

November 1990

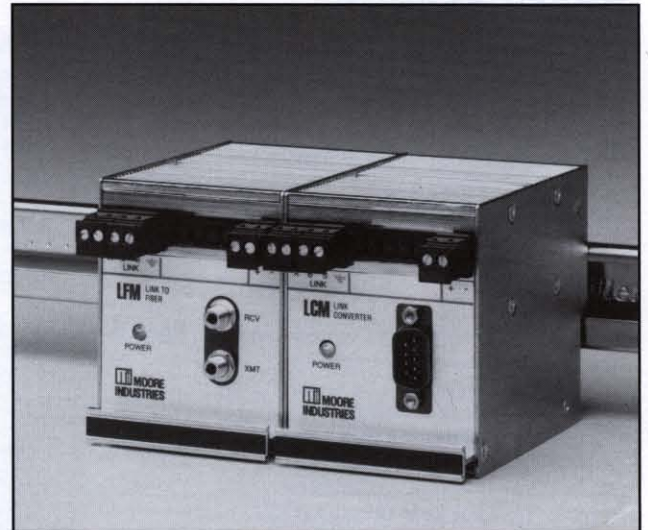
Data Sheet 14.20

Description

The LCM Link Converter Module provides a simple and economical interface between Moore Industries' CCS® Cable Concentrator System® and other devices (i.e., modems, computers, etc.) that use different communication standards. The LCM converts

RS-485 to either RS-232C or RS-422, depending on the option ordered. The LCM accurately transmits signals up to 2 miles (3.2 kilometers) without repeaters. With modems, allowable transmission distance is unlimited.

The LFM Link-to-Fiber Module converts the RS-485 output of the CCS to optical signals for transmission over a fiber optic communication link. This provides a safe, noise-free, and isolated link between CCS modules. The LFM transmits signals up to 1.55 miles (2.5 kilometers).



Moore Industries' LCM and LFM provide a simple means to network devices and systems with different communication standards on the same communication link or line.

Features

- **Bi-directional communication reduces costs.** The ability to transmit signals bi-directionally greatly reduces the number of interface devices required for signal conversion and transmission.
- **Automatic supervision of bus direction.** RS-485 bus control is transparent to the user, so host software written for RS-232C or RS-422 may be used without modification.
- **Power isolation.** No galvanic path between power terminals helps prevent inaccurate signals caused by ground loops.
- **Complete signal isolation.** Fiber optic communication eliminates signal inaccuracies caused by RFI/EMI and electrical surges, and is safe for transmission through hazardous areas.

LCM & LFM

Link Converter Module & Link-to-Fiber Module

Specifications

Characteristics		Performance (continued)	Maximum Allowed Attenuation Between Transmitter and Receiver (LFM modules only): 11db for 50/125 fiber cable.	Ordering Specifications
Performance	<p>Power Isolation: Up to 750Vdc, 500Vac rms.</p> <p>Power Input Effect: None.</p> <p>Character Length: 9, 10, 11 or 12 bits (jumper-selectable); (includes START, DATA and STOP bits).</p> <p>Transmitted Functions: Receive, transmit and ground; no handshaking or control functions.</p> <p>Allowable Bus Lengths: For LCM Units: Up to 2 miles (3.2 kilometers). For LFM Units: Up to 1.55 miles (2.5 Kilometers)</p> <p>Peak Optical Output Power (LFM modules only): Minimum: 40 microwatts; Maximum: 45 microwatts.</p> <p>Optical Receiver Sensitivity (LFM modules only): 1 microwatt typical; 2 microwatts max. @ 820 nanometers.</p>	<p>Ambient Temperature Range: 0°C to +70°C (32°F to 158°F). Effect: None</p> <p>Baud Rates 300, 600, 1200, 2400, 4800, 9600, 19,200, 38,400 and 76,800 (jumper-selectable).</p> <p>Connections LCM: 9-pin male D-type subminiature male connector mounted on front panel (for pin-outs, refer to Tables 1 and 2). LFM: Two SMA-LP-type mounted on front panel for use with 50/125 fiber optic cable.</p> <p>Weight 14 oz. (397 grams)</p>	<p>Unit LCM Link Converter Module LFM Link-to-Fiber Module</p> <p>Input* RS485 (LCM or LFM) Asynchronous, bi-directional RS-485 signal levels.</p> <p>Output* RS232 (LCM only) Asynchronous, bi-directional RS-232C signal levels. RS422 (LCM only) Asynchronous, RS-422 signal levels. FO (LFM only) Dual fiber optics cable interface.</p> <p>Power 24V 18-30Vdc, 24 Vac, +10%, -20%, 45/65Hz 150mA consumption</p> <p>Housing DIN Aluminum rail-mount housing.</p>	

When ordering specify: Unit / Input / Output / Power [Housing]

Model number examples: LCM / RS485 / RS232 / 24V [DIN]

LFM / RS485 / FO / 24V [DIN]

*Input and output ordering specifications have no bearing on the direction of data flow.

