

DATAIR-400/M3(V2)

HANDHELD ARINC 429 DATABUS TESTER

The updated **DATAIR-400/M3(V2)** new hardware and firmware provides an easy to use first line diagnostic tool for viewing and generating ARINC 429 data. It allows the user to connect to an ARINC 429 data bus and easily view the active ARINC 429 Labels on the bus or to setup a list of ARINC 429 labels to transmit onto a test data bus in order to simulate a specific test scenario.

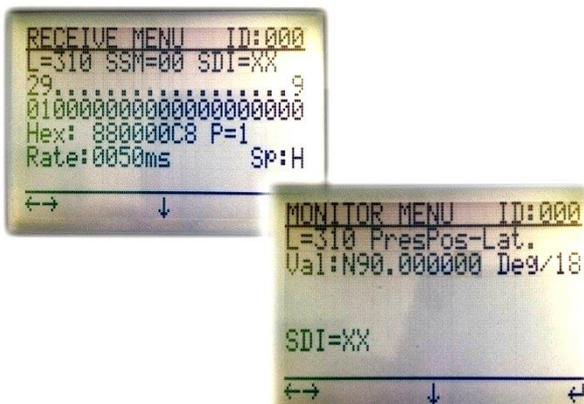
The DATAIR-400/M3(V2) ARINC 429 handheld Tester comprises of an 8 line by 21-character backlit LCD, an alphanumeric keypad, a microprocessor controlled ARINC 429 receiver and transmitter board and a detachable rechargeable battery pack.

Bus Monitor

Connect the receiver to an active ARINC 429 data bus, select the <RECEIVE> menu, press the **ENT** key and the user will be presented with a scrollable list of active ARINC 429 labels. The format of the list of labels can be toggled (by pressing **SYM** key) between a list of label names and a list of labels with their associated 32-bit values. This provides a very simple monitor involving just a single key press.

Using the **↑↓** keys, select a label of interest from the Bus list and press the **ENT** key to inspect the data value of the label. This Monitor screen will display in real time the Label number in octal, SSM, SDI, Binary and Hex values, state of Parity, Label transmission rate and the Bus bit rate. If a label has multiple values of SDI then the SDI filter can be scrolled to separate the individual labels. "SDI:XX" is don't care.

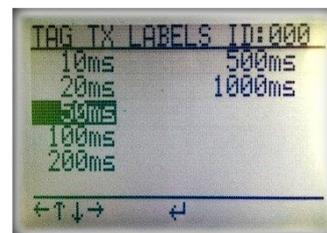
By pressing the **↓** key the user will be presented with a live engineering unit's value for this label (if a definition exists). The ARINC 429 decoder circuitry automatically adjusts to 12.5, 50 and 100 k/bps rates.



- ✦ An 8 line by 21 character backlit LCD.
- ✦ Automatic bus search and bit rate detection 12.5, 50, 100k/bps
- ✦ Standard and user definable ARINC 429 definitions
- ✦ User definable engineering units on unit or external PC Software
- ✦ ARINC 429 definitions selectable by Equipment ID.
- ✦ Opto-isolator inputs
- ✦ Rechargeable battery providing operation up to 8 hours
- ✦ Low Battery indication
- ✦ Alphanumeric keypad with navigation keys
- ✦ USB Firmware updates – Upgrade cable provided
- ✦ Standard D15 plug and test leads supplied
- ✦ External 6V DC power input.

ARINC 429 Transmitter

The ARINC 429 transmitter can transmit up to 256 labels at either 12.5, 50 or 100 kbps bit rates. Labels can be transmitted independently of each other at various interval rates between 10mS and 1000mS or in Single Shot mode. The firmware has a built-in data bandwidth checker that prevents any attempt to transmit more labels than the bus can accommodate (ie. Ten labels at 12.5 k/bps at an interval of 10mS will not fit!).



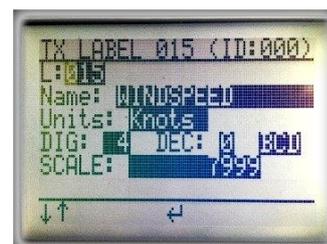
Standard Engineering units

The DATAIR-400/M3(V2) contains standard ARINC 429 label definitions for transmission and for reception. These definitions are taken from the standard Equipment Identifiers (ID:00A etc.) as defined in the ARINC 429-16 specification. ARINC 429 labels can be selected for transmission by scrolling through the list of labels and “tagging” (shown with an ‘*’) the labels required. Only Tagged labels will be transmitted.



Custom Engineering units

In addition to the standard labels definitions the user has the option to create customer specific labels or modified versions of the standard labels and saving them to non-volatile memory. Custom defined labels override standard label definitions where a duplicate exists. To differentiate between Custom and Standard definitions the Label names of Custom definitions are shown in UPPER CASE whereas Standard labels are shown in lower case. Custom Labels can be created, suspended or deleted. If a label is Suspended or Deleted then the Standard definition becomes active again.

