

NEWSCASTER VT2 Specifications

(Continued)

Digital Audio Mode

Two channels:2 Analog, *or* 1 AES/EBU, SDI De-embedded
Four optional4 Analog, *or* 2 AES/EBU, SDI De-embedded
Frequency Response:30 Hz to 20 kHz: 0.5 dB

Digital & Analog Modes

Line input:

US:+8 dBm, 600 Ohms
International:+12 dBm, 600 Ohms

Signal-to-noise:

Line audio:65 dB

Harmonic distortion:

Line audio:0.5% maximum (*typically 0.2 %*)**Remote control:**RS-232/RS-485**Power Requirements:**Input range:100 to 260 VAC 50/60 Hz (*DC optional*)Power consumption:80 W typical (*12 watt version*)

10 Watt all Digital.....120 Watts

Environmental:

Temperature range:

Full specification:-30° to +60°C

Storage:-40° to +80°C

Humidity:0 to 95% non-condensing

Physical Characteristics:

Size:

Standard RF Head:9.5 in. (*W*) x 15.0 in. (*L*) x 2.0 in. (*H*)Control Unit:19 in. standard rack (*1 RU*)

Note: Higher power digital PA's require a larger RF head.

Weight:

RF Head:12 lbs.

Control Unit:6 lbs

NEWSCASTER VT2 Specifications

(Continued)

Connectors:

Video/SDI/DVB-ASI/ IF:Type BNC-F
RF Output:Type "N-F" RF Head
Audio:Screw terminals
AC Power:
Control Unit to RF Head:TNC-F (*optional Triax type or 2 wire for DC Power*)
Remote Control:9 Pin "D" Female
AUX RF Head Power:MIL-C-26482, 12 Pin

Environmental***Temperature Range***

Full Specifications:-20° to +60° C
Humidity:98 % (0° to 40° C)

Altitude

Operating:20,000' (6,000 m)
Storage:50,000 (15,000 m)

Physical Characteristics

Size:3.5" H x 19" W x 16" D
(8.39 x 48.26 x 40.64 cm)
Weight:30 lbs (13.6 kg)

Connectors

Video/Baseband/IF:BNC (*Female*)
Audio:Removable Terminal Strip
ASI:BNC (*Female*)
SDI:BNC (*Female*)

Remote Control

RS232:9 Pin "D" Connector (*Female*)
Ethernet:RJ-45

Summary Alarm:Form C on Terminal Strip

4. INSTALLATION

4.1 UNPACKING & INSPECTION

Unpack the *NewsCaster VT2* and visually inspect for possible damage to the LCD, connectors, and surface areas. If damage is found, a claim should be filed with the transportation carrier. Save the shipping container and packing material for re-shipment, as needed.

4.2 PRE-INSTALLATION CHECKOUT

Connect the *NewsCaster VT2* output to the RF Head by cable. Connect the RF Head through a 30-watt, 30-dB attenuator to a spectrum analyzer and observe the output frequency on the analyzer display. Note that the frequency and level correspond directly to the settings on the *NewsCaster VT2* front panel.

4.3 CONNECTIONS

AC Power

The *NewsCaster VT2* Transmitter features a built-in power supply that accepts AC power ranging from 90 to 260 VAC (40 to 60 Hz). The *NewsCaster VT2* automatically adapts the input voltage without any internal jumpers or switch settings. (Refer to Figure 9, Detail 1.)

The *NewsCaster VT2* is shipped with an AC power cord, which should match the available AC power source. If not, an appropriate power cord can be ordered from the factory.

Optional DC Power

The *NewsCaster VT2* Transmitter features an optional built-in power supply that accepts DC from +11 to +32VDC. The *NewsCaster VT2*

automatically adapts the input voltage without any internal jumpers or switch settings. The rear of the unit has two terminals: (–) is for GND, and (+) is for the +12VDC connection.

Video

All inputs are made via clearly marked rear panel connectors. Composite video or composite Baseband input is through a BNC jack labeled *VIDEO IN*. SDI or ASI inputs can be made via the SDI or ASI IN connectors. (Refer to Figure 9, Detail 3 and Detail 4.) Simply connect a 75 Ω coaxial cable from the video source to the appropriate connector. When power is applied, the precise input can be selected. Available video inputs and outputs are:

- **SDI (Input)** – (*Serial Digital Interface*) This signal combines both digital audio and digital video into one signal.
- **ASI (Input & Output)** – (*Asynchronous Serial Interface*) Similar to SDI, this signal combines both digital audio and digital video into one signal. The Output ASI connector provides an output of the encoded MPEG stream, and can be used to feed a satellite modulator or external transport stream multiplexer
- **Video (Input)** – It is an analog video signal that is proportional to the received signal deviation. For use with Composite and Baseband Video.

70 MHz Connectors

There are both 70MHz input and output ports, which are 75 Ω coaxial cable connections. The output connector can be hooked to a monitor or another transmitter, while the input port allows a feed from an external modulator. (Refer to Figure 9, Detail 2.)

Audio

(Refer to Figure 9, Detail 6.) Inputs for audio channels 1 through Audio 4 are made via strip connectors on the rear panel. "G" is for ground, (-) is for the negative signal and (+) is for the positive. (Refer to Figure 14, Page 30 for the connector detail.)

NOTE: AES/EBU is selectable via the LCD interface.

IF Interface

A TNC (or optional Triax) connector interconnects the Control Unit to the RF Head. The DC power, 70 MHz and inter-unit control data are diplexed onto the center conductor. (Refer to Figure 9, Detail 7.)

Remote

(Refer to Figure 9, Detail 8.) The remote control allows for full control and monitoring of the NewsCaster VT2. This connector allows for RS232 or RS485 interfaces. Refer to Section 5.4 for settings. Note all pins are not required depending on the interface used. (Refer to Figure 10, Page 28 for a detailed view and the pin outs.)

Joystick

(Refer to Figure 9, Detail 9.) This 6-pin connector (optional) connects to the joystick to control the Pan & Tilt Motor. (Refer to Figure 11 for a detailed view and the pin-outs.)

Pan/Tilt Pwr

(Refer to Figure 9, Detail 10.) This connector (Optional) is used to provide power to the Pan & Tilt Motor. (Refer to Figure 12 and Figure 13 for detailed views and pin-outs.)

Aux DC Power

This connector can output +48 VDC to the RF Head when the Nycoil has RG59 coax, rather than the recommended Belden 1694A or Triax. (Refer to Figure 9, Detail 5.)

NOTE: This configuration requires a separate Power & Control cable. See Nycoil specifications on pages 21 through 24.

4.4 CONTROL UNIT MECHANICAL INSTALLATION

The NewsCaster VT2 Control Drawer is shipped pre-assembled. Mount the Control Unit in a standard 1U E.I.A. rack space, using all 4 rack screws.

4.5 CONTROL UNIT ELECTRICAL INSTALLATION

The NewsCaster VT2 connectors and pin outs are shown in Figures 10 through 23, along with Tables 9 through 13.

