## **Mystic Description**

Mystic comes with complete online, context-sensitive Help. This description gives an overview of its features.

Mystic is available for the MAGICard, the RxTx and the Mx family of boards. The accompanying screen shots are of the Mx version but are applicable to the other versions as well. The MAGICard version has some additional capabilities.

The Mx family includes the 429PCMCIA, PC/Mx, PCI/Mx, CPCI/Mx and PMC/Mx. These are all based on 6 channel modules, of which channels 0,1,3, and 4 are Receive Channels and 2 and 5 are Transmit Channels. The main screen has speed buttons to select the channels to set up. If the user clicks the 0 button the following screen will be displayed, representing the first setup screen for Receive channel 0.

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<u>File Parameters Control Display Window H</u> elp	
🗠 🗔 💽 🔲 🛛 1 2 3 4 5	
Updating AR-429 (Rx) Channel 0	
Mode Display Filter Table Parameters Triggers	
Receive mode © Display on screen	
C Receive into file   File name: Ig429-0.ar	
Description:	
Receive storage mode Sequential storage + filter	
Sequential storage mode NO filter	
<u>OK</u> <u>C</u> ancel <u>H</u> elp	
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## **Receive Channel Setup**

Updating AR-429 Receive Channel – Mode Tab

Use the Mode tab screen to decide whether to display data on the screen or save it to a file. The lower part of the screen is used to select whether to display/record all the data, or only selected labels. (The selection is done using the Filter Table tab described in a later section.)

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<u>File Parameters Con</u>	trol <u>D</u> isplay <u>W</u> indow <u>H</u> elp	
	0 1 2 3 4 5	
	Updating AR-429 (Rx) Channel 0	
	Mode Display Filter Table Parameters Triggers   Label Format Data Format   © Octal © Hex   © Hex © Decimal   © Formatted hex	
	C Engineering units Customize	
	Display Display Display Type	
	🔽 Display time tag 💿 Dynamic buffer size: 96	
	Display error information Customize	
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Updating AR-429 Receive Channel – Display Tab

The Display tab is used to select the format of the display for incoming data. The label and data fields are formatted separately. Data may be displayed as a 24 bit hex number, as a decimal number, as a hex number with Parity, SDI, SSM and data bits separated and in Engineering Units. If engineering units are used a supplied, user modifiable, Excel file is used to contain the engineering units definitions.

## The display may be:

**Dynamic** - each ARINC word is given a new line as it comes in and old data is scrolled off the screen

or

Static - each label is assigned a location on the screen by the user and updated when the appropriate label comes in.



Updating AR-429 Receive Channel – Filter Tab

The Filter Table tab is used to select which labels are to be received and which are to be ignored by the board. It is used to reduce clutter on the screen and post-processing time on save to file by eliminating uninteresting labels.

Updating AR-429 (Rx) Channel 4		×
Mode Display Filter Table Parameters	Triggers	
Start storing upon reception of label.	Label (octal): 000	
Stop storing upon reception of label.	Label (octal): 000	
Stop storing when buffer is full.	Buffer size: 0	
<u>D</u> K	Help	

Updating AR-429 Receive Channel – Trigger Tab

The Parameter tab (not shown – it's pretty boring) is used to set the speed of the channel – either 12.5 KHz or 100 KHz.

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The Triggers tab is used to select conditions, i.e., particular labels, which will cause recording to either start or stop. This is helpful for isolating the environment before or after a particular label. The user may also choose to record a specified number of labels and then turn off the channel.

## **Transmit Channel Setup**

If the user clicks on the 2 button the following screen will be displayed representing the first setup screen for transmit channel 2.

Updating AR-429 (Tx) Channel 2	×
Parameters Messages	
Bit rate	Loop counter
C 12.5 kHz	Continuous
100 kHz	C Loop. Number of times: 1
Rise/Fall time	
1.5 ± 0.5 usec (Hi speed)	
C 10 ± 5 usec (Lo speed)	
<u>0</u> K	<u>Cancel</u> <u>H</u> elp

Updating AR-429 Transmit Channel – Parameters Tab

The user uses this screen to select the data rate and rise fall time associated with the data. The loop counter determines how many times the data (defined in the following screens) is to be transmitted.



Updating AR-429 Transmit Channel – Messages Tab

The Messages screen is used to define blocks of data to be transmitted over the ARINC 429 bus. A block is a group of ARINC 429 word sent out with the same time gap between words. Parity errors may also be introduced per block of data. In the above example, a block of 10 words will be sent out with 10 bit times between each word. All will be sent with odd parity. Checking the parity error box would cause all 10 words to be sent with even parity.



