FlexiBus Series

ARINC 429/561/568 Databus Analyzers

- Displays ARINC 429, 561, and 568 data in Engineering or Hex formats – Label definitions can be modified by user
- Up to 60 user tables allow storage and recall of commonly used transmitted words
- Transmits up to 50 labels – TX parameters are programmable (Freq., Bit count, Duty Cycle, etc.)
- Receives up to 1024 label/SDI combinations
- FB available in multiple TX and RX versions
- Ni-MH Battery provides operation up to 24 hours – rapid re-charge, 95% capacity after 1.5 hours of charge
- Traps and stores up to 3500 ARINC 429/561 labels
- Large 4 line x 16 character LCD display with EL backlight and keypad-controlled contrast

The FB Series ARINC Databus Analyzer provides features and capabilities not found in previous hand-held ARINC 429 databus analyzers. The FB-2 is available in a variety of configurations to meet your exact test requirement.

Model Number	429 Channels	561/568 Channels	Variable Voltage Level
FB-2	1 TX and 1 RX		
FB-3T	2 TX and 1 RX		
FB-3R	1 TX and 2 RX		
FB-4	2 TX and 2 RX		
FB-2V	1 TX and 1 RX		Yes
FB-561	1 TX and 1 RX	1 TX and 1 RX	Yes

Keypad

The FB keypad is designed for ease-of-operation. Large keys allow user-input of data and display selection.

Individual keys are assigned to various functions including Contrast, Backlight, TX/RX, Hex, Parity, Setup, Speed, Equipment I.D., Trap, Help, Space, ON/OFF, Shift, and Enter.

Display

The FB features a large, 16 character x 4 line display. The display contrast can be set using the **CTRST** key. The EL backlight can be turned on using the **BKLT** key. The display can be toggled between transmitter or received data using the **TX/RX** key.

ARINC 429 Transmitter

The FB Series features up to 2 ARINC 429 transmitters, capable of transmitting up to 25 (50) ARINC 429 labels. Data to be transmitted for each label is displayed in Engineering (feet, N.M., etc.) or in Hexadecimal.

```
      1 o L 1 ← 1 L o     1 d
0 0 1 = D I S T   T O   G O
0 1 5 0 . 0   N . M .
S D I = 0 0           0 m S
```

Transmitter Display

The first line of the transmitter display is the status line. The status line gives current status of transmitter or receiver bus, including # of words being transmitted (0 to 25) or received (0 to 1024), bus parity (odd or even), bus frequency (Low or High), display selection (transmitter or receiver data), and shift key status (default or Shift for selection of keypad uppercase). The information contained in the status line is updated in "real" time.

The second line of the transmitter display is the current ARINC 429 label and Engineering definition. In the above display, label 001 is decoded as DISTANCE TO GO. DISTANCE TO GO is the Engineering format for Equipment I.D. "000". The user-selectable equipment I.D. controls Engineering decoding of transmitted label.

The third line of the transmitter display shows source/destination indicator and word update rate.

Each label can be transmitted using standard ARINC 429 characteristics or configured to meet specific testing requirements. Up to 60 user-configurations can be stored using alpha-numeric names. Each user configuration can be configured to transmit up to 25 labels, with individual transmitter specifications for each label.

Transmitter characteristics can be set for each individual label including word bits, frequency, duty cycle and parity. The transmitter can transmit both high and low speed labels on the same bus if required.

ARINC 429 Receiver

The FB-2 Series features up to 2 ARINC 429 receivers that can receive up to 1024 combinations of label/source destination indicator (SDI).

The FB-2 Receiver can be configured to trap and store data based on label or bit pattern combinations. The receiver can receive and store up to 3584 words.

```
      1 o L 1 → 1 L o     1 d
0 0 1 = D I S T   T O   G O
0 1 5 0 . 0   N . M .
S D I = 0 0           2 0 0 m S
```

Receiver Display

The first line of the receiver display is the status line. The status line gives current status of receiver bus. The second line of the transmitter or receiver display is the current ARINC 429 label and Engineering definition. The third line displays source/destination indicator and word update rate.

Additional data can be selected for display in the second line by pressing the left/right (← →) keys. Data that can be displayed varies according to the type of word (standard BCD decoding, standard Binary decoding, RF Management word decoding, BCD Lat/Long

Label	ID	Description	Units	Type	Bits	Precision	Skips	MsbW
001	000	DIST TO GO	N.M.	01	04	01	00	“0.0”
056	005	WIND DIR MG	Deg	01	03	00	00	“0.0”
070	029	AC FREQ ENG	Hz	02	11	02	04	“256.0”
105	029	OIL TMP IN	Deg C	02	12	01	04	“1024.0”

Engineering Data Table allows user to update or define decoding of ARINC 429 labels

decoding, ISO 5 Alpha Numeric decoding, Date/Flight Leg decoding or Flight Number decoding).

The second line in a transmitter display shows Data (Engineering or Hex), Label, Word Rate, Word Bits, Frequency (Speed), Parity, and Duty Cycle. The data can be changed using the keypad or the up/down arrow keys (press **SHIFT** key to select up/down editing).

The second line in a receiver screen includes Data (Engineering or Hex, Sign/Status Matrix (SSM), and Source/Destination Indicator (SDI).

Equipment I.D.

The FB can be selected to display alternative equipment I.D. by pressing **EQ ID** key.

```
      1oL1    1L      1d
Tbl=ARINC16   vsA
EQ  ID=000
```

Equipment I.D. Display

The first line of the Equipment I.D. Display is the status line for the transmitter and receiver bus. The second line displays the version of ARINC 429 used for decoding and display of data. The third line displays the Equipment I.D.

Battery Status

```
Bat Charge  96%
Bat Level  5.14V
Bat I  -64mA
Bat Size  1500mA
```

The first line of the Battery Status display shows current charge status of battery. The second line shows current battery voltage. The third line shows current battery current. The fourth line shows battery size.

Engineering Data Tables

The FB uses Engineering Data Tables for conversion of ARINC 429 data to Engineering format. The FB stores 2 tables of Engineering formats, the Default Table and the User Table.

The Default Table is stored in non-volatile RAM. The Default Table contains the latest Engineering description in accordance with ARINC 429 specifications. The Engineering definitions are stored by label and equipment I.D. Updates to the Default Table are available free-of-charge from KLJ Instruments or can be updated by the user. The Default Table is updated using a commercial text editor such as Notepad or WordPad. Engineering data tables are loaded to the FB via an RS-232 port, The Default Table can be updated to include user-defined Engineering definitions.

The User Table allows a user to store an additional 1024 Engineering definitions.

Specifications

Transmitter

ARINC 419/429 Bipolar

	Return to Zero (RZ)
Labels	25 / 50
Bit rate	32 nominal, variable 25 - 39
Frequency	Low speed, 12.5KHz nominal, (10 KHz to 16 KHz variable)
Frequency	High speed, 100 KHz nominal, (81KHz to 131 KHz variable)
Word rate	1 to 34463 msec
Parity	Odd or Even
Rise time	High ≤ 1.5 µs Low ≥ 10 µs
Output impedance	75 ± 5 Ω balanced
Output amplitude	± 10 VDC open circuit

Receiver

Normal mode	1024 words
Trap mode	3055 words

Physical

Weight	1.0 lb (0.5 kg)
Size	4w x 8.4h x 1.9d in. (10.2 x 21.3 x 4.6 cm.)
Battery Operation	~ 24 hrs. /1 ea. ARINC 429 load ~ 8 hrs. /20 ea. ARINC 429 loads
Battery Charger	Input 100-240 VAC, 50-60 Hz Output + 7.5 VDC UL & CЄ Compliant

Accessories

The FB is supplied with a mounting base and ARINC 429 TX/RX cable.

The FB is powered by 4 each, re-chargeable Ni-MH, size AA batteries. The batteries are housed in a compartment on the back of the FB. The batteries can be changed without opening the FB case.

KLJ INSTRUMENTS, INC.
15385 S. 169 Highway, Olathe, Ks. 66062 USA Tel +1(913) 397-9973 Fax +1 (913) 397-9976 www.kljinstruments.com November 2008