4.6 MAST INSTALLATION

IF INTERFACE & Aux DC Power

The TNC, or Triax, IF connector inputs the diplexed 70 MHz, inter-unit control data, and DC power for the RF Head when Belden 1694, or Triax, cable is used. If RG-59 is used, then DC is input from the Aux Power cable via the Aux DC Power input.

ANT. POL.

This connector receives the antenna polarity control signals. Both NSI and Radio Waves antennas are compatible, as well as others. See Tables 11 & 12 for connector pin-outs,

and Figures 19 & 20 for diagrams. (Refer to Figure 15, Detail 12.)

Pan / Tilt Interface

This connects the RF Head to the Pan & Tilt unit. Refer to Table 13 for pin-outs and functions. See Figures 6 & 7 for connection diagrams. . (Refer also to Figure 15, Detail 13.)

Pan / Tilt Power

This brings power for the Pan & Tilt unit from the Control Unit to the RF Head. Refer to Tables 9 & 10, and Figures 4 & 5 for pin-outs and functions. See Figures 6 & 7 for connection diagrams. (Refer also to Figure 15, Detail 14.)

RF Output

The RF output is via a Type-N connector located at the center rear of the *NewsCaster VT2* RF Head and carried, via a 50 Ω low-loss coaxial cable, to the antenna. Turn the cable connector clockwise while keeping it in line with the transmitter connector. To avoid unnecessary connector wear, do not allow the cable to rotate while you connect it to the transmitter. (Refer also to Figure 15, Detail 15.)

4.7 RF HEAD MECHANICAL INSTALL

Nucomm offers standard and extended power output configurations for the mast unit. (Refer to Figure 36 for typical mounting.) The standard power setup consists of a single RF head. The extended power output option consists of two RF heads (*one containing the up-converter, P&T, PSU, and Antenna*

Controls; and the other containing the High Power Amplifier).

In a typical installation of Nucomm's *NewsCaster VT2*, the RF Head(s) are mounted on the Pan & Tilt mechanism, which is attached to a pneumatic mast atop an ENG/OB van.

To ease the mounting of the RF Head(s) to the Pan & Tilt, a mounting adapter plate is available (Figure 25). This plate is first mounted to the Pan & Tilt with (4) 1/4-20x.750" flat head screws, then the RF Head(s) are mounted to the adapter plate(s). For cases when the mounting adapter plate is not used, the hole pattern of the RF Head(s) base plate has been provided (Figure 22).

Mount the RF Unit so that the heat sink fins are vertical during operation. (Refer to Figure 23.)

RF Head Electrical Install

Connections for the RF Head are shown in Figures 15 through 21. Location numbers are provided for cross-reference between the Figure and descriptions.

Interconnect

Figures 6 and 7 show the interconnections between the *NewsCaster VT2* Control Unit and the mast mounted RF Unit (*and the optional High Power Amplifier*). To assist in preparing the Control and Monitor cable, connector pin assignments and recommended wire sizes are provided. When Triax or Belden 1694 are used, the only conductors required to pass through the Nycoil for standard operation are the coax (*or Triax*) cable (*for power, data, and 70 MHz IF*) and power conductors for the Pan & Tilt Option. An auxiliary power cable is required if using 75 Ω RG-59 (*or optional 50 Ω RG-58*).

RF Head Connections

For BOTH the Standard and Extended Power Output configurations, perform the following:

- Connect the coax (or optional Triax) cable to the TNC (or optional Triax) connector labeled RF Interface. (Refer also to Figure 15, Detail 11.)
- Connect the antenna polarization cable. (Refer also to Figure 15, Detail 12.)
- Connect the optional Pan/Tilt Power Cable. (Refer also to Figure 15, Detail 14.)
- Connect the 18-pin connector of the Pan & Tilt Power/Control cable to the connector labeled "TO PAN/TILT" on the RF Unit assembly. Connect the 17-pin connector of the Pan & Tilt Power/Control cable to the Pan & Tilt motor assembly. Refer to Table 13 and Figure 21 for cable pin-outs. (Refer also to Figure 15, Detail 13.)

In addition to the above RF Head connections, make the following connections, which are specific to the power output option chosen.

For Standard Power Output Only

Connect the antenna cable to the appropriate "RF OUTPUT" port: use a 2 GHz Omni, 2 GHz Directional, **optional** 7 GHz Omni, or 7 GHz Directional. (Refer to Figure 15, Detail 15.)

RF Head (Extended Power)

In the extended power option configuration, the two RF heads are connected via two cables, one for RF, and one for power control.

Connect antenna cable to the "RF OUTPUT" port. (Refer to Figure 15, Detail 15.)

NSI & Radio Waves Quad Antenna Polarization Interconnection

To assist in preparing the polarization cable, connector pin assignments and recommended wire sizes and wiring diagrams are provided. For NSI, refer to Table 5 and Figure 19. For Radio Waves, refer to Table 6 and Figure 20. A menu option on the LCD interface is used to select between the two antenna types, and will be factory configured per the antenna type specified when the order is placed.

Quickset OPT90 Pan & Tilt Interconnection

The Pan & Tilt platform will handle a maximum load of 90 lbs. with 0-355° of rotation and $\pm 90^\circ$ of tilt. The unit features adjustable "limit" switches to limit the extremes of rotation and tilt. The Pan & Tilt is controlled by a joystick which is connected to the *NEWSCASTER VT2* Control Unit. The operator is able to set the platform position to within 1 degree of the desired position. The Control Unit will display the azimuth and the degree of rotation, as well as the tilt above and below the horizon.

Nucomm supports two input voltage versions of the Quickset OPT90, a 12v version and a 120v version. Table 7 and Figure 21 show the interconnection between both OPT90 versions and the RF Head. The interconnection between the Control Unit and the RF head is different for each version, and is detailed on page 26 and 27.

OPT90 - 120VDC

Table 3 and Figure 4 show the interconnection between the Control Unit and the RF Head.

OPT90 - 12VDC

Table 4 and Figure 5 show the interconnection between the Control Unit and the RF Head.

4.8 NYCOIL ASSEMBLY INSTALLATION

Most broadcasters use a coiling cable conduit (e.g. "Nycoil") between the truck control unit and the top of the mast.

The Nycoil Cable conduit is essentially a preformed housing in the shape of a coil spring. When nested the coils stack in 15" diameter circles one above the other around the antenna mast. This protects the cables inside the housing and prevents them from becoming entangled. As the mast is extended, the coils separate like a coil spring.

The coiling cable conduit length should be two times the difference between the extended and nested heights of the mast.

Table 8 shows recommended coiling cable lengths for a typical "Nycoil" cable assembly.

