

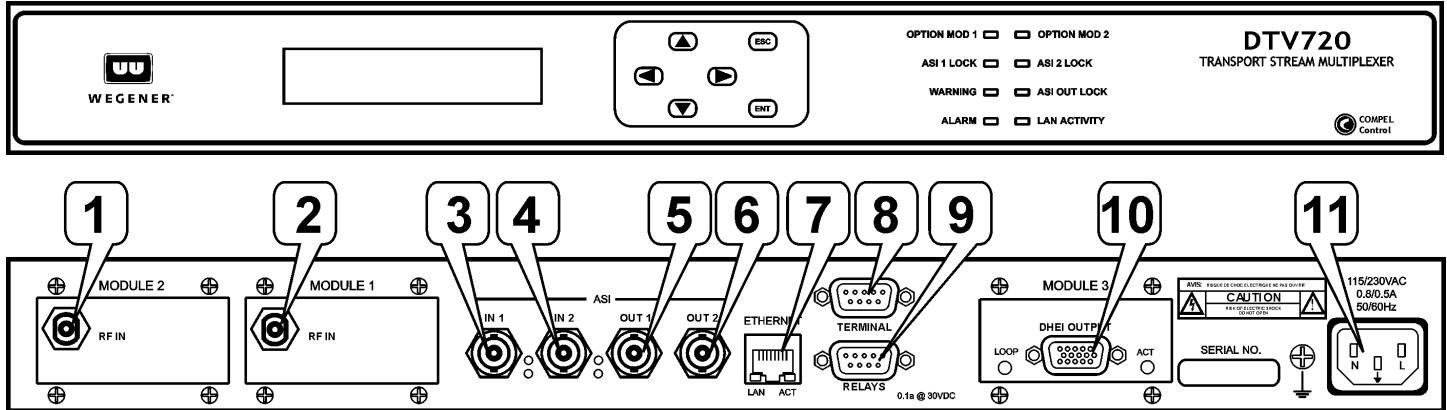
DTV720 Installation Quick Start Guide

The Wegener Model DTV720 Transport Stream Multiplexer receives up to two input ASI MPEG transport streams and two ATSC 8VSB broadcast signals and provides an output ASI stream (and optional DHEI stream) for connection to cable system transmission equipment. This guide provides information for setting up and operating the DTV720. Additional information may be found on the Wegener web site at www.wegener.com/

In addition to this guide, your box should include:

1. DTV720 Transport Stream Multiplexer
2. Power cord
3. UL safety sheet

Front- and Rear-Panel Views



Connector/Pin-out Information

Rear Panel Connector Descriptions				
Ref	Connector Designation	Type	Signal Name	Description
1&2	RF In	F (female)	RF In	Off-air signal from antenna or other RF source
3&4	ASI In 1 & ASI In 2	BNC	ASI In	ASI from IRD or other source
5&6	ASI Out 1 & ASI Out 2	BNC	ASI Out 1 & ASI Out 2	To QAM Modulator or ASI Mux
7	Ethernet	RJ-45 jack	Ethernet_In & Out	To LAN – for WEB Control
8	Serial I/O	DB-9	For Factory Use Only	For Factory Use Only
9	Status Relays	DB-9	Alarm Contact Closure	To Alarm Monitoring
10	DHEI	DB-15	DHEI Output	To QAM Modulator or ASI Mux
11	115/230 VAC	IEC receptacle	AC Line In	To AC Power Outlet

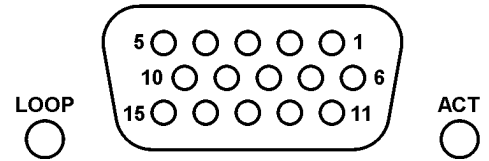
Status Relays Signals (Ref 9)	
Pin #	Signal Name
9	Close on Alarm
4	Alarm Common
7	Open on Alarm
8	Close on Warning
3	Warning Common
6	Open on Warning
1	Not used
2	Not used

LED Indicator Descriptions			
LED	Description	LED	Description
OPTION MOD 1	For Use with Optional Module 1	OPTION MOD 2	For Use with Optional Module 2
ASI 1 LOCK	ON - ASI input sync present on ASI 1 OFF - Loss of ASI input, PAT, or PMT.	ASI 2 LOCK	ON - ASI input sync present on ASI 2 OFF - Loss of ASI input, PAT, or PMT.
WARNING	ON - Warning conditions OFF - No warnings	ASI OUT LOCK	ON - ASI output active OFF - No ASI output
ALARM	ON - Alarm conditions OFF - No alarms	LAN ACTIVITY	ON - Ethernet data to the unit.

