

x790 Series

Master Stations
4790, 9790 & SDA



Data Acquisition | Serial Transceiver

The redundant, full-duplex MDS x790 Series Master Stations are the price and performance leader of licensed microwave radios in the 330-512 MHz and 800-960 MHz frequency range. It gives increased throughput and longer range alternatives for our customers' Multiple Address Systems needs. Transparent and direct asynchronous communications offer real-time communication. No extra software or programming is needed to implement communications that use standard asynchronous protocols. The addition of the SD Adapter enables IP/Ethernet communications and AES 128-bit encryption to a system based on the MDS SD Series radio.

The MDS x790 Series Master Station may operate as a full-duplex, half-duplex or simplex radio and is configurable as a redundant master station, a redundant repeater or a remote radio. The MDS 4790 and MDS 4710 or the MDS 9790 and MDS 9710 remote transceivers together offer a new level of ease of integration, reliability and performance for our customers' data network systems.

Key Benefits

- High system performance and data integrity with robust construction and digital signal processing technology (DSP) providing up to 19.2 Kbps data throughput
- Quick return on investment due to ease of wireless installation, coupled with the ability to communicate with any asynchronous protocol without extra software or programming
- Excellent performance in the face of interference or difficult signal paths
- Network management software simplifies maintenance tasks, reduces network infrastructure management costs, and provides a non-intrusive means of maintenance and link monitoring

Application Specific Wireless Solution



Oil & Gas

- Monitor and transmit wellhead pressure and tank levels collected by RTUs



Water & Wastewater

- Monitor lift stations across multiple sites from control room



Energy

- Condition monitoring for pole-top circuit breakers and capacitor banks



Heavy Industrial

- Monitor and control remote pumps and compressors

Industrially Hardened

- Operational temperature range from -30°C to 60°C
- CSA Class I, Div. 2 groups A, B, C, D for Hazardous Locations

Application Flexibility

- Long range wireless communications up to 50 miles
- Fully compatible with first generation MDS radios

Reliable & Scalable

- Exclusive-use, non-shared licensed band operation
- Point-to-multipoint 2-way communication
- High receive sensitivity for noisy environments and long distances
- Compatible with multiple industry protocols including Modbus and DNP3

High Performance

- Digital signal processing (DSP) engine
- Single unit configurable as master or remote radio
- Inter-operable "B" versions available for use with existing MDS 2000, MDS 4000 series radios



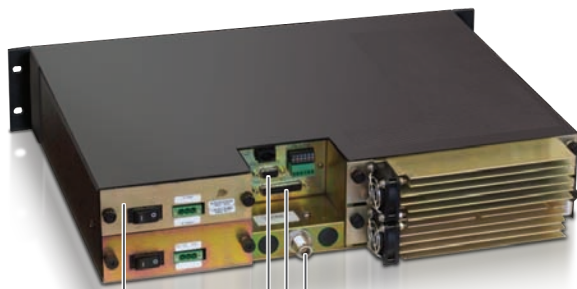
x790



Full-Duplex Radio with redundancy option

Detachable front-panel LCD Display for configuration

Key Pad (Up, Down, Left, Right Enter, Esc)



Dual DC or AC Power
Local management diagnostics serial port

Antenna (Over-the-Air connectivity to SDx and x710 remotes)
COM1 serial port

SD Adapter

COM2 Serial Port (To Host Computer, Serial, DB-9F)

COM1 Serial Port (To x790 Radio, DB-9M to DB-25M Umbilical)

Ethernet Port (To Host Computer, 10/100 BaseT, RJ-45)



Rear view

Specifications

GENERAL

Data Rate (data)	110 bps - 38.4 Kbps
Frequency programmability	6.25 kHz increments to any MAS channel pair
Operational modes	asynchronous - simplex, half-duplex, full-duplex (synchronous available in 4790B, and 9790B), protected, non-protected digital / CPFSK
Modulation	protected, non-protected digital / CPFSK
Latency (Rx-Tx-Rx)	10 ms including RTS/ CTS delay
CTS Delay	0-255 msec programmable in 1 msec increments
PTT Delay	0-255 msec programmable in 1 msec increments
Range	Up to 50 miles
4790	
RF Data Rate	4790E: 4800 bps 4790P: 9600 bps 4790A: 9600 bps 4790C: 19,200 bps
Frequency Bands	330 - 512 MHz
Tx / Rx split:	4790: simplex to 132 MHz
9790	
RF Data Rate	9790E: 4800 bps 9790A: 9600 bps
Frequency bands	800 - 960 MHz
Tx / Rx split:	simplex to 160 MHz

TRANSMITTER

Frequency Stability	+/- 1.5 ppm
Carrier power	0.1 to 5 Watts Programmable
Carrier power	
Accuracy	Normal +/- 1.5 dB
Duty Cycle	Continuous
Output Impedance	50 Ohms

RECEIVER

Type	Double Conversion Superheterodyne
Adjacent channel (EIA):	60 dB nominal

BIT ERROR RATE

4790	
4790E: 4800 bps: BER 1x10 ⁻⁶ @ -114 dBm typical	
4790M: 9600 bps: BER 1x10 ⁻⁶ @ -100 dBm typical	
4790A: 9600 bps: BER 1x10 ⁻⁶ @ -110 dBm typical	
4790C: 19.2 Kbps BER 1x10 ⁻⁶ @ -105 dBm typical	
9790	
9790E: 4800 bps: BER 1x10 ⁻⁶ @ -114 dBm typical	
9790A: 9600 bps: BER 1x10 ⁻⁶ @ -110 dBm typical	

INTERFACES

4790 & 9790	
Data interface	RS232, DB25 Female
Supports	TXD, RXD, RTS, CTS, DCD, RUS, AUX POWER, DSR, and GND

SDA

Serial COM1	RS-232, DB9
Serial COM2	RS-232, DB9
Ethernet	10/100BaseT, RJ45

DIAGNOSTICS

Local diagnostics	included in all models
Network-wide diagnostics	InSite™ Radio System Management software (optional)

ENVIRONMENTAL

Temperature	-30°C to +60°C (-22°F to +140°F)
Humidity	95% at 40C (104°F) non-condensing

ELECTRICAL

Primary power	100-240 Vac (50/60 Hz), 24/48 Vdc (21 to 60 Vdc), 125 Vdc external, 12 Vdc external
Power required	< 60 Watts nominal

MECHANICAL

4790 & 9790	
Dimensions	8.8 H(2U) x 43.7 W x 36.3 D cm. 3.5 H x 14.3 W x 14.3 D in.
Weight	9 kg (19.8 lbs)
SDA	
Dimensions	4.4 H(1U) x 43.7 W x 30 D cm. 1.7 H x 14.3 W x 12 D in.
Weight	1.5 kg (3.3 lbs)

AGENCY APPROVALS

4790A: FCC part 90, industry Canada & ENTELA (safety)
4790E and 4790M: ETSI: ETS 300 113, EMC: EN 300 279, CE Mark & ENTELA (safety)
9790A: FCC Part 101, Industry Canada & ENTELA (safety)

Accessories for the x790

Fixed Remote Kits with Yagi	400 MHz	900 MHz
	KAP-L04-C1 (406-430 MHz)	KAP-L09-D1
	KAP-L04-C2 (430-450 MHz)	
	KAP-L04-C3 (450-470 MHz)	

View Accessories catalog at www.gemds.com

Visit www.GEMDS.com/x790 to:



- Buy the x790 through the online store
- Download guideform specifications
- Download user documentation
- Read application notes and white papers