Summary of cables and conductors needed (for NewsCaster VT2 and Pan/Tilt)

System Configuration	Cable Usage	Wire size	Number of conductors
<i>Standard Coax or Triax Connection (no Pan & Tilt)</i>	Control to RF Head Interconnect	Belden 1694A RG-6U (Coax) or Belden 8232A RG-59U (Triax)	n/a
<i>Standard Coax or Triax Connection (with Pan & Tilt)</i>	Control to RF Head Interconnect	Belden 1694A RG-6U (Coax) or Belden 8232A RG-59U (Triax)	n/a
	Pan & Tilt Control	#18 AWG	4
<i>Alternate Coax Connection (no Pan & Tilt)</i>	Control to RF Head Interconnect	Belden 1505(e.g) RG-59U (Coax)	n/a
	Aux Power Cable	#20 AWG	3
<i>Alternate Coax Connection (with Pan & Tilt)</i>	Control to RF Head Interconnect	Belden 1505(e.g) RG-59U (Coax)	n/a
	Aux Power Cable	#20 AWG	3
	Pan & Tilt Control	#18 AWG	4

Table 6: Summary of cables and conductors needed (for NewsCaster VT2 and Pan/Tilt)

Config	@ NCVT2 Control Unit	Cable	Function	@ NCVT2 RF Head
Standard Coax	TNC Connector Trompeter UPL40-41 Nucomm 511-F3003-000	Belden 1694A RG-6U (recommended)	70MHz IF - Inter-Unit Data +48VDC Power	TNC Connector Trompeter UPL40-41 Nucomm 511-F3003-000
Standard Triax	Triax Connector Trompeter PL375-13A Nucomm 511-F3002-000	Belden 8232A RG-59U (recommended)	70MHz IF - Inter-Unit Data +48VDC Power	Triax Connector Trompeter PL375-13A Nucomm 511-F3002-000
Alternate Coax (requires Aux Power Option)	TNC Connector Trompeter UPL40-41 Nucomm 511-F3003-000	Belden 1505(e.g) RG-59U	70MHz IF - Inter-Unit Data	TNC Connector Trompeter UPL40-41 Nucomm 511-F3003-000
	Terminal Strip	#20AWG x 3	+48VDC Power	15-pin connector ITT Cannon: MS3116J14 Nucomm 512-F3012-015

Table 7: Nycoil Specifications for the NewsCaster VT2

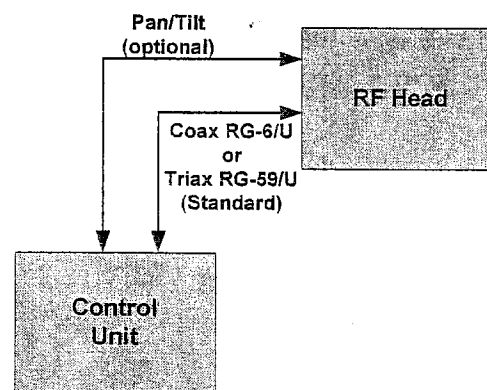


Figure 2: Nycoil Diagram – Standard Coax (or Triax) Configuration

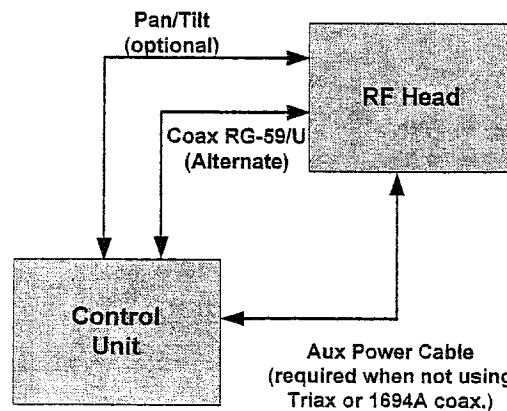


Figure 3: Nycoil Diagram – Alternate Coax Configuration

*OPTIONAL SETUP: Required when 1694A/RG-6U Coax or 8232A/RG-59U Triax are not used.

Auxiliary Power cable			
NCVT2 RF Head Connector Pin #	Function	Recommended Wire Size	NCVT2 Control Unit Terminal Strip Pin
A	+48VDC	#18 Violet	1
B	+48VDC	#18 Violet	3
C	Not Used		
D	Not Used		
E	Not Used		
F	Not Used		
G	Ground	#18 Black	2
H	Not Used		
J	Not Used		
K	Not Used		
L	Not Used		
M	Not Used		
N	Not Used		
P	Not Used		
R	Not Used		

Table 8: Nycoil Specifications for Nucomm NewsCaster VT2 (*AUX Power*)

NUCOMM Connector P/N 512-F3012-015

NEWSCASTER VT2 Control Unit Connector Pin	Function	Recommended Wire Size (AWG)	NEWSCASTER VT2 RF Head Connector Pin
A	+160V*	#18 White	A
B	+160V*	#18 Red	B
C	Not Used		C
D	Not Used		D
E	-160V*	#18 Brown	E
F	-160V*	#18 Black	F
G	Not Used		G
H	Not Used		

*The motor for the 120vdc Pan and Tilt actually requires 160vdc.