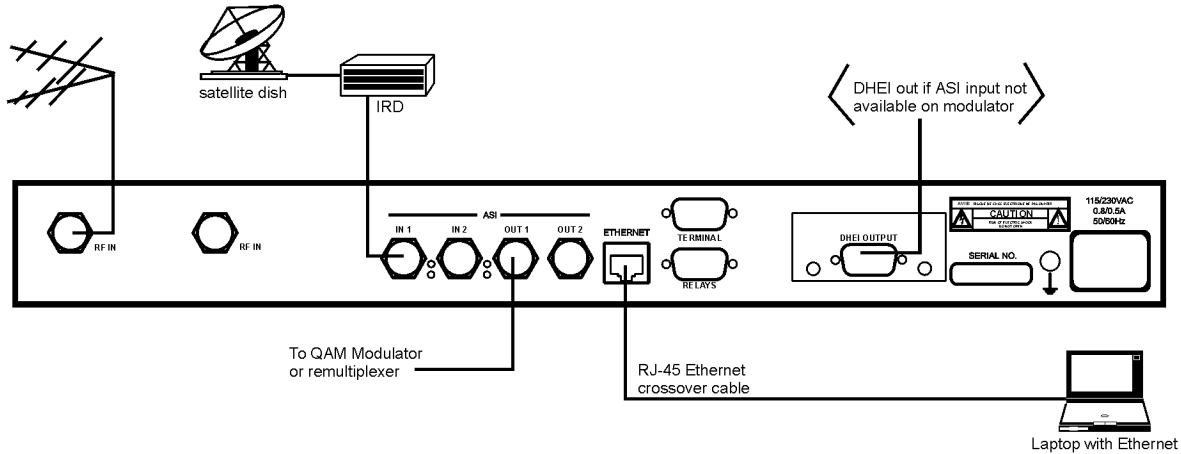
DHEI Connector Signals (Ref 10)					
Pin #	Signal Name	Pin #	Signal Name	Pin #	Signal Name
1	RSVD	6	SENSEOL	11	SENSOR
2	RSVD	7	PSYNCO+	12	PSYNCO-
3	RSVD	8	PDATAO+	13	PDATAO-
4	RSVD	9	PCLKO+	14	PCLKO-
5	SIGND	10	REFCLKO+	15	REFCLKO-

DHEI Connector LED Indicators		
LED name	LOOP	DHEI cable is fully connected to modulator
Meaning	ACT	Always on except in catastrophic failure

DHEI connector and LEDs viewed from rear panel



Basic System Setup Diagram



Program and PID Mapping

Programs are selected and mapped by the user. A check box is provided on the Pidsets Config page of the web interface to select programs for the output. A box is provided for assigning the program number, and a combo box allows the user to select AC-3, MPEG, or both types of audio for inclusion in the output transport stream. PID assignments are passed to the output without change.

IRT Mode

WARNING: Do not select IRT mode unless using the DTV720 with Motorola or General Instruments equipment. Using IRT mode in other situations may have unexpected results.

With systems using the Motorola IRT product, certain additional elements must be included in the output transport stream. In such systems, be sure to enable the DTV 720's IRT Mode by selecting IRT Mode ON from the web browser interface. When using this mode, PSIP is normally disabled. When the IRT Mode is on, the DTV720 performs the actions listed here.

- A CAT (Conditional Access Table) PID (0x0001) is included and a CA system descriptor is added in this packet pointing to a reserved location (PID 0x0ff9) for the EMM (Encryption Management Message).
- For each program in the stream, a CA descriptor pointing to itself is added in the PMT. This is a null ECM (Encryption Control Message).
- Program 0 (NIT) is added to the PAT. Program 0 points to PID 0x0ffe which carries the STT (System Time Table) clock information.
- The NIT (Network Information Table) must also be present in the transport stream. This PID (0x0ffe) is created at the uplink and is passed through.

Environmental Operating Conditions & Physical Specifications

Use	Indoor
Altitude	Up to 2000 meters
Temperature Range	0° C to +50° C
Relative Humidity (max.)	80% for temperatures up to 31° C decreasing linearly to 50% relative humidity at 40° C.
Weight	10.6 pounds or 4.81 kilograms
Dimensions (H x W x D)	3.5" x 19" x 10.5" or 88.9 mm x 482.6 mm x 266.7 mm
Input Power Rating	90-132Vac & 175-264Vac, 43 Watt, 50/60 Hz

Front-panel User Interface

Note that from any screen, pressing the ESC key twice will return you to the Home Screen.

