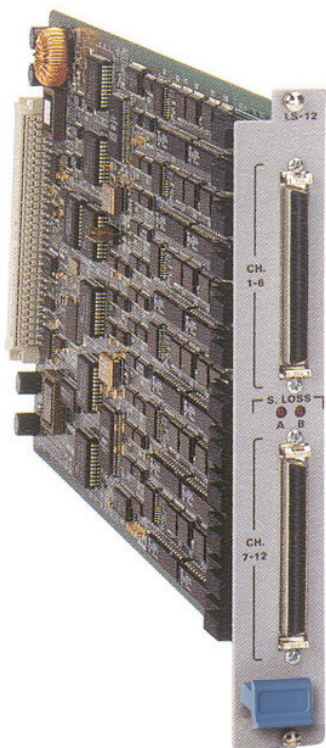


Megaplex-2100/2104

LS-6N, LS-12

6/12-Channel Low-Speed Data Modules



- 6/12 sync or async low speed data channels
- Selectable channel data rates from 2.4 to 64 kbps (57.6 kbps for async)
- Selectable composite data rates: 14.4, 32, 56, 64, 128, 192, 256, 384, 512 or 768 kbps
- Channels connected to two different links for "V" topology (LS-12)
- Up to two control signals per channel transferred end-to-end

LS-6N and LS-12 I/O modules each provide up to 6 or 12, sync or async low-speed data channels for Megaplex-2100/2104/4100. These modules enable Megaplex to transmit low-speed data (from 2.4 to 64 kbps) end-to-end, through an E1/T1 network or $n \times 64$ kbps line.

LS-6N and LS-12 are highly efficient sub-rate multiplexers, multiplexing the 6 or 12 low-speed external (user) subchannels over one (LS-6N) or up to two (LS-12) internal composite channels. The composite channels are then routed to any of the Megaplex E1/T1 links.

Note: All timeslots carrying the data of a composite channel must be treated by the E1/T1 network as a single "bundle", which may not be split when routed within the network.

LS-6N modules can also operate together with LS-12 modules. This enables "V" topology, where 12 low-speed channels are split among LS-12's two available composite channels. Each composite channel can be directed to an LS-6N (or another LS-12) at a different site (see *Figure 1*).

The interface of each of the 6/12 data subchannels is V.24/RS-232, which can be jumper-set to DCE or DTE. Each channel can be independently configured for either sync or async operation. The async to sync conversion is performed according to ITU V.14.

In sync mode, each subchannel can independently operate in either DCE, External-DCE or DTE timing modes. The External-DCE mode is for tail-end applications.

Data rates from 2.4 to 64 kbps (57.6 kbps for async)



LS-6N, LS-12

6/12-Channel Low-Speed Data Modules

The subchannel data rates can be selected out of three groups, where all the standard speeds between 2.4 and 64 kbps (57.6 for async) are supported. The only restriction regarding rates is that any pair of consecutive channels must work with rates belonging to the same group.

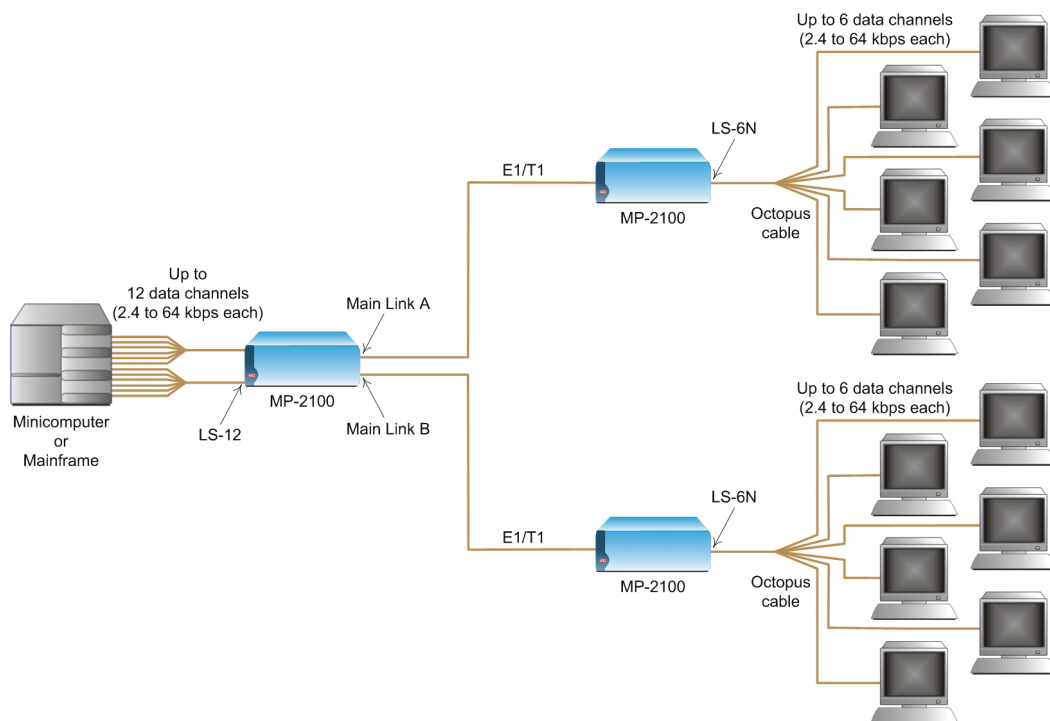
Note: Still lower async data rates are supported by using an oversampling technique over sync transport mode. For details, contact your Local RAD Partner.