Table 9: Pan & Tilt Power (120 VDC) Connector Pin-outs

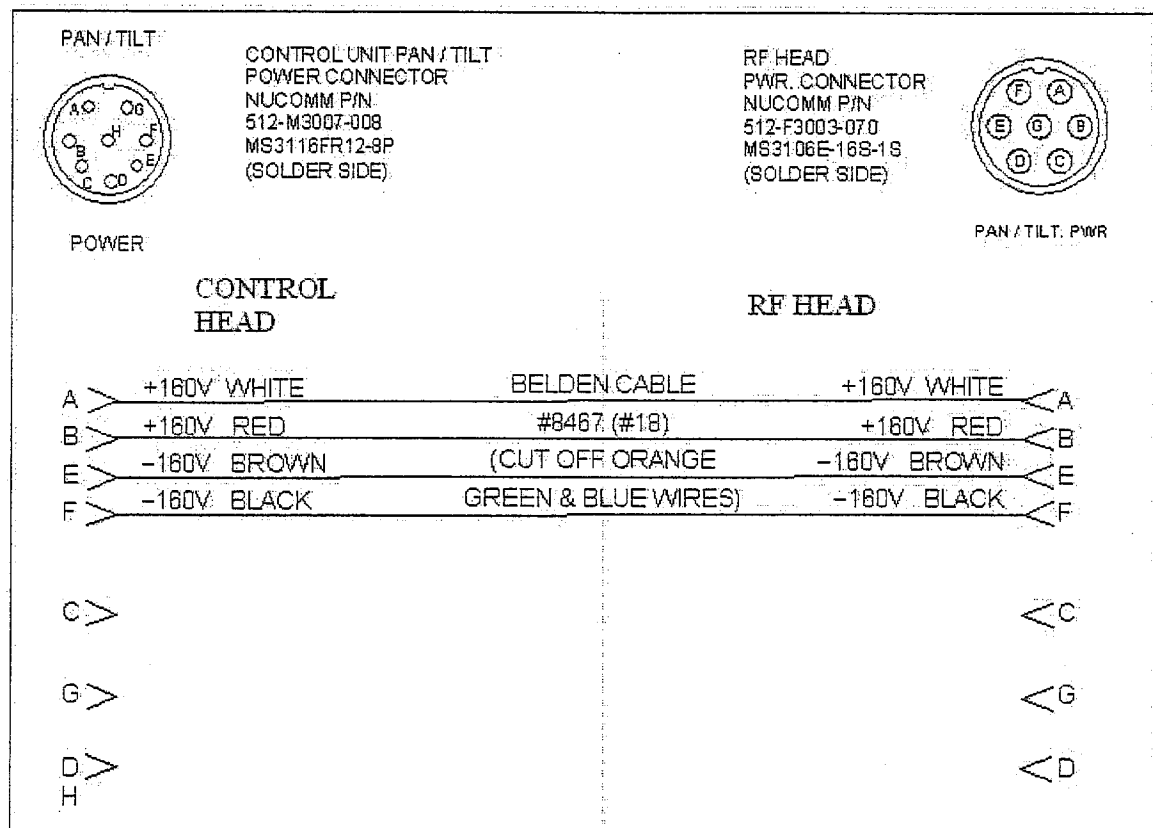


Figure 4: Pan & Tilt Power (120 VDC) Interconnect Diagram

NEWSCASTER VT2 Control Unit Connector Pin	Function	Recommended Wire Size (AWG)	NEWSCASTER VT2 RF Head Connector Pin
A	+12V	#18 YELLOW	A
B	+12V	#18 YELLOW	B
C	GND	#18 BLACK	E
D	GND	#18 BLACK	F
No Connection	Not Used		C
No Connection	Not Used		D
No Connection	Not Used		G