Main-level Screens	Second-level Screens
<p>Home Screen (rotates through status of each input) The following are examples of typical home screens:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>RF1 Chan:XX 8VSB SNRYY.Y ErrSec:ZZZ →</p> </div> <p>Where XX is the broadcast channel number, YY.Y is the signal-to-noise ratio, and ZZZ is the number of errored seconds since the last reset of the counter or the last lock of input.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>ASI 1 Enabled Err Secs: 0000 →</p> </div> <p>Press the ▶ key to go to Alarms/Warnings. Press the ENT key to view the second-level Serial Number and Application Software Version Number screen.</p>	<p>Serial Number and Application Software Version Number Screen</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>S / N : XXXXXX VER : YYY</p> </div> <p>Where XXXXXX is the unit's six-digit serial number and YYY is the version number of the unit's currently installed application software. Press the ESC key to go to the Home Screen.</p>
<p>Alarms/Warnings</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>View Alarms/Warnings</p> </div> <p>Press the ENT key to view any active alarms or warnings on the second-level Alarms/Warnings Message screen. Press the ▶ key to go to Clear Errored Seconds (if counter is non-zero) or Program Setup. Press the ESC key to go to the Home Screen.</p>	<p>Alarms/Warnings Message Screen</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>No Alarms or Warning</p> </div> <p>Any active alarms or warnings are described here. Press the ▶ key to view the next alarm or warning (if more than one). Press the ESC key to return to the Alarms/Warnings screen.</p>
<p>Clear Errored Seconds</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Clear Errored Secs Press <ENT></p> </div> <p>Press the ENT to clear the errored seconds counter. Press the ▶ key to go to the Input Setup screen. Press the ◀ key to go to Alarms/Warnings. Press the ESC key to go to the Home Screen.</p>	

Main-level Screens	Second-level Screens
<p>InputSetup</p> <div data-bbox="198 239 644 319" style="border: 1px solid black; padding: 5px; text-align: center;"> Input Setup... </div> <p>Press the ENT key to bring up the second-level ASI Input 1 screen.</p> <p>Press the ▶ key to go to Program Status.</p> <p>Press the ◀ key to go to Clear Errored Seconds (if counter is non-zero) or Alarms/Warnings.</p> <p>Press the ESC key to go to the Home Screen.</p>	<p>ASI Input 1</p> <div data-bbox="935 226 1382 306" style="border: 1px solid black; padding: 5px; text-align: center;"> ASI Input 1 </div> <p>Press ENT and use the ▲ or ▼ keys to select <ON> or <OFF>, enabling or disabling this input. Press ENT again to confirm.</p> <p>Press the ▶ key to go to the ASI Input 2 Screen.</p> <p>Press the ESC key to return to the main-level Input Setup screen.</p> <hr/> <p>ASI Input 2</p> <div data-bbox="935 485 1382 564" style="border: 1px solid black; padding: 5px; text-align: center;"> ASI Input 2 </div> <p>Functions for ASI Input 2 Screen are identical to those for ASI Input 1.</p> <p>Press the ▶ key to go to the RF Input 1 screen.</p> <p>Press the ◀ key to go to the ASI Input 1 screen.</p> <p>Press the ESC key to return to the main-level Input Setup screen.</p> <hr/> <p>RF Input 1</p> <div data-bbox="935 747 1382 827" style="border: 1px solid black; padding: 5px; text-align: center;"> RF Input 1 </div> <p>Press ENT to go to the third-level Tuner Enable, Channel Number, and RF Standard Screens.</p> <p>Press the ◀ key to go to the ASI Input 2 screen.</p> <p>Press the ESC key to return to the main-level Input Setup screen.</p> <hr/> <p>RF Input 2</p> <div data-bbox="935 999 1382 1079" style="border: 1px solid black; padding: 5px; text-align: center;"> RF Input 2 </div> <p>Functions for RF Input 2 Screen are identical to those for RF Input 1.</p> <p>Press the ◀ key to go to the RF Input 1 screen.</p> <p>Press the ESC key to return to the main-level Input Setup screen.</p>
<p>Program Status</p> <div data-bbox="172 1276 618 1356" style="border: 1px solid black; padding: 5px; text-align: center;"> Program Status... </div> <p>Press the ENT key to view the second-level program status screens.</p> <p>Press the ▶ key to go to Front Panel Timeout.</p> <p>Press the ◀ key to go to Input Setup.</p> <p>Press the ESC key to go to the Home Screen.</p>	<p>2nd -level Program Status</p> <div data-bbox="935 1272 1382 1352" style="border: 1px solid black; padding: 5px; text-align: center;"> ProgIn XXXXX AAAAAAA ProgOutYYYY BBB </div> <p>where XXXXX is the program number at input, AAAAAAA is the service descriptor for the program, YYYY is the hexadecimal program number at output, and BBB is the available audio for the program (AC-3, MPEG, or MPG/AC-3).</p> <p>Press the ▶ key to view the status of the next program (all programs may be viewed though only programs 1 through 16 may be used).</p> <p>Press the ESC key to return to the main-level Program Status screen.</p>
<p>Front Panel Timeout</p> <div data-bbox="172 1587 618 1667" style="border: 1px solid black; padding: 5px; text-align: center;"> Front Panel Timeout 10 </div> <p>Press the ENT key and then the ▲ or ▼ key to select the front-panel help timeout (No Timeout, or 3, 5, 10, 30, or 60 seconds). Press the ENT key to confirm the selection or ESC to cancel.</p> <p>Press the ▶ key to go to IP Setup.</p> <p>Press the ◀ key to go to Program Status.</p> <p>Press the ESC key to go to the Home Screen.</p>	

