

8075 DTV Caption Encoder

The 8074 with the ATSC option is now called the 8075 DTV Caption Encoder. The 8074 user manual is still applicable with the following additions.

Overview

The ATSC option allows the 8074 to interface the caption information to an ATSC compression encoder. The 8074 combines the SDI-video upstream captions, the incoming modem captions/text/XDS data, and the Port A and Port C incoming captions/text/XDS data and places the combined caption stream onto the 8074 SDI-video output as normal. With the ATSC option, the same combined caption data that is placed on the output video is also bundled into packets and transmitted via the 8074's Port B RS-232 serial link into the ATSC caption encoder. The packets can be formatted according to two different protocols. The original Grand Alliance protocol (shown as **ATSC GA** on the 8074) is a transmit only protocol, running at 19200 bps. The enhanced interface protocol (shown as **ATSC** on the 8074) is a bi-directional, polled protocol which requires the ATSC encoder to poll for the appropriate size packet.

Connecting to an ATSC Encoder

The connection to the ATSC encoder must be done using the Port B connector of the 8074. The connection to a typical ATSC encoder system with a DTE type port is as follows (a standard 'Null Modem' cable can be used):

8074 Port B Female		ATSC Encoder End (DTE) Female	
Description	DB-9	DB-9	Description
Shield	-----		Shield
RS 232 Transmit	3-----	2	RS 232 Receive
Ground	5-----	5	Signal Ground
RS 232 Receive	2-----	3	RS 232 Transmit
RS 232 CTS	8-----	7	RS 232 RTS
RS 232 DTR	4-----	6	RS 232 DSR
RS 232 RTS	7-----	8	RS 232 CTS
RS 232 DSR	6-----	4	RS 232 DTR

Figure ATSC -2: Cable Wiring Diagram Port B to DTE port

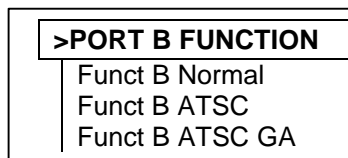
The connection to a typical ATSC encoder system with a DCE type port is as follows (a standard 'Direct Connect' cable can be used):

8074 Port B		ATSC Encoder End (DCE)	
Female		Female	
Description	DB-9	DB-9	Description
Shield	-----	Shield	
RS 232 Transmit	3-----	3	RS 232 Receive
Ground	5-----	5	Signal Ground
RS 232 Receive	2-----	2	RS 232 Transmit
RS 232 CTS	8-----	8	RS 232 RTS
RS 232 DTR	4-----	4	RS 232 DSR
RS 232 RTS	7-----	7	RS 232 CTS
RS 232 DSR	6-----	6	RS 232 DTR

Figure ATSC -2: Cable Wiring Diagram Port B to DCE port

Enabling the ATSC Interface

The ATSC interface must be enabled at the 8074. A new Engineering Setup menu item has been added called **>PORT B FUNCTION**. This menu is accessed by entering the Engineering Setup menus using the **SHIFT+SETUP** key combination. Then use the up arrow until the **>PORT B FUNCTION** prompt is displayed. Use the LEFT ARROW or RIGHT ARROW keys until the desired function is displayed (the currently active function will be blinking). Press the SELECT key to change the function of Port B to the currently displayed function. (The function text should start blinking). Use the SETUP key to exit the menus.



PORT B FUNCTION is used to select the operating mode of the Port B serial port.

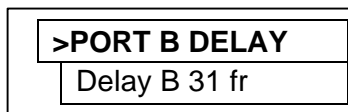
Select **Funct B Normal** for standard 8074 interface to captioning computers and software

Select **Funct B ATSC** for interfacing Port B to ATSC compression encoders using the enhanced, bi-directional, polling protocol at 38400 bps. The 8074 Port B communication parameters will be changed to 38400 baud, 8 bits, No Parity. No other baud rate options or word options will be available while in this functional mode. The COMM light on the 8074 front panel will turn on when the ATSC encoder sends a valid polling character.

Select **Funct B ATSC GA** for interfacing Port B to ATSC compression encoders using the original, Grand Alliance, uni-directional protocol at 19200 bps. The 8074 Port B communication parameters will be changed to 19200 baud, 8 bits, No Parity. No other baud rate options or word options will be available while in this functional mode. The COMM light on the 8074 front panel will turn on continuously when this mode, since the 8074 is unilaterally broadcasting the packet data.

Controlling the ATSC interface delay

An additional delay may be added to the ATSC interface data. This delay can offset other processing delays in the ATSC video path. A new Engineering Setup menu item has been added called **>PORT B DELAY**. This menu is accessed by entering the Engineering Setup menus using the **SHIFT+SETUP** key combination. Then use the up arrow until the **>PORT B DELAY** prompt is displayed. Use the LEFT ARROW or RIGHT ARROW keys until the desired frame delay is displayed (the currently displayed delay value is always the currently active delay value and will be blinking). Use the SETUP key to exit the menus.



PORT B DELAY is used to select the ATSC packet data delay of the Port B serial port. When set to zero, the 8074 will encode and transmit the ATSC packet as soon as possible (there will likely be a small, unavoidable delay due to the 8074 processing, the transmission delay, and the ATSC processing). When set to the maximum of 31 frames, the 8074 will delay the ATSC packet data by 31 video frames.

Select **Delay B 0 fr** for minimum data delay through the 8074

Select **Delay B 31 fr** for maximum data delay through the 8074

Error Displays

The ATSC option includes an additional error message: **ATSC OVERFLOW**, which indicates that the ATSC compression encoder has not polled the 8074 sufficiently often, and some caption data (null or otherwise) has accumulated to the point of overflowing the 8074's delay buffer. Some caption data has been lost due to the insufficient polling.

Port C

Port C is not functional in this version of the software.