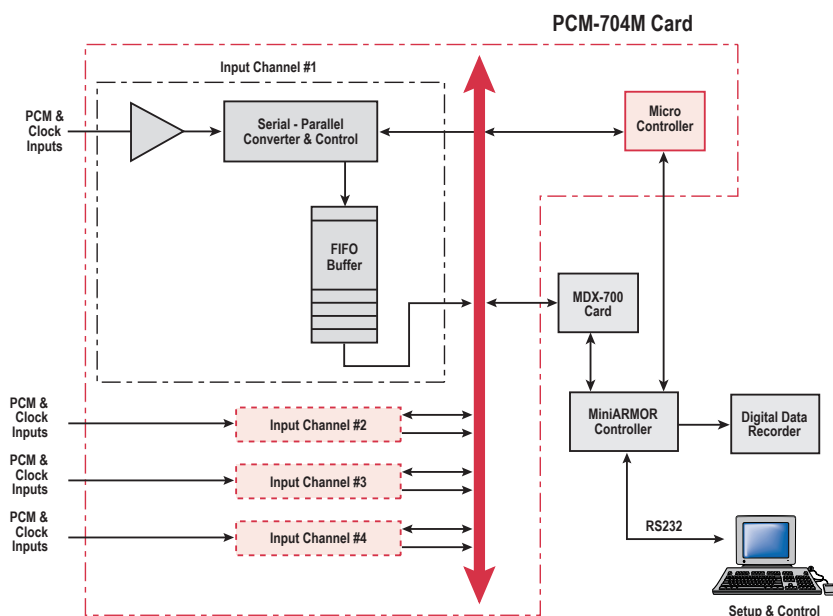




FEATURES

- Four independent asynchronous PCM input channels per card (data & clock)
- Programmable, per-channel data rates up to 20 Mbps for NRZ inputs or 10 Mbps for BiØ inputs
- Programmable single ended or differential inputs (RS-422)
- Per-channel FIFO input buffering with status output reporting
- Bit sync option (via daughter card)
- Windows®* Programming software

APPLICATIONS

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



communications

GENERAL DESCRIPTION

The PCM-704M is a PCM input card designed to acquire four independent, asynchronous Serial PCM data streams. The card is designed to accept data along with bit clock for each input channel, however a 4 channel bit sync option is available for applications which do not have an associated bit clock (see model BSC-714M). 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 PCM-704D card (or the BRC-704D card for NRZ data rates less than 10 Mbps or Bi-phase data rates less than 5 Mbps).

PROGRAMMABLE FEATURES MENU

Each of the 4 channels within the PCM-704M are independently programmed as follows:

- Single ended or differential
- Input PCM code
- PCM clock source

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 memories within the MiniARMOR.

CIRCUIT DESCRIPTION

The PCM-704M accepts up to 4 independent channels of PCM data. Each channel must have an accompanying bit clock signal which is used to clock-in the data.

Input data may be NRZ or RNRZ with 0° or 180° clock, or BiØ with 90° clock. The input coding and clock phase are programmable by the user on a per-channel basis.

Each channel accepts either TTL (single ended) or RS-422 (differential TTL) inputs, programmable by the user on a per-channel basis. Separate connector pins are provided for each input channel.

Input bit rate is programmable by the user on a per-channel basis. NRZ/RNRZ inputs can range from 200 bps to 20 Mbps and BiØ inputs can range from 100 bps to 10 Mbps (BiØ).

Multiple PCM-704M cards can be placed within a single MiniARMOR-700 chassis. The maximum number of cards depends on the number of card slots, and on the bandwidth made available by the selected recorder.

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 PCM-704M 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.