Table 10: Powered Pan & Tilt Power (12 VDC) Connector Pin-outs

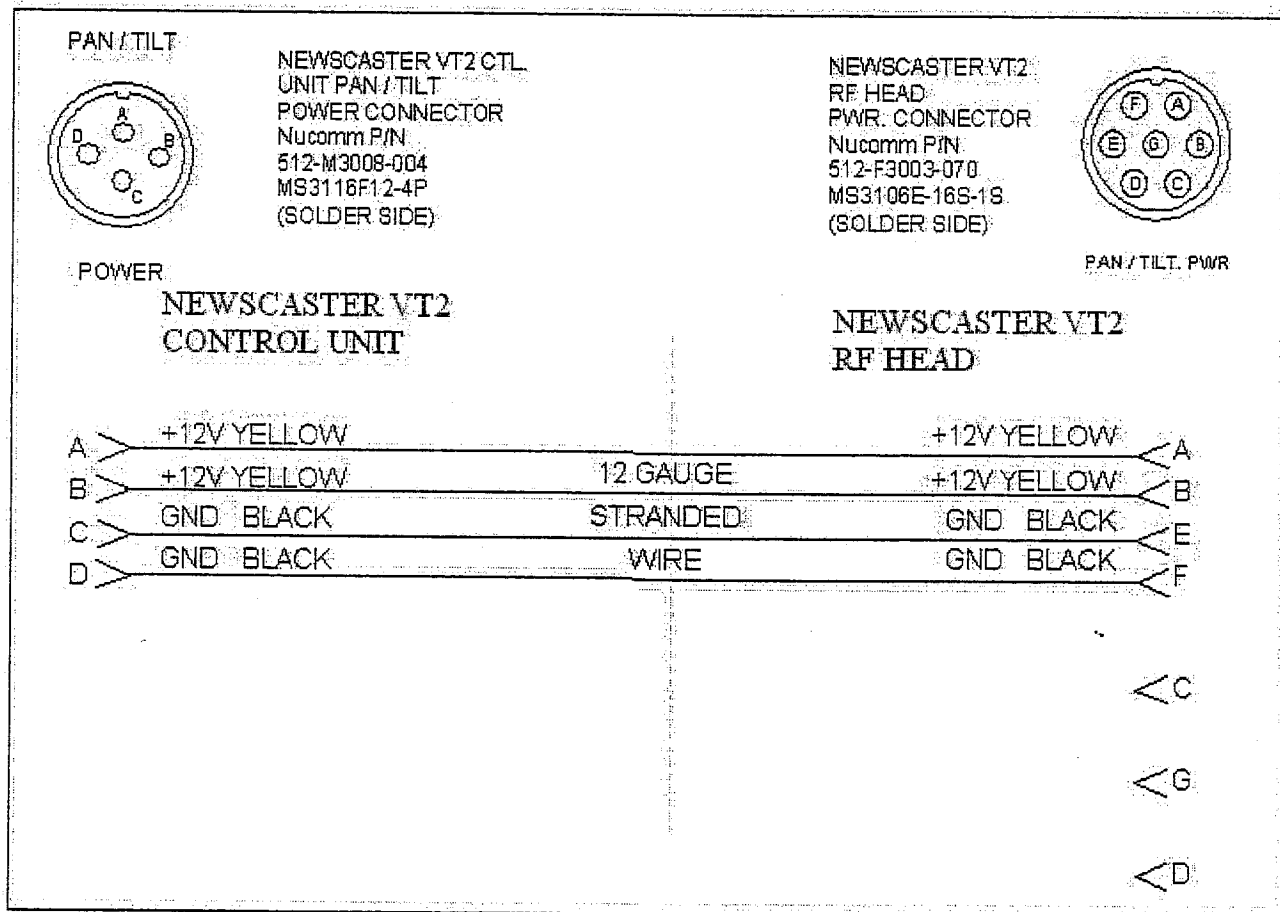


Figure 5: Powered Pan & Tilt Power (12 VDC) Interconnect Diagram

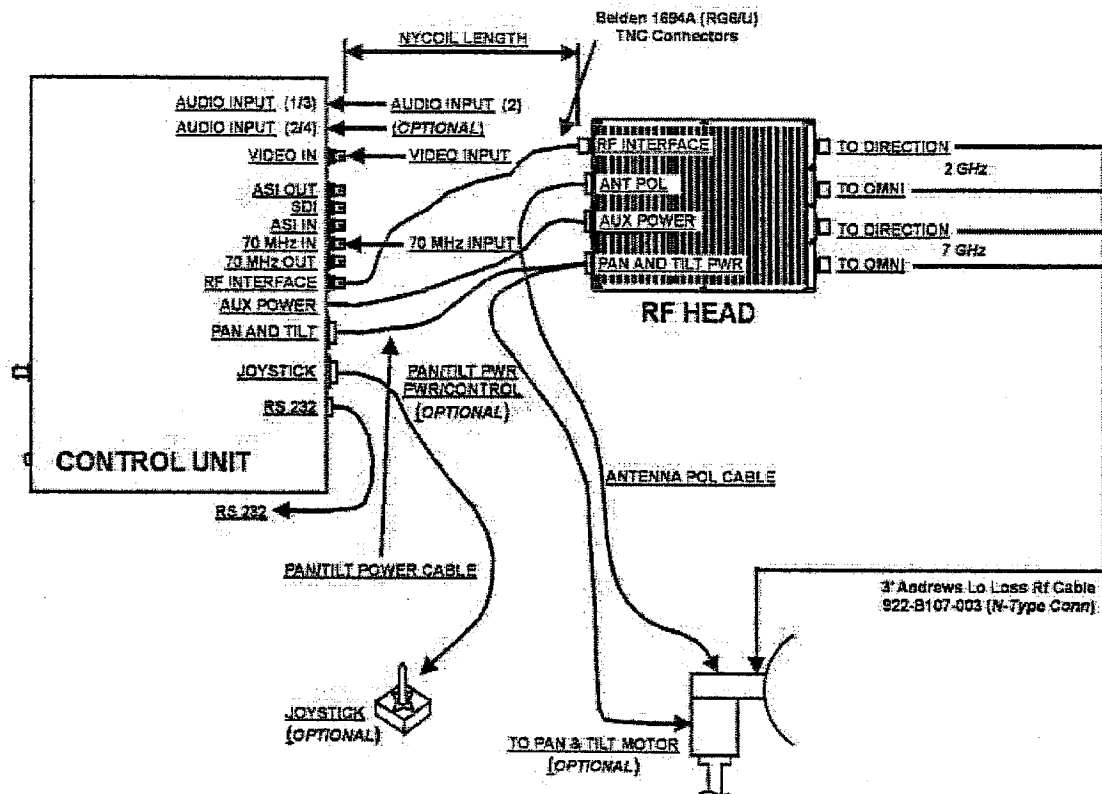


Figure 6: NewsCaster VT2, Connections, Standard Power Option

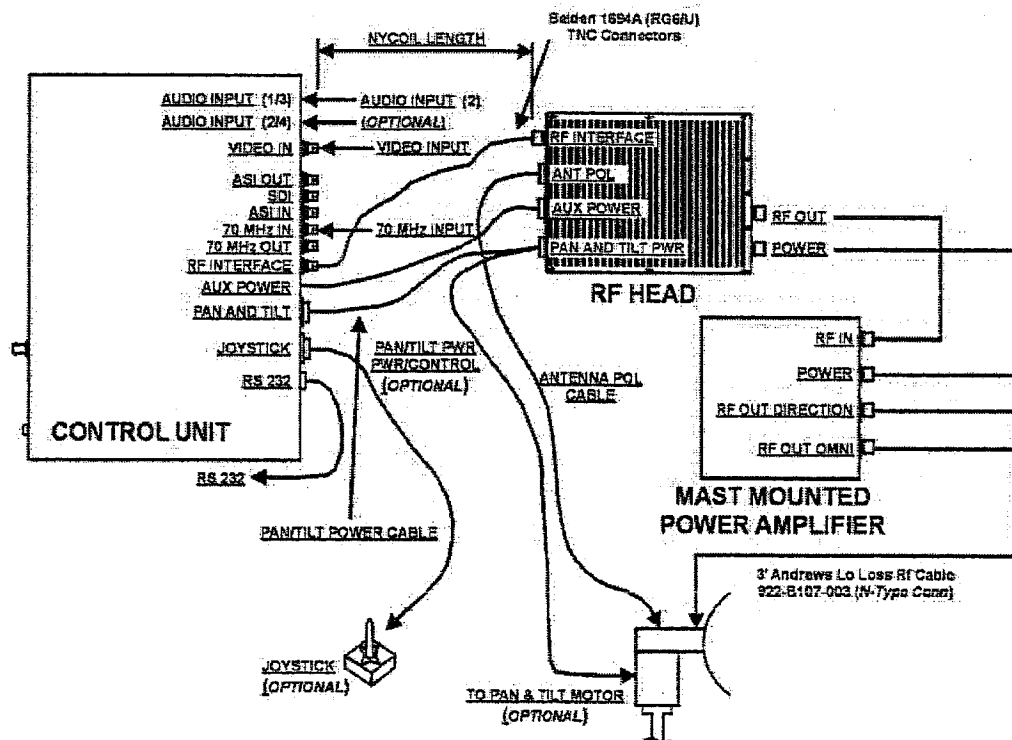


Figure 7: Connections – High Power Option

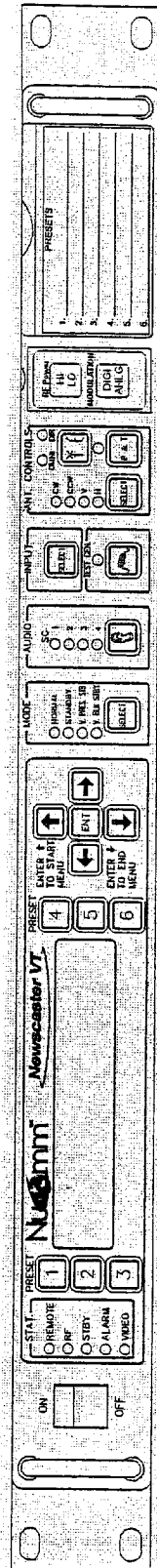
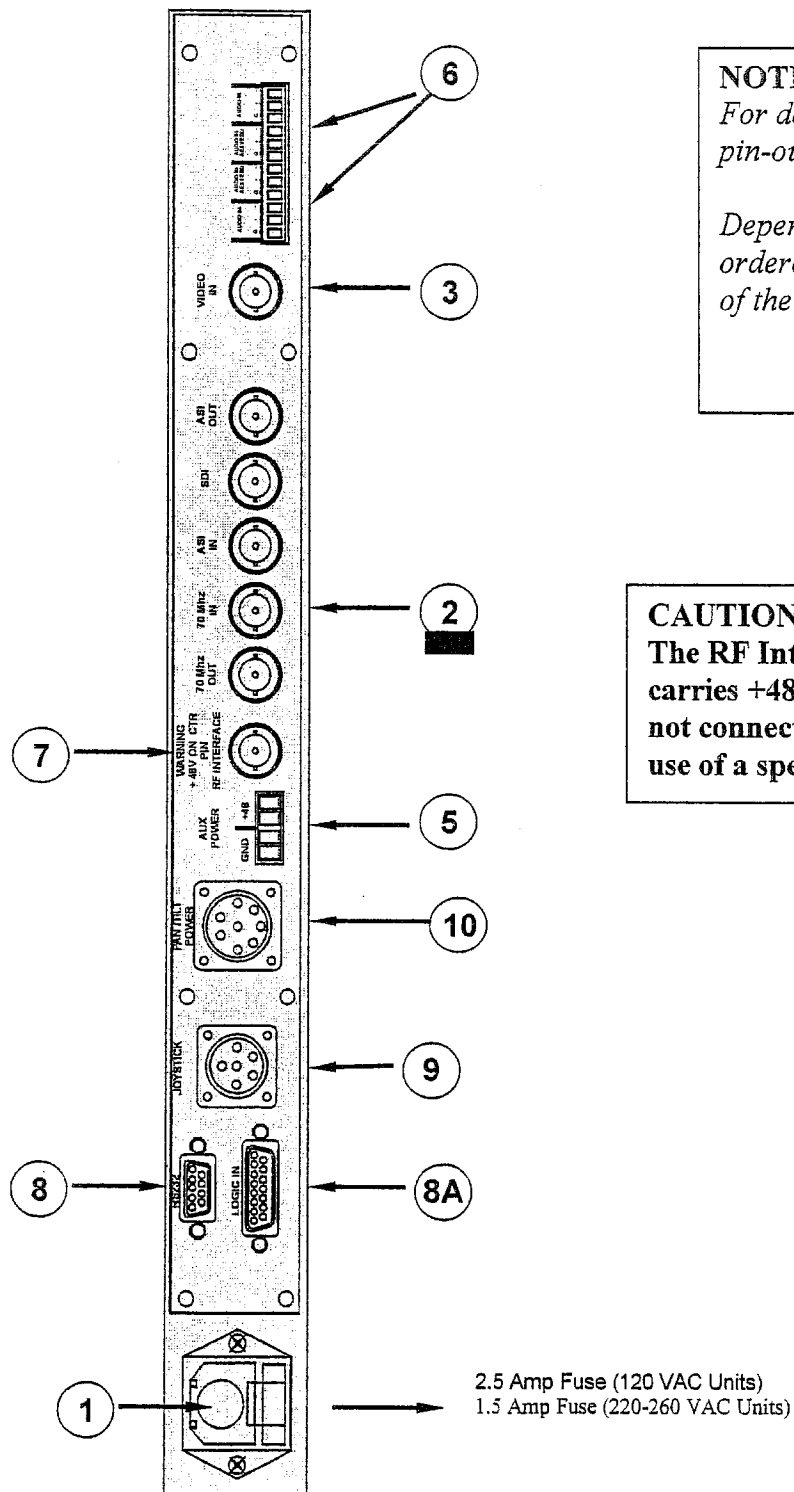