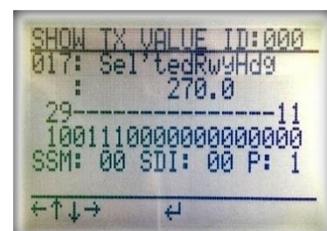


Data Entry for transmitted Labels

Data can be entered in binary or hexadecimal format for any label. If a definition exists for the selected label then an engineering unit value can be entered. Current formats are Binary (BNR) and Binary Coded Decimal (BCD). Special BCD and BNR formats are supported for labels such as L260 (Date), L150 (Time), L011, L010, L310 and L311 that have special fields defined within the standard definition.

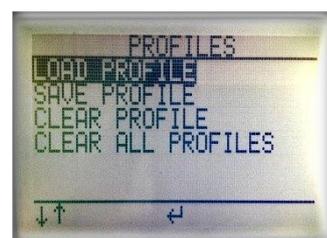


Fields that can be edited within a selected label are the data, SSM and SDI fields. The Parity is automatically created from the entered value and will be set to ODD. However, it is possible to edit the Parity value by writing to Bit-32 directly. Navigation of the screen is by use of the arrow keys.



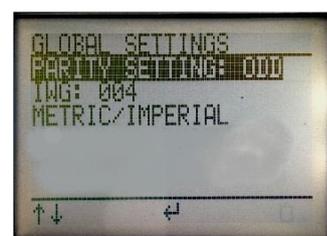
User Profiles

Transmitter tag lists and engineering values entered into labels for transmission can be preserved between sessions by saving them to a Profile. Ten Profiles can be saved so that different test scenarios can be easily recalled without the need to set up the instrument each time it is powered on. Profiles can also be created, updated or deleted. Profiles can be backed up to a PC using the Label Definition Software package mentioned above.



Global settings

For configuring default states of the instrument to use Metric or Imperial units, transmitted Parity for Odd/Even or None and setting the default Inter-Word Gap (IWG) for transmitted labels.



Firmware upgradable and customisation.

The firmware on the DATAIR-400/M3(V2) can be upgraded by the customer via USB using the supplied cable. This means that features that we have in development can be added at a later date. It also means that if a customer requires the DATAIR-400/M3(V2) to be customised in a certain way then we can produce a variant of the firmware specifically for them. There is no requirement to return the instrument to YED for upgrade.

DATAIR-400/M3(V2) Flite Case

The **DATAIR-400/M3(V2)** instrument and accessories are supplied in a flite case with the following features:

- Quality carry-case with pre-cut foam to hold the main instrument, battery charger, user manual and all the accessories.
- Spare pockets for additional batteries, custom cables and test leads, etc.
- Rugged exterior and complies with carry-on baggage regulations.