Ordering Information

To order a specific unit use the appropriate bold face data from the specifications table (located above). For assistance during this procedure, refer to the model number examples located in the table.

LCM & LFM

Link Converter Module & Link-to-Fiber Module

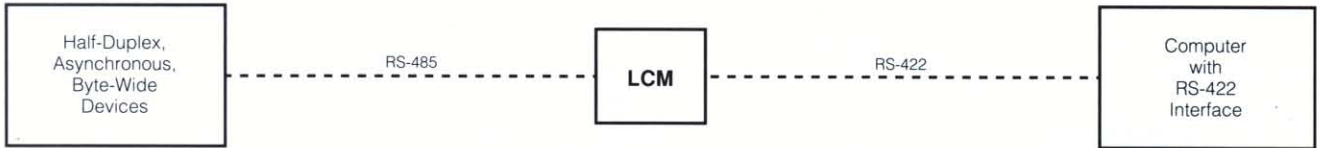


Figure 1. Bi-directional computer interface.

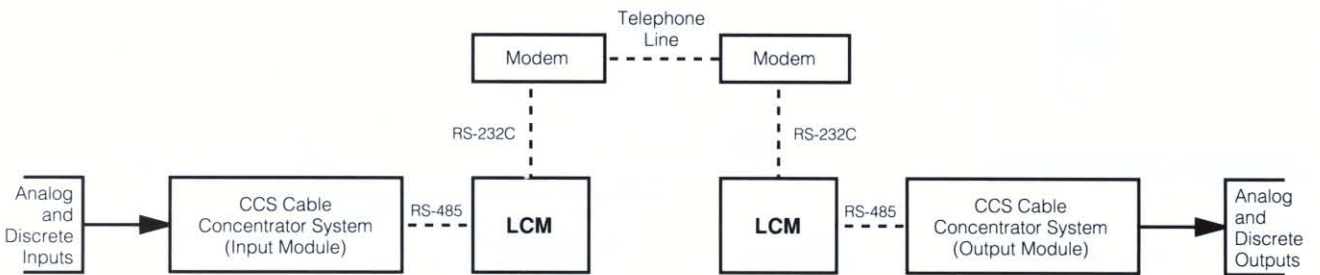


Figure 2. Interface with a telephone modem.

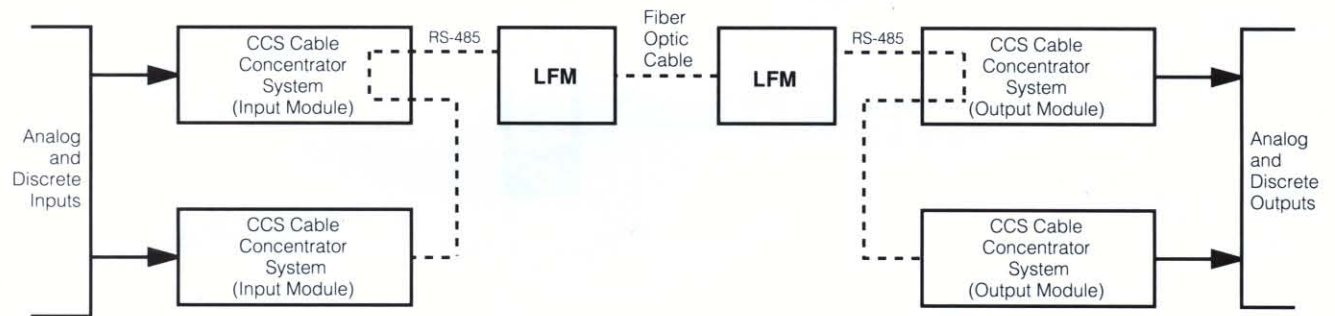


Figure 3. Fiber optic signal transmission.

