upload new software to the CTXD-30-H. This option is used when there are new releases of software.
3. Bootloader mode. With the unit connected to a PC running the upld_CTXD-30-H software, the user turns on the CTXD-30-H and whilst the LCD screen reads :

   'BOOTING…'

   press the 'Decrease' and 'Scroll Info' buttons simultaneously. There is approximately 3 seconds to do this (indicated by LED 3 being on for the duration of the 3 seconds). Pushing these buttons forces the unit into bootloader mode, provided that the computer is still connected via usb. The user may then upload new software for the CTXD-30-H. This option is only to be used if the software on the CTXD-30-H is corrupted and needs to be replaced

4.3.10 Turning the unit Off.

To turn the unit off press and hold the ON/OFF button for about 1 second, release the button and the CTXD-30-H will then shut down and switch off.

NOTE: The CTXD-30-H will automatically turn of after approximately 2 ½ minutes of no activity on any of the buttons, this does not occur in USB mode.

4.4 Using the external charger.

Warning: The charger should NOT be used with the unit if the battery is not fitted. This may result in damage to the control unit.

The external charger is a rapid charger capable of charging the internal battery of the controller in approximately 2.5 hours, depending on battery condition.

The external battery charger may be used to run the unit in the case of a flat battery. It is recommended that the unit be switched off when the charger is first turned on. The charger then goes through the following steps.

1. It does an initial test on the battery's condition, designated by a yellow light on the charger;

2. The charger will then switch into fast charge mode designated by an orange light. This charges the battery at approximately 900mA and continually measures battery condition;

3. On completion of the fast charge cycle, the charger switches into top off charge and applies 130mA to the battery to ensure a fully charged state and is indicated by Green light momentarily flashing yellow;

4. When the battery is fully charged the charger switches to Trickle charge mode and applies 50mA to the battery circuits, this state is designated by a constant green light on the charger.

Note: If the light is flashing orange and green an error has occurred and will only apply 50mA to the Controller.