Main-level Screens	Second-level Screens
<p>IP Setup</p> <div data-bbox="162 199 609 277" style="border: 1px solid black; padding: 5px; text-align: center;">IP Setup...</div> <p>Press the ENT key to go to IP Address Selection. Press the ▶ key to go to the Reset Unit Screen. Press the ◀ key to go to Front Panel Timeout. Press the ESC key to go to the Home Screen.</p>	<p>IP Address Selection</p> <div data-bbox="852 199 1299 277" style="border: 1px solid black; padding: 5px;">IP Address: 000.000.000.000</div> <p>Press the ENT key and then press the arrow keys to change the IP address. Press the ENT key to confirm the selection. Press the ▶ key to go to the Netmask Selection. Press the ESC key to go to IP Setup.</p> <p>Netmask Selection</p> <div data-bbox="852 493 1299 571" style="border: 1px solid black; padding: 5px;">Netmask: 255.255.0.0</div> <p>Press the ENT key and then press the arrow keys to change the Netmask. Press the ENT key to confirm the selection. Press the ▶ key to go to Gateway Selection. Press the ◀ key to go to IP Address Select. Press the ESC key to go to IP Setup.</p> <p>Gateway Selection</p> <div data-bbox="852 819 1299 896" style="border: 1px solid black; padding: 5px;">Gateway: 0.0.0.0</div> <p>Press the ENT key and then press the arrow keys to change the Gateway. Press the ENT key to confirm the selection. Press the ▶ key to go to Reset Unit. Press the ◀ key to go to Netmask Selection. Press the ESC key to go to IP Setup.</p>
<p>Reset Unit</p> <div data-bbox="162 1155 609 1232" style="border: 1px solid black; padding: 5px; text-align: center;">Reset Unit...</div> <p>Press the ENT key to go to the second-level Reset Unit Screen. Press the ◀ key to go to IP Setup. Press the ESC key to go to the Home Screen.</p>	<p>2nd -level Reset Unit</p> <div data-bbox="852 1155 1299 1232" style="border: 1px solid black; padding: 5px;">Reset Unit... Press <ENT></div> <p>Press the ENT key to reset the unit and start the boot loader. Press the ESC key to go to the Reset Unit Screen.</p>

Web Browser User Interface

In addition to the front panel, the user may control and monitor the unit using the rear-panel Ethernet connection. Before using the Ethernet connection, the appropriate IP address, netmask, and gateway must be selected via the front-panel interface. There are two basic methods of using the Ethernet connection – with a directly connected PC or with a LAN connection.

Locally connected PC –

Connect the DTV720 Ethernet connection to the Ethernet network connector on the PC using a crossover RJ-45 cable (8 pins).
 Set the DTV720 IP Setup as follows: IP Address: 172.016.100.020 Netmask: 255.255.000.000 Gateway: 000.000.000.000
 Set the PC IP address as follows:¹ IP Address: 172.016.100.001 Subnet Mask: 255.255.000.000
 Connect to the DTV720 using the web browser instructions below.