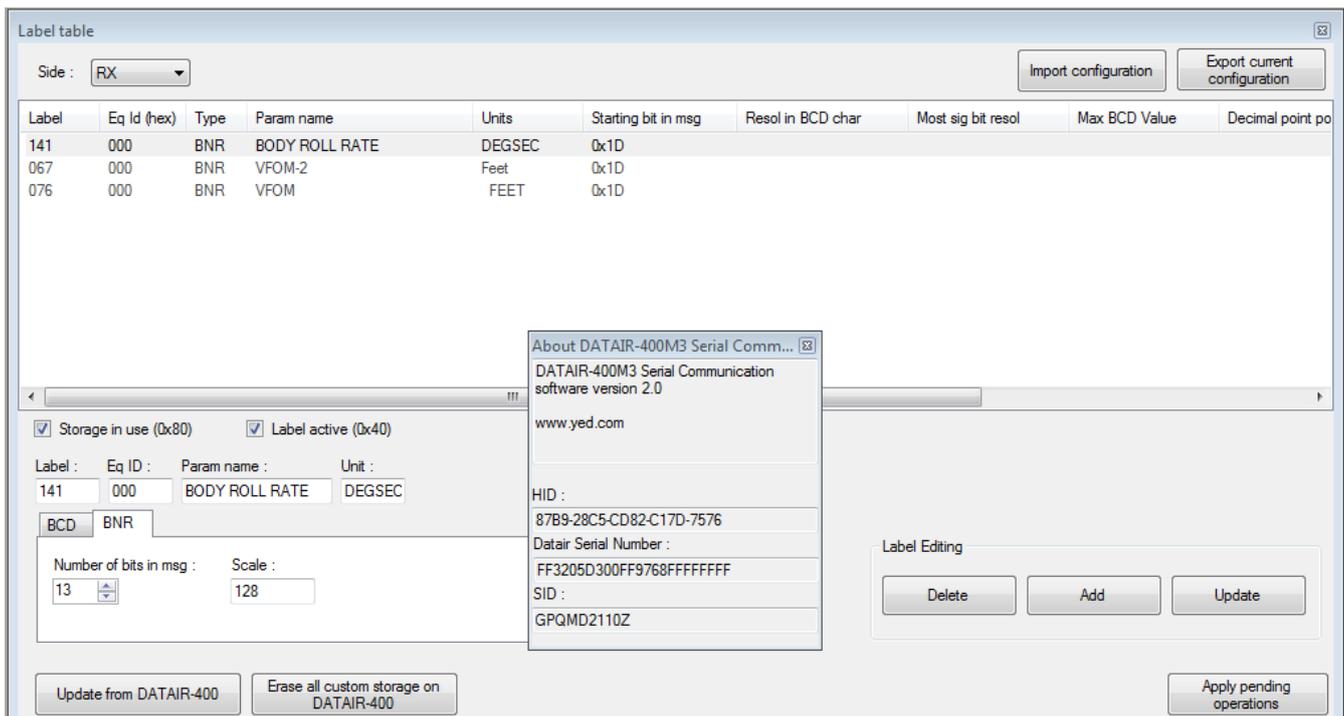
PC Label Definition Software

The DATAIR-400/M3(V2) Label Definition software is a tool for defining custom labels on your PC for use on your DATAIR-400/M3(V2). Although it is possible to define custom labels on the DATAIR-400/M3(V2) directly, some customers prefer to do this on a PC and then download these definitions to their DATAIR-400/M3(V2).

The software provides the following features:

- Offline mode for working on local configurations without DATAIR-400/M3(V2) needing to be present.
- Download and back up any custom defined Labels created on the DATAIR-400/M3(V2) to your PC.
- Delete/Update selected custom labels or add custom labels.
- Erase all custom labels on the DATAIR-400/M3(V2).
- Master update sends all custom storage to the DATAIR-400/M3(V2) for updating the internal custom label tables.
- Import/Export configurations to XML file on your PC.
- Adding/Updating/Deleting custom label storage.
- BNR/BCD and Rx/Tx modifications.

The DATAIR-400/M3(V2) version 2.0 Label Definition software is compatible with Windows XP and higher, x86 and x64, with .NET framework 3.5. No installation is needed, just run it.



Label	Eq Id (hex)	Type	Param name	Units	Starting bit in msg	Resol in BCD char	Most sig bit resol	Max BCD Value	Decimal point po
141	000	BNR	BODY ROLL RATE	DEGSEC	0x1D				
067	000	BNR	VFOM-2	Feet	0x1D				
076	000	BNR	VFOM	FEET	0x1D				

Label Editing

Delete Add Update

Apply pending operations

Update from DATAIR-400 Erase all custom storage on DATAIR-400

Storage in use (0x80) Label active (0x40)

Label: 141 Eq ID: 000 Param name: BODY ROLL RATE Unit: DEGSEC

BCD BNR

Number of bits in msg: 13 Scale: 128

About DATAIR-400M3 Serial Comm...
DATAIR-400M3 Serial Communication software version 2.0
www.yed.com
HID: 87B9-28C5-CD82-C17D-7576
Datar Serial Number: FF3205D300FF9768FFFFFFFF
SID: GPQMD2110Z

Technical Specification

ARINC 429 Receiver

Input:.....	Opto-isolator inputs
Voltage levels (Line A to B):.....	HI +6 to 12V
	NULL +2.5 to -2.5V
	LO -6 to -12V
Bit rate:	Low Speed: 8 to 18 k/bps
	Medium Speed: 45 to 55 k/bps
	High Speed: 80 to 125 k/bps

ARINC 429 Transmitter

Output:.....	Industry standard line driver
Output impedance:.....	75 \pm 5 Ω (Line A to B)
Voltage levels (Line A to B):.....	HI +10V \pm 1V
	NULL 0.0 to \pm 0.5V
	LO -10V \pm 1V
Bit rate:	Low Speed: 12.5 k/bps \pm 0.5%
	Medium Speed: 50.0 k/bps \pm 0.5%
	High Speed: 100.0 k/bps \pm 0.5%
Word rate:.....	10 to 1000mS
Parity:	ODD / EVEN / NONE

Mass

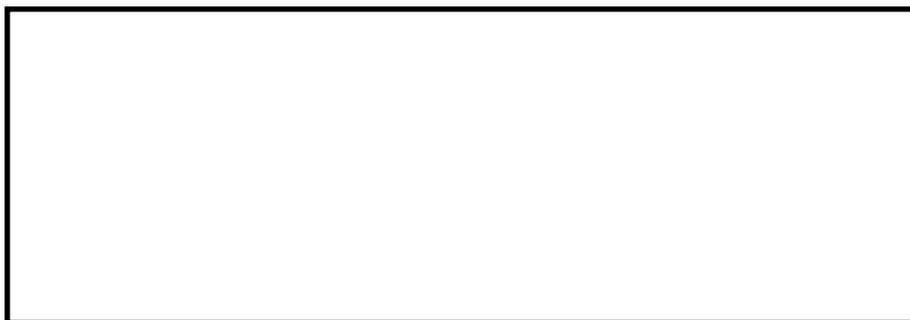
Weight:.....	0.55kg
Dimensions:.....	22.9H x 9.7W x 5.4D CM

Power requirements

Input:	6V DC external power OR
	4.8V @ 2200mAH NiMH battery
	Approximately 8 hours of use from full charge

Environmental

Operating temperature:.....	0 to 50 °C (Indoor use only)
Relative Humidity:.....	0% to 85%



The information contained in this brochure is subject to change without notice.
YED shall not be liable for errors or omissions contained herein.