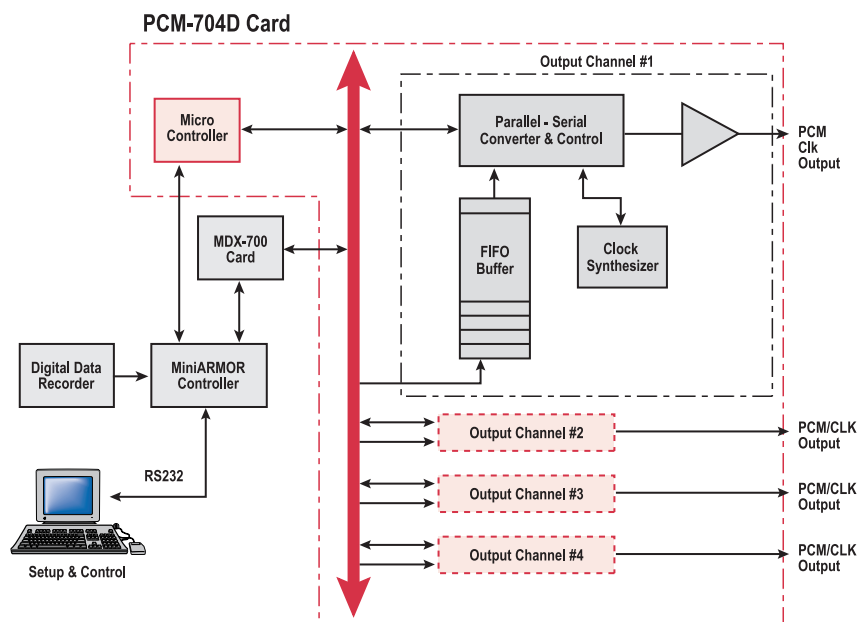




FEATURES

- Four independent asynchronous PCM output channels per card (data & clock)
- Programmable, per-channel reconstruction rates up to 20 Mbps for NRZ outputs or 10 Mbps for BiØ.
- Single-ended data and differential (RS-422) data/clock outputs
- Per-channel FIFO buffering with status output reporting
- Windows®* Programming software

APPLICATIONS

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



communications

GENERAL DESCRIPTION

The PCM-704D PCM Output Reconstructor card works in conjunction with the PCM-704M PCM Acquisition card.** Using the PCM-704D, up to four independent, asynchronous serial PCM data streams can be reconstructed into their original formats and data rates during tape playback or during the recording process for real-time monitoring purposes. The card accepts parallel PCM data on a frame basis from the MiniARMOR-700 Demultiplexer card (MDX-700). This data is buffered, serialized and clocked out by a per-channel synthesized clock. The clock rate is automatically set to match the original bit rate at the time of recording. A digital clock synthesizer assures that the output bit stream is continuous and has minimal bit jitter. The serialized data is output along with the synthesized clock as an NRZ or BiØ single-ended signal or in differential RS-422 format.

** Or the BRC-704M 1553/Serial PCM input card

PROGRAMMABLE FEATURES MENU

PCM-704D playback rate is based on the original recording data rate, and by the MiniARMOR playback frame rate. MiniARMOR software can be used to simultaneously vary the playback rate for all data outputs within the MiniARMOR chassis.

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.

MiniARMOR-700 System Application - [Setup1]

VIEW / EDIT RECORD MODE

SLOT 8: PCM-704D (4 Channel PCM Input Card)

Channel Select

☒ Channel 1
☐ Channel 2
☐ Channel 3
☐ Channel 4

PCM Code

NRZ-L at 180 Phase

Board Identification

Dash: Rev:
 Serial Number:
 Mfg. Week:
 Mfg. Year:

Mode

Differential

PCM Source

External

Resolution

16 BPW

Requested Sample Rate

Input Data Rate: 1,000,000 BPS

Mapped Information

PCM-704M Slot#7 Channel#1 Slot: 7 Channel: 1

OK
 Set Default
 Read ID
 Print Screen
 Help

CIRCUIT DESCRIPTION

The PCM-704D reconstructs up to 4 independent channels of PCM data. Each channel is reconstructed at a software selected data rate which is specified by the user during initial system setup. These rates are automatically used during playback operations assuring that the original data is faithfully reconstructed.

PCM OUTPUT CODES

The PCM-704D produces the same output code as originally recorded, i.e., an NRZ or RNRZ input results in an NRZ or RNRZ output respectively. However, when a BiØ-L signal is recorded, the output code provided during playback is NRZ-L.

Input bit rate is programmable by the user on a per-channel basis during setup configuration. For NRZ-L or RNRZ-L inputs, the recording/playback rate can range from 100 bps to 20 Mbps. For BiØ-L inputs, the recording/playback rate can range from 100 bps to 10 Mbps.

CONFIGURATION

PCM-704D cards can be placed within a single MiniARMOR-700 chassis in any combination depending on the number of available card slots. The number of PCM-704M and PCM-704D cards does not necessarily have to be the same. For example, a particular chassis could contain four PCM-704M cards and two PCM-704D cards.

DATA RECONSTRUCTION

The MiniARMOR software automatically creates a "MiniARMOR 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 along with other data in a frame consisting of a number of sequential 16-bit words. The number of 16-bit words is determined by the software as established by an optimal data packing/minimum overhead algorithm. In addition, the number of 16-bit words per frame will vary slightly depending on the sample rates of the input channels and the MiniARMOR frame rate. This feature allows all MiniARMOR channels to operate in an asynchronous manner.

During playback, the PCM words are extracted from each MiniARMOR frame and buffered for subsequent transmission in the PCM-704D card. Since the number of words per MiniARMOR frame varies, the playback rate must be continuously adjusted to provide a smooth, continuous PCM output stream on each channel. This is achieved through the use of a digital clock synthesizer.

MICRO CONTROLLER FUNCTION

The PCM-704D 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.

SPECIFICATIONS

Bit Rate:	100 bps to 20 Mbps (NRZ/ RNRZ) 100 bps to 10 Mbps (BiØ)
Output Coding:	NRZ or RNRZ-L with accompanying 0° bit clock
PCM Format & Word Length:	Will reproduce the recorded PCM format and word lengths. BiØ-L signals recorded with the PCM-704 will be reproduced in NRZ-L output format
Output Configuration:	Single ended (cable driver) data and differential (RS-422) data and clock, per channel
Compatibility:	Occupies one (1) MiniARMOR Slot
Power:	10W maximum
Connector:	DCMAM-37S
Mating Connector:	DC-37P

PCM-704D 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-
Reserved	6	25	Baby Bd Out 1
Clock Ch 2+	7	26	Clock Ch 2-
DVR PCM Ch1	8	27	PCM Rtn
PCM Rtn	9	28	DVR PCM Ch4
DVR PCM Ch3	10	29	PCM Rtn
Reserved	11	30	PCM Rtn
DVR PCM Ch2	12	31	Clock Ch4-
Clock Ch 4+	13	32	Reserved
Reserved	14	33	Data Ch 4-
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		

ORDERING INFORMATION

Basic Module

4-Channel PCM Output Card

Part No.

PCM-704D

Related Functional Modules

4-Channel PCM Input Card

PCM-704M

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

*Windows is a Registered Trademark of Microsoft Corporation in the USA and other countries.