Figure 8: NewsCaster VT Control Unit Front Panel

**NOTE:**

For detailed views of connectors and pin-outs, refer to Figures 10 thru 14.

Depending on the configuration ordered, some units may not feature all of the connectors pictured here.

CAUTION - IF INTERFACE (7)

The RF Interface center conductor carries +48V to power the RF Head. Do not connect any instruments without use of a special test cable.

Figure 9: AC Powered NewsCaster VT2 Control Unit Rear Panel

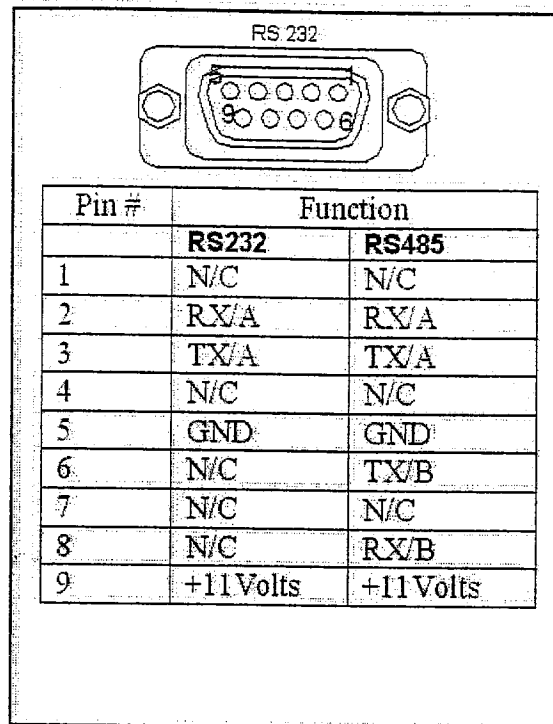


Figure 10: Front View RS 232 Connector

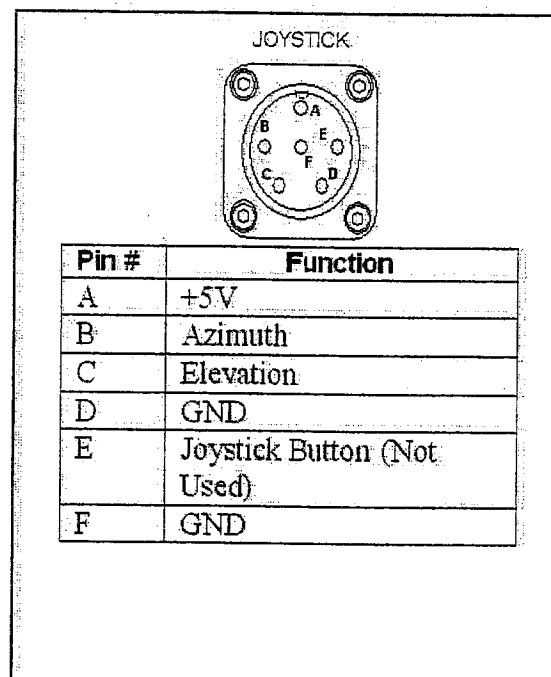
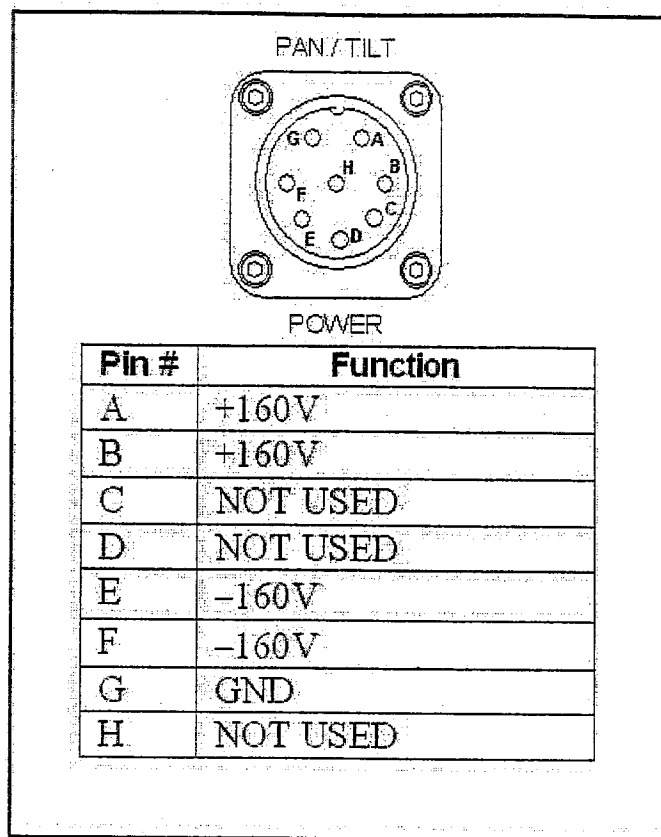
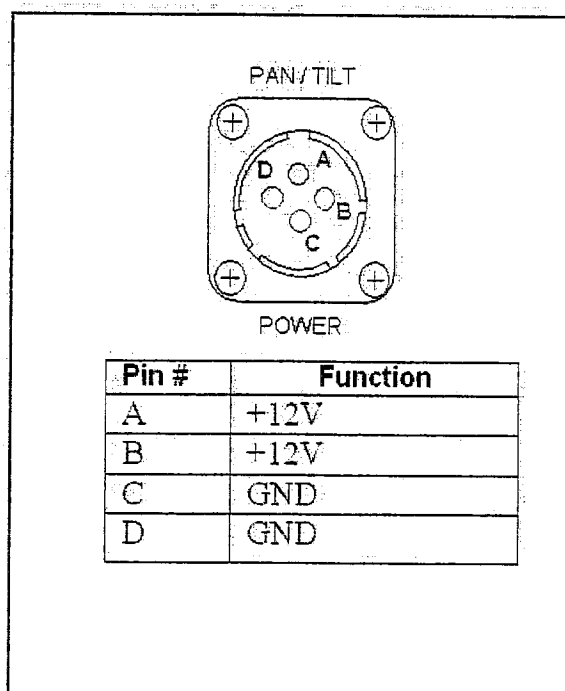