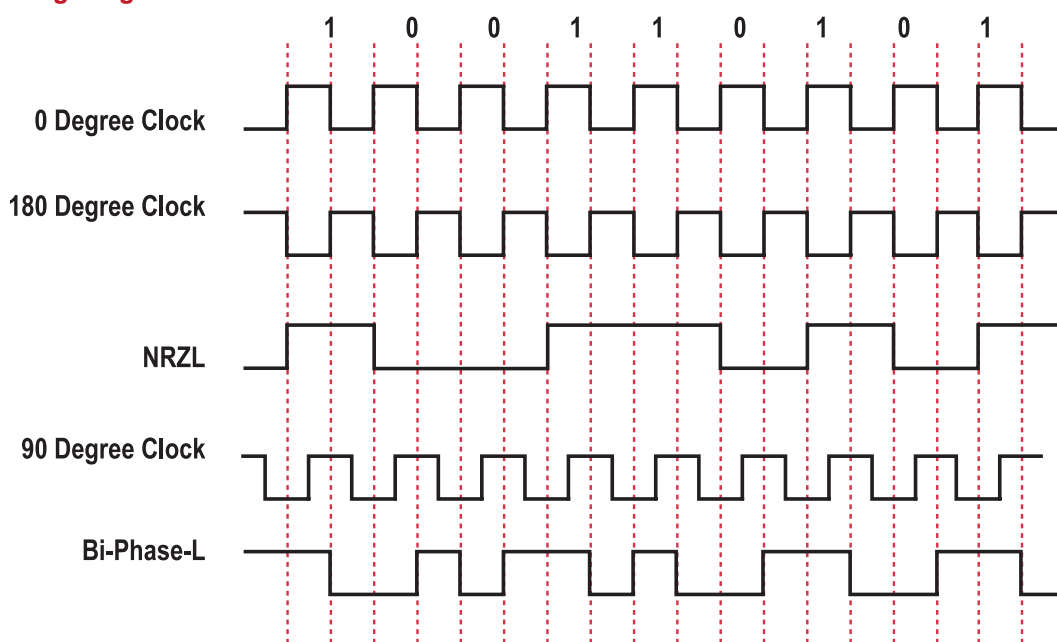
The first 2 words of each frame contain redundant count words which specify the number of valid data bits to follow in that frame. The count words are followed by a number of 16-bit data words, containing the packed bit information acquired from that channel. The final data word may have partial data followed by "fill" bits and words added to the frame to maintain a constant frame length.

This format is essential for allowing the PCM-704D or the BRC-704D Reconstructor to accurately recreate the original PCM output stream during playback.

MICRO CONTROLLER FUNCTION

The PCM-704M 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.

Input Timing Diagrams



SPECIFICATIONS

Bit Rate:	100 bps to 20 Mbps (NRZ/RNRZ); 100 bps to 10 Mbps (BiØ-L)
Input Coding:	NRZ, RNRZ input or BiØ-L, programmable per channel
PCM Format & Word Length:	No Restrictions
Input Configuration:	Single ended (TTL) or differential (RS-422); user programmable
Compatibility:	Occupies one (1) MiniARMOR Slot
Power:	5W maximum
Connector:	DCMAM-37S
Mating Connector:	DC-37P

ORDERING INFORMATION

Basic Module

4-Channel PCM Input Card

Part No.

PCM-704M

Related Functional Modules

4-Channel Bit Sync Input Daughter Card	BSC-714M
4-Channel PCM Output Card	PCM-704D
4-Channel 1553/Serial PCM Input Card	BRC-704M
4-Channel 1553/Serial PCM Output Card	BRC-704D
4-Channel PCM Output Card	PCM-714D
• Bi-polar, Bi-phase Outputs	

PCM-704M SIGNAL CONNECTOR

Data Ch 1+	1	20	Data Ch 1-
DGnd	2	21	DGnd
Clock Ch1+	3	22	Clock Ch1-
Chassis Gnd	4	23	Chassis Gnd
Data Ch2+	5	24	Data Ch 2-
DGnd	6	25	DGnd
Clock Ch 2+	7	26	Clock Ch 2-
PCM Ch1	8	27	PCM Rtn
TP HDC (1,2)	9	28	Spare
Spare	10	29	Spare
TP HDC (3,4)	11	30	PCM Rtn
PCM Ch 2	12	31	Clock Ch4-
Clock Ch 4+	13	32	DGnd
DGnd	14	33	Data Ch 3-
Data Ch 4+	15	34	Chassis Gnd
Chassis Gnd	16	35	Clock Ch 3-
Clock Ch 3+	17	36	DGnd
DGnd	18	37	Data Ch 3-
Data Ch 3+	19		

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