

Features

- ▶ Extends RS-232/485 links over radio network
- ▶ Transfer rates over VHF/UHF FM radio channel up to 16000 bps
- ▶ Can be connected to external radio
- ▶ HDLC frames featuring addressing and routing
- ▶ Fieldbus protocols support
- ▶ AT command set

Description

PRM III is series of packet radio modems intended for data transfer over VHF or UHF FM radio channels utilizing external or internal radio transceiver, still enabling voice transfer option.

Data transfer through radio channel uses HDLC frames and effective error detection and correction algorithm, and line coding as well. These features make radio channel reliable, secure and transparent digital link for transferring asynchronous data of any format.

Transfer rates in channel are: 1200, 2400 bps with FFSK modulation, 4800, 9600, 8000, 16000 bps with GMSK modulation.

Built-in network protocol enables addressing of up to 127 modem units in the network, while routing technique enables digipeating over 8 units in a chain, thus significantly extending effectual cover range.

Hayes AT command set provides standard command interface for mode configuration and control via RS-232 serial interface.

Fieldbus oriented operating modes supports transparent transfer for number of industrial protocols: Modbus, IEC-60870-5, DirectNET, etc.

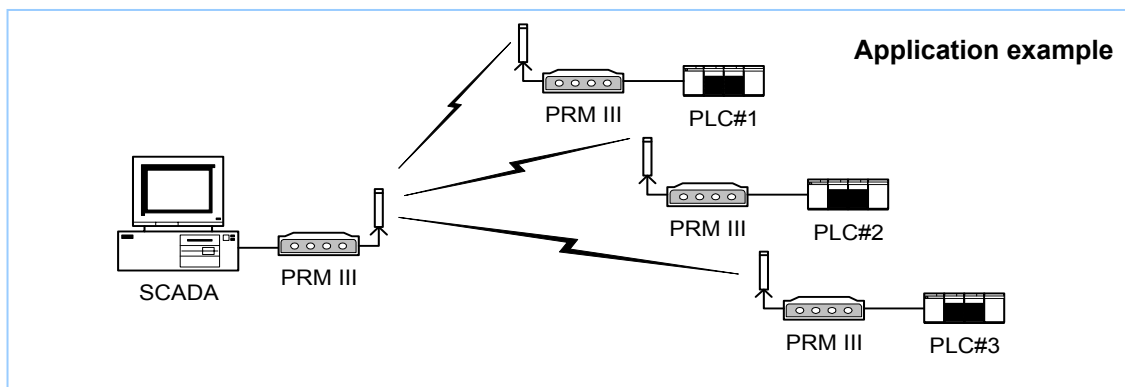
Application

Packet radio modem is optimal communication solution for:

- Interconnecting distant sites without cable infrastructure;
- Stable communication insensitive on congestions and interruptions;
- Reliable transfer of small amount of measuring-control data;
- Low exploations costs;
- Simple system extension.

It is used:

- In telemetry (hydrology, meteorology, ecology, etc.)
- For remote monitoring and control (power utilities, water supplying systems, etc.)
- In alarm systems
- File transfer between remote terminals (reports, daily logs, etc.)



Specifications

Serial Interface	
Connector	DB9F (female), RS-232C, DCE
Data rates	1200, 2400, 4800, 9600, 19200, 38400 bps
Format	8N1, 8E1, 8O1
Flow control	Hardware, RTS/CTS
Command interface	Hayes AT command set

Radio Network Interface	
Speed & Modulation	1200, 2400 bps (FFSK); 4800, 9600 bps (GMSK 0.5); 8000, 16000 bps (GMSK 0.3)
Medium access	CSMA/CA
Packet format	HDLC
Line coding	NRZI
Error detection	CRC16 CCITT
Error correction	ARQ (acks & retransmissions), window size 1
Addressing	127 addresses in network, with routing feature
Digipeating	"Store & Forward" over up to 8 digipiters

Packet send criteria	
Character number	Fixed: 255 (CO), 495 (FO & FO/R)
Specific character	Adjustable: 0-255 (ASCII character code)
Time	Adjustable: (0-255) x 20ms

Operating modes	
Connection Oriented	CO: dial-up connection; packet acknowledgement; error detection and correction (ARQ); automatic connection over predefined route option.
Fieldbus Oriented	FO: transparent packet broadcast to predefined route; error detection and bad packet rejection.
Fieldbus Oriented with Routing	FO/R: fieldbus packet routing according to fieldbus address and routing table; error detection and bad packet rejection.
Supported protocols	IEC-60870-5, Modbus, DirectNET, K-Sequence (Koyo), HostLink (Omron), and other industrial protocols.

External radio	
Connector	DB9M (male)
Consumption	≤50mA
Audio output level	420mVpp (internally adjustable 30mVpp-3Vpp) @ 600Ω
Audio input sensitivity	2.8Vpp (internally adjustable 90mVpp-5