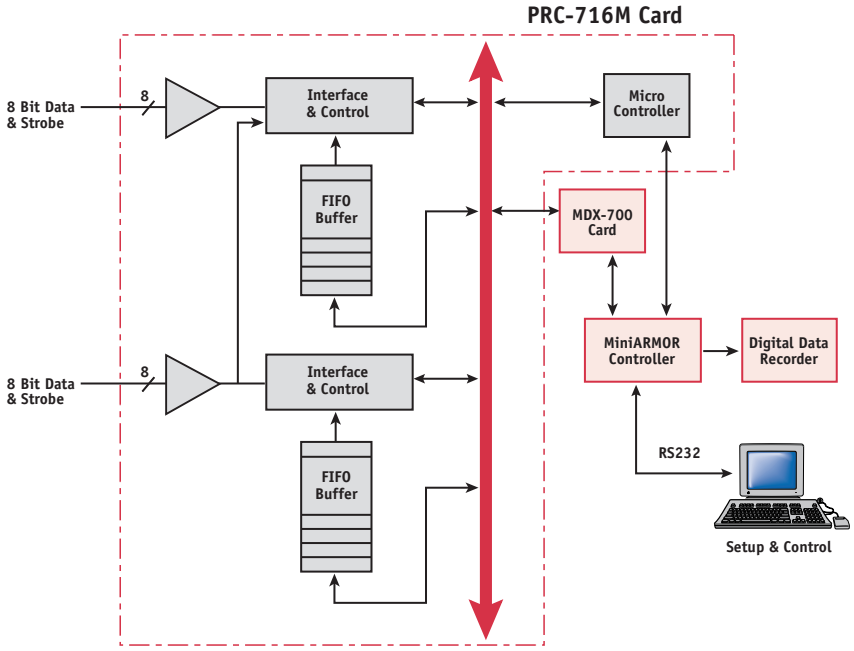
Technical Bulletin

MiniARMOR Signal Interface Card

PRC-716M 2-Channel Parallel Discrete Acquisition

Airborne Data Acquisition Products



FEATURES

- Two independent asynchronous Parallel Discrete output channels per card
- Two 8-bit channels or one 16-bit channel, programmable
- Programmable data rates up to 5 MBytes/sec (8-bit) or 10 MBytes/sec (16-bit)
- Differential inputs (RS-422) for data and strobe
- Per Channel FIFO input buffering with status output reporting
- Windows® * Programming software

APPLICATIONS

- Aircraft Flight Test
- Aircraft Static Test
- Aircraft Fatigue Test
- Ground Vehicle Test
- Wind Tunnel Test

L3 communications

GENERAL DESCRIPTION

The PRC-716M is a parallel input card designed to acquire two independent, asynchronous channels. The card can be configured with either two independent 8-bit channels, or one 16-bit channel. Each channel is designed to accept data along with a data strobe. The acquired data is formatted and encoded by the MiniARMOR-700 multiplexer MDX-700 for storage on digital tape. Pre-recorded data can be reconstructed and output in its original format using the PRC-716D card.

PROGRAMMABLE FEATURES MENU

The following programmable features are available:

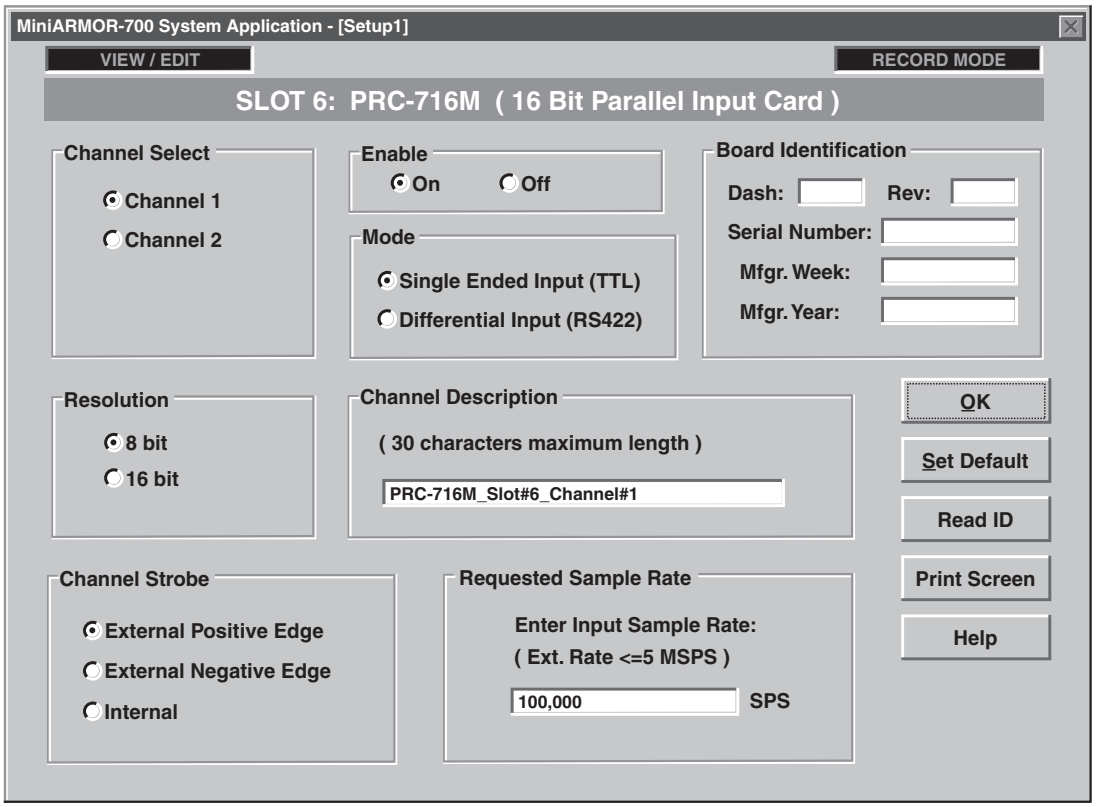
- 2 independent 8-bit channels, or
- One 16-bit channel
- Channel Data Rate
- Differential or Single Ended