LAN Connection –

Connect the DTV720 Ethernet connection to the LAN using a normal RJ-45 cable (8 pins). Set the DTV720 IP Address, Netmask, and Gateway as directed by your network administrator. Use any PC on the LAN to connect to the DTV720 using the web browser instructions below.

¹ To change the PC IP address, go to the Settings, Control Panel and double click the Network icon. Select Configuration, TCP/IP protocol, and click the Properties box. Click Specify IP Address and set the IP Address and Subnet Mask as indicated. Click OK to restart the PC with the new values.

Using the Web Browser –

Using the web browser of your choice, set the Address to <http://nnn.nnn.nnn.nnn> where nnn.nnn.nnn.nnn is the IP address of the unit to be controlled. Each unit on the network must have its unique address. You should see the web pages below when connected to the unit. Select the page to be viewed by clicking on the [Control and Status](#), [Stream Info](#), [Unit Configuration](#), [Pidsets Config](#), or [Q&A/Help](#) tab.

The **Control and Status** page allows you to enable the various inputs and Compel Control as well as select the ASI Output rate and IRT Mode on the Control side. On the Status side, you may view each input's lock state, errored seconds since last input lock or counter reset, the output rate, and the percent utilization of output bandwidth. An oversubscription alarm will occur if this number exceeds 100%. This page is regularly refreshed automatically to keep the status information current.

The **Stream Info** page gives detailed information on all input streams and the output stream. This is for reference only. No selections may be made on this page.

The **Unit Configuration** page allows the multiplex configuration to be stored with a user-selected name. A stored configuration may be loaded at any time to rapidly change the configuration of the unit.

The **Pidsets Config** page allows you to select the programs to include in the output. This is the main page for setting up the multiplex. Up to 32 separate programs may be included in the output. You should ensure that the selected audio format is available on the input program. If you select MPEG only and the input has AC-3 only, you will receive video but no audio for that program. If in doubt, select both. When all selections have been made, click the Submit button at the bottom of the right side of the page to activate the selections.

The **Q&A/Help** page provides answers to commonly asked questions about the DTV720.

Elevated Operating Ambient

If equipment is installed in a closed or multi-unit rack assembly, the operating ambient of the rack may be greater than the room ambient. Therefore, considerations should be given to the TMRA, or Temperature inside the Mounting Rack, and not just inside the room.

Reduced Air Flow

Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

Mechanical Loading

Mounting of equipment in a rack should be such that a hazardous condition is not achieved due to uneven loading. This unit is not very heavy, but total rack loading should be considered.

Circuit Overloading

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits could have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing

Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connection to the Branch (use of power strips).

Desktop Installation

To set up the DTV720 in a desktop environment, place it on a flat surface where it will not be subject to being hit or pushed, and will not have anything spilled or dropped on it. Also, the cables connected to the unit should be routed so they are not hit or pulled, which might cause damage to the connectors or to the unit itself. Additionally, there should be sufficient flow of cool air so the unit stays within its operating parameters.

Rack Installation

When installed in an equipment rack, it is best that the DTV720 be supported by angle brackets or cross supports. These should be screwed or bolted securely to the equipment rack, and be capable of supporting the unit and its connecting cables. Do NOT install the unit if you have doubts about the unit being safely supported. There are also 4 holes in the front brackets, which are designed to accept screws for further anchoring. It is also essential that these brackets be used so the unit cannot be moved forward and fall from the rack. It is **always** best to install the angle brackets or cross-members before setting the unit in place. Then, prior to installing cables, put anchored screws or bolts-and-nuts into place on the front brackets. Failure to do this can lead to pushing the unit out the front of the rack in later steps.

Warranty

The following warranty applies to all Wegener Communications products. All Wegener Communications products are warranted against defective materials and workmanship for a period of one year after shipment to customer. Wegener Communications' obligation under this warranty is limited to repairing or, at Wegener Communications' option, replacing parts, subassemblies, or entire assemblies. Wegener Communications shall not be liable for any special, indirect, or consequential damages. This warranty does not cover parts or equipment, which have been subject to misuse, negligence, or accident by the customer during use. All shipping costs for warranty repairs shall be prepaid by the customer. There are no other warranties, express or implied, except as stated herein.

Technical Support

In the event the unit fails to perform as described, contact Wegener Communications Customer Service at (770) 814-4057, FAX (678) 624-0294, or E-mail "service@wegener.com".

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