Figure 11: Front View Joystick Connector Pin Outs

Figure 12: Pan & Tilt Power Connector Front View (*AC Powered Units*)Figure 13: Pan & Tilt Power Connector Front View (*DC Powered Units*)

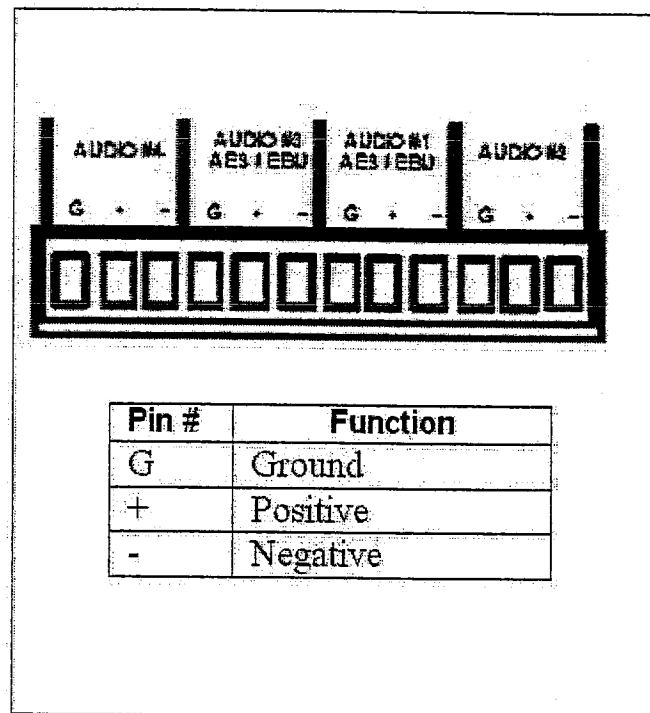


Figure 14: Front View Audio Connector

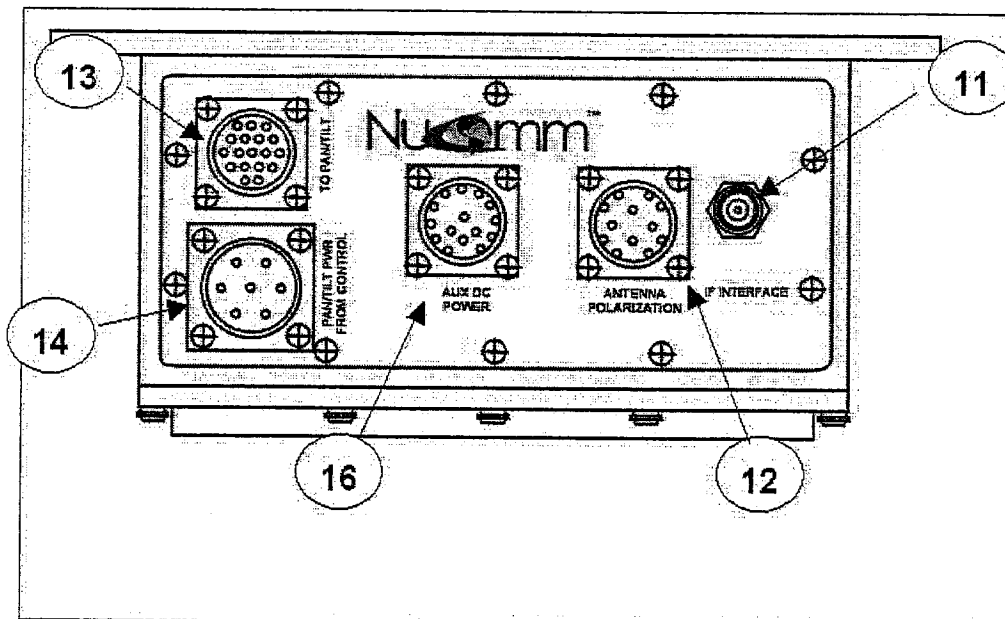


Figure 15: RF Head, Front-Panel Connectors w/Pan & Tilt and Logic

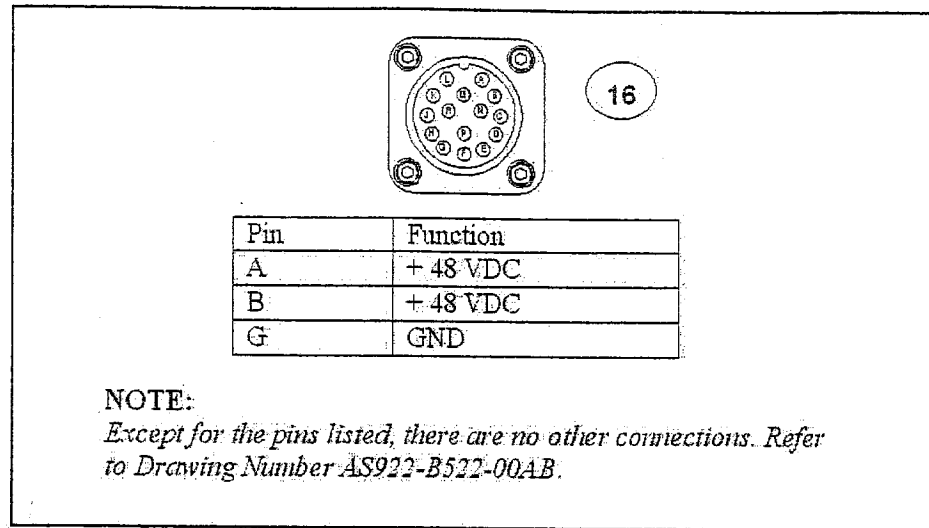


Figure 16: Front View RF Head AUX DC Power Connector

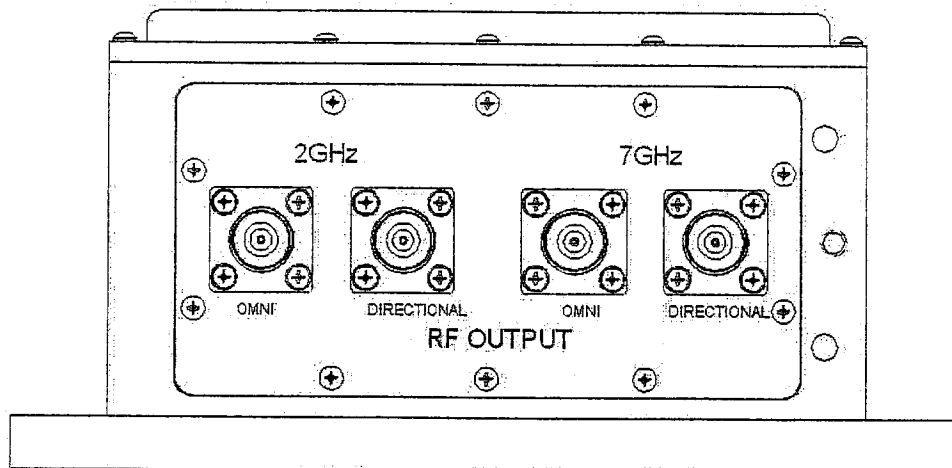


Figure 17: NewsCaster VT2 RF Head, Back-Panel Connectors
(Configured for Standard Power)