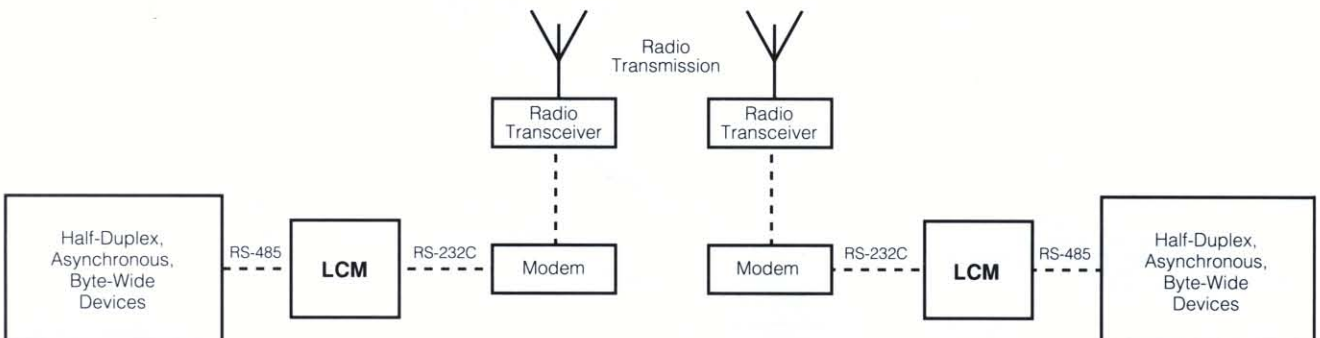


Figure 4. Bi-directional radio-link signal transmission.

LCM & LFM

Link Converter Module & Link-to-Fiber Module

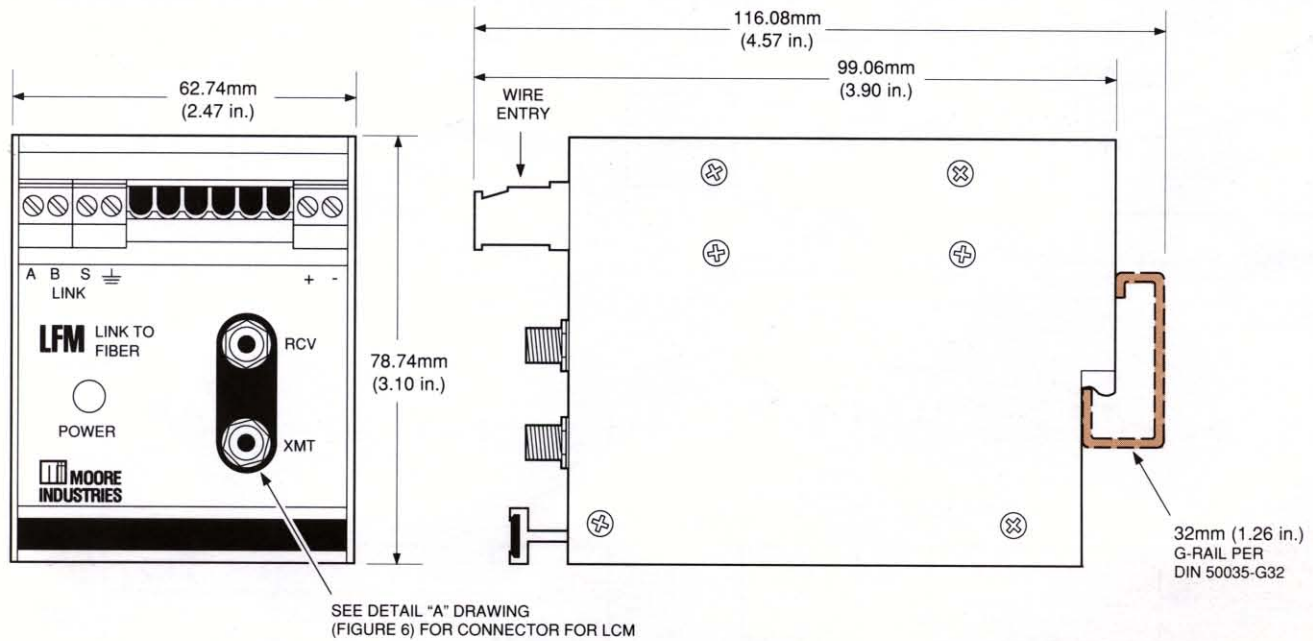


Figure 5. Outline and Installation Dimensions of the LCM and LFM.

Installation

The LCM and LFM are enclosed in compact, DIN-style aluminum housings that can be quickly and easily snapped onto a standard G-type DIN rail.



NOTE

1. The LCM comes equipped with a 9-pin D-subminiature male connector.

Figure 6. Detail "A", Connector For LCM.

Table 1. Connector Pinouts for RS-232C.

Pin	Signal*
1	---
2	RXD
3	TXD
4	DTR; 1K pull up
5	GND
6	---
7	RTS; 1K pull up
8	---
9	---

* DTR — data terminal ready; GND—ground; RTS — request to send; RXD —receive data; TXD — transmit data.

Table 2. Connector Pinouts for RS-422.

Pin	Signal*
1	GND
2	---
3	GND
4	TX+
5	TX-
6	---
7	---
8	RX+
9	RX-

*GND—ground; RX—receive; TX— transmit.



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