The composite channel(s) can be set to various rates between 14.4 and 768 kbps (512 for LS-6N), using from a quarter timeslot to 12 timeslots (for 768 kbps rate) on the Megaplex E1/T1 link.

The multiplexing format of the low-speed channels is TDM with a very small BAU (Bandwidth Allocation Unit) for performing exceptionally efficient multiplexing (up to 99.5% of the composite bandwidth is utilized for the subchannels' data).

For diagnostics, both composite and individual subchannels perform local and remote loopbacks. These enable the user to verify the local connection to the channel and the end-to-end path. Each subchannel also supports a BERT for evaluating the transmission path between the local and remote channel.

Six data channels are terminated on a single 68-pin SCSI connector, for connection to a distribution frame. LS-6N is equipped with a single connector, while LS-12 has two. Octopus cables are available to split each of these interfaces into six separate channels, each with a 25-pin connector for direct connection to DTE user equipment (see *Ordering*).



Low-Speed Transmission in "V" Topology

Specifications

Number of Channels

LS-6N: 6 data (sub) channels, placed over 1 internal composite channel

LS-12: 12 data (sub) channels, placed over 1 or 2 internal composite channels

Operation Modes

Sync or async, user-selectable for each subchannel

Subchannel Interface

V.24/RS-232, DCE or DTE type (jumper-selectable)

Subchannel Data Rates

Group 1: 2.4, 4.8, 9.6, 19.2 and 38.4 kbps for sync and async

Group 2: 7.2, 14.4, 28.8 and 57.6 kbps for sync and async

Group 3: 8, 16, 32, 48, 56 and 64 kbps for sync only

Note: Both channels of any pair

(i.e., CH1-2, CH3-4, ... CH11-12) must work with rates from the same group.

Composite Channel Data Rates

Rates are in kbps (with the number of main link timeslots used in parenthesis):

14.4 (¼) 32 (½), 56 (1), 64 (1), 128 (2), 192 (3), 256 (4), 384 (6), 512 (8) or 768* (12)

* LS-12 only

Async Parameters

Data bits: 5,6,7,8

Stop bit: 1

Parity: transparently transferred

Clock Modes

(Soft-selectable for each sync channel)

DCE: LS channel provides both RX and TX clocks to the user DTE

External-DCE (DTE1): LS channel provides RX clock to the user while receiving TX clock from the user. Used for tail-end applications

DTE (DTE2): LS channel receives both RX and TX clocks from the user DCE

Control Signals

Local support:

CTS-RTS delay, soft-controlled DSR, DCD (on or follows sync)

End-to-end:

RTS to DCD, DTR to DSR

Diagnostics

Composite channel(s):

Local loop
Remote loop

Subchannels:

Local loop
Remote loop
BER test

Connectors

68-pin SCSI, female connector per group of six channels (LS-6N has one, LS-12 has two)

Indicators

Sync loss (per composite channel)

Current and Power Consumption (per VDC line)

	LS-6N		LS-12	
[VDC]	[mA]	[W]	[mA]	[W]
+5	720	3.6	770	3.9
+12	50	0.6	120	1.4
-12	30	0.4	80	1.0
Total		4.6		6.3

Configuration

Via the Megaplex management system

Environment

Operating temperature: 0°C to 45°C (32°F to 113°F)

Storage temperature: -20°C to +70°C (-4°F to +160°F)

Humidity: up to 95%, non-condensing

LS-6N, LS-12

6/12-Channel Low-Speed Data Modules

Ordering

MP-2100M-LS-6N

6-channel low-speed data module for
MP-2100/2104 and MP-4100

MP-2100M-LS-12

12-channel low-speed data module for
MP-2100/2104 and MP-4100

OPTIONAL ACCESSORIES



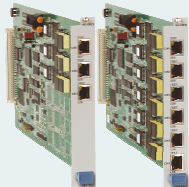
CBL-LS12/#

Octopus cable for splitting one 68-pin SCSI
female module connector into six 25-pin
D-type channel connectors, for direct
connection to DTE equipment.
Cable length is 2m (6 ft).

Legend

- # D-type connectors:
F female
M male

Megaplex Low-Speed Modules

	HS-RN 	LS-6N, LS-12 	HS-DP/3, HS-DP/6 
Feature			
Interface Type	V.24/RS-232	V.24/RS-232	OCU-DP
Number of Channels	4	6/12	3/6
Number of Connectors	2	1/2	3/6
Multiplexing Method	ITU-T I.460/V.110	Proprietary	BELLCORE TA-TSY-0000777
Data Rate	0.6 – 64 kbps	2.4 – 64 kbps	2.4 – 56 kbps
Supported by MP-4100	✓	✓	–

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