NOTE: *Onmi Antenna Ports on Figure 17 are optional.*

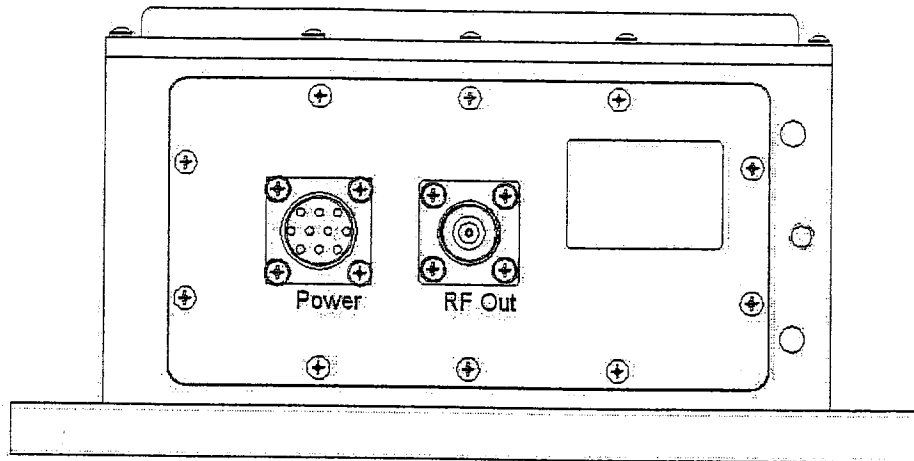


Figure 18: NewsCaster VT2 RF Head, Back-Panel Connectors

(Configured for High Power Amplifier option)

Refer to power cable detail in Figure 24.

NEWSCASTER VT2 Connector Pin	Function	Recommended Wire Size (AWG)	NSI Antenna Connector Pin
N/C	CW (Default)	N/C	N/C
E	V	#22 BROWN	A
C	H	#22 RED	B
D	2/7 GHz Band Select	#22 GREEN	L
F	CCW	#22 WHITE	D
G	Common Ground	#22 BLACK	E
K	Earth Ground	N/C	N/C
N/C	N/C	N/C	F
N/C	N/C	N/C	H
N/C	N/C	N/C	J
N/C	N/C	N/C	K
N/C	N/C	N/C	M

Table 11: NSI Quad Antenna Polarization Connector Pin Out

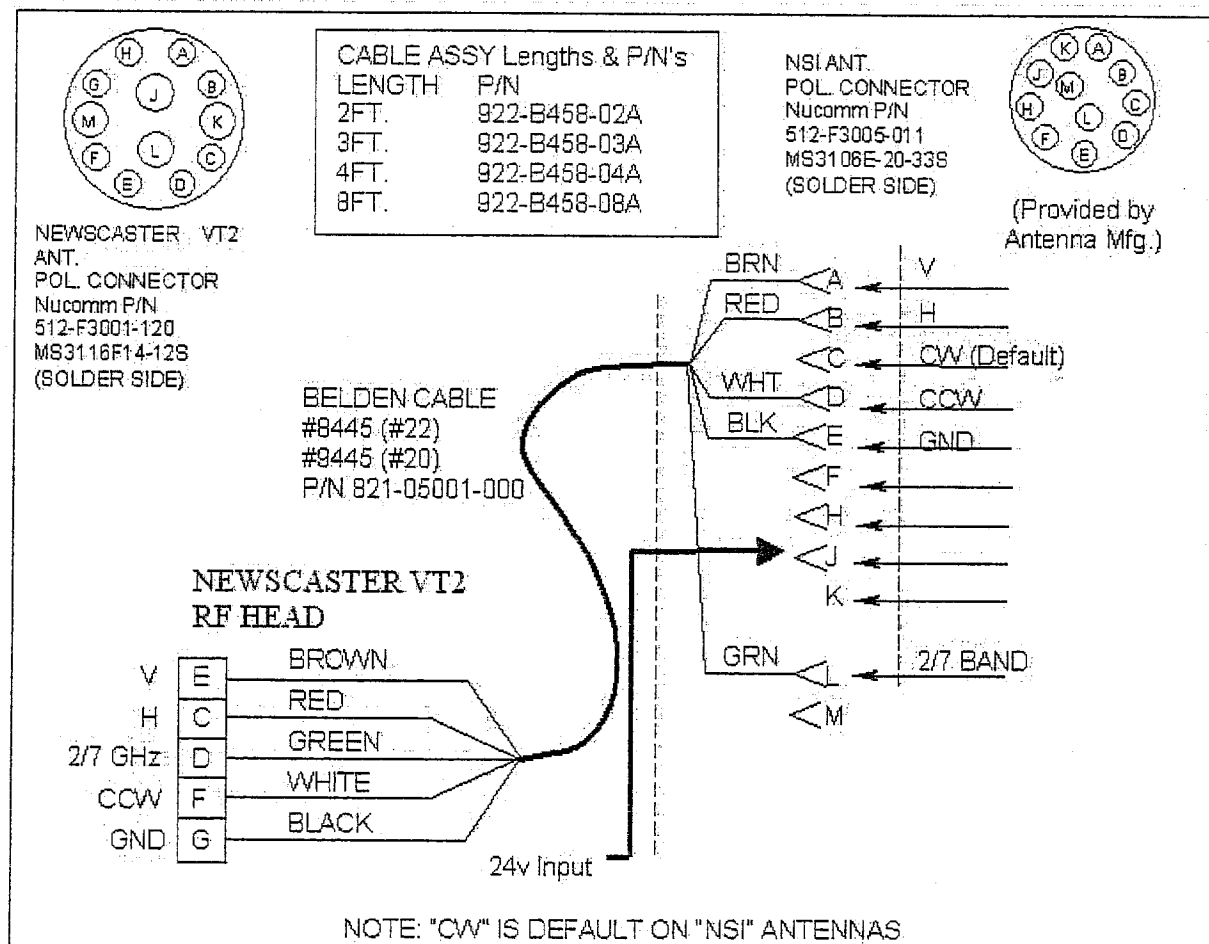


Figure 19: NSI Quad Antenna Polarization Connections