Clicking the Data button brings up the following screen.

The left side of the screen is used to select the labels for the 10 words in this block. The user may also fill in data in hex format. Alternatively, the right side of the screen allows data to be inserted in engineering units. The units will be adjusted according to the type of label selected on the left side of the screen.

Once the board is set up, use the control menu item to start the desired channels running. If we were to set channel 0 running in dynamic display mode with channel 2 transmitting we would see the following run screen.

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6	🕞 🕞 💽 🔲 0 1 2 3 4 5						
	Running AR	-429 (Rx) char	nel (	) - dvnamic d		A	
	#	Time tag	Ch	Lbl Wor	d Bad P-		
	9025	11836389	0	007-0707	07		
	9026	11836394	U	010-0808	U8 <u>S</u> top		
	9027	11836398	U	011-0	Running AR-429 (Tx) channel 2		
	9028	11836402	U				
	9029	11836406	0	001-0.	[		
	9030	11036410	0	002-07		top	
	2031	11030413	0	003-0.			
	9032	11030417	0	004-00	Transmission in progress	eset	
	9033	11030423	0	005-00			
	9034	11836432	ñ	007-01			
	9036	11836436	ň	010-01			
	9037	11836440	ň	011-04	<u>C</u> a	ancel	
	9038	11836444	Õ	000-00			
	9039	11836448	Ō	001-0: W	ords: 9089 Bunning		
	9040	11836452	0	002-0202			
	9041	11836457	0	003-0303	103		
	9042	11836461	0	004-0404	.04		
	9043	11836465	0	005-0505	505		
	9044	11836469	0	006-0606	06	<b>_</b>	
	0045	11006470	0	007 0707	107	<u> </u>	
Modified							
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*Run Screen – Dynamic Display* 

The channel 0 display shows labels scrolling down the screen. A Running counter, a Time Tag, the channel being monitored and the label and data are displayed for each label.

The Transmit window shows a running count of the number of words transmitted. Both boxes have Stop buttons to turn off their respective channels.

To read back data from a file, if we previously had saved one using the option in the Updating AR-429 (Rx) Mode Tab setup, select Display from the menu bar, a file submenu is displayed. Mystic saves files in binary format. When displaying the file, the user may choose to save the results in an ASCII file.

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<u>F</u> ile	<u>P</u> arameters	Display	ing result	s from file: jml	b					×	]	
		G	ш	<b>m</b> : .	~	<b>T1 1</b>	TT 1	<b>D</b> 1				
			#	Time tag	Ch	LDI	Word	Bad	P-Err			
			U	4004498	U	000-1	010000					
			1	4004503	U	004-1	040404					
			2	4004507	U	005-1	050505					
			3	4004511	U	006-0	060606					
			4	4004515	U	007-0	070707					
			5	4004519	0	010 -	080808					
			6	4004524	0	011 - 1	090909					
			7	4004528	0	000 - 1	040000					
			8	4004532	0	000 - 1	040000					
			9	4004536	0	000 - 1	010000					
			10	4004540	0	000 - 1	010000					
			11	4004545	0	004 - 1	040404					
			12	4004549	0	005 - 1	050505					
			13	4004553	0	006 - 1	060606					
			14	4004557	0	007-1	070707					
			15	4004561	0	010 - 1	080808					
			16	4004566	0	011 -	090909					
			17	4004570	Ō	000-	040000					
			18	4004574	ñ	000-	040000					
			19	4004578	ñ	000-	010000					
			20	4004582	ñ	000-	010000					
			21	4004586	ŏ	004-	040404			<b>_</b>		
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Displaying Results from File

When working in dashboard mode, individual labels are displayed in their own windows. Transmit labels are displayed with their current values and a slide bar which allows the user to change the value being transmitted. The user may also change the value using the edit box.

Receive labels are displayed using a two or three-dimensional graph whose size and parameters may be changed in real time.

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<u>File Parameters Control Display Window Help</u>	
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	
Channel: 0 Type: RX429	
Value: 16500.00	Channel: 2 Type: TX429
	Value: 16500.00
Incoming Data 60,000 50,000 40,000 20,000 10,000 0 290 300 300 310 Seconds	0 66000
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Dava Sanaa	n Dashboard Display

Run Screen – Dashboard Display

This review of Mystic points out the major features of the program. In the interest of brevity, it does not explain each and every menu and submenu selection. Mystic is designed to work in simulation mode on a computer that does not contain hardware or drivers. In this mode the user may examine all the menu selections as well as the on-line help.

The latest version of Mystic may be downloaded from our website at www.mil-1553.com.