SOFTWARE

MiniARMOR software for Windows® is an icon/toolbar based environment that provides convenient control of the acquisition features of the MiniARMOR-700 system.

Hardware configuration is defined in a matter of seconds. Individual setup and control pages allow tailoring each plug-in card to the particular requirements at hand. The graphical, intuitive approach to programming allows non-programmers to start collecting data within minutes of installation.

Windows®-based MiniARMOR software runs on an IBM PC/AT computer operating in the Windows® environment. The computer and MiniARMOR-700 communicate via an RS-232 or RS-422 link. All configuration information is stored in non-volatile memory within the MiniARMOR.



CIRCUIT DESCRIPTION

The PRC-716M accepts either two independent 8-bit channels or one 16-bit channel of Parallel Discrete data. Each channel must have an accompanying data strobe signal which is used to strobe-out the data.

The card outputs data and data strobe utilizing differential (RS-422) signal levels. The input strobe rate is programmable by the user on a per-channel basis and can range from 100 bytes/second up to 5 MBytes/second for 8-bit data channels and up to 10 MBytes/second for 16-bit data channels.

Multiple PRC-716M cards can be placed within a single MiniARMOR-700 chassis. The maximum number of cards depends on the number of available slots in the chassis.

INTERNAL SAMPLE STROBE

Discrete inputs can be sampled using an internally generated strobe pulse. The sample rate is set by the user under software control.

DATA FORMATTING

The included software automatically creates a “Mini-ARMOR Format” based on the settings defined for each input channel and the type of recorder used. Data acquired from each channel of the PRC-716M card is placed in a data frame consisting of a number of sequential 16-bit words. The number of words is determined by the software as established by an optimal data packing/minimum overhead algorithm.

The first two words of each frame contain redundant count words which specify the number of valid words to follow in that frame. The count words are followed by a number of 16-bit data words, containing the packed bit information acquired from that channel. The final data word may have partial data followed by “fill” bits and words added to the frame to maintain a constant frame length.

This format is essential for allowing the PRC-716D Reconstructor to accurately recreate the original Parallel input stream during playback.

MICRO CONTROLLER FUNCTION

The PRC-716M card uses a 68HC11 based micro controller core. The primary function of this circuit is to initialize on-card hardware after input power application. The setup configuration is extracted from non-volatile EEPROM devices and transferred to the active module.

PRC SPECIFICATIONS

Strobe Rate:	100 Bytes/sec to 5 MBytes/ sec for 8-bit channels and 10MBytes/ sec for 16-bit channels. (up to 5M Samples/Sec)
Input Configuration:	Differential (RS422) or single ended for data and strobe
Compatibility:	Occupies one (1) MiniARMOR Slot
Output Configuration:	Differential (RS422)
Power:	5W maximum
Connector:	2DB52SBR
Mating Connector:	2DB52P

ORDERING INFORMATION

Basic Module	***Part No.***
2-Channel Parallel Discrete Input Card	PRC-716M
Related Functional Modules	
2-Channel Parallel Discrete Output Card	PRC-716D
2-Channel Parallel Discrete Input Card • 12 or 24 Bit Channels	PRC-724M
2-Channel Parallel Discrete Output Card • 12 or 24 Bit Channels	PRC-724D

PRC-716M SIGNAL CONNECTOR

1	PA0+	18	PA0-	36	PA STB_IN+
2	PA1+	19	PA1-	37	PA STB–IN-
3	PA2+	20	PA2-	38	PA RSRVD 1+
4	PA3+	21	PA3-	39	PA RSRVD 1-
5	PA4+	22	PA4-	40	PA RSRVD 2+
6	PA5+	23	PA5-	41	PA RSRVD 2-
7	PA6+	24	PA6-	42	PA Rtn
8	PA7+	25	PA7-	43	PA Rtn
9	Spare	26	PA Chassis	44	Spare
10	PB0+	27	PB0-	45	PB STB_IN+
11	PB1+	28	PB1-	46	PB STB_IN-
12	PB2+	29	PB2-	47	PB RSRVD 1+
13	PB3+	30	PB3-	48	PB RSRVD 1-
14	PB4+	31	PB4-	49	PB RSRVD 2+
15	PB5+	32	PB5-	50	PB RSRVD 2-
16	PB6+	33	PB6-	51	PB Rtn
17	PB7+	34	PB7-	52	PB Rtn
		35	PB Chassis		

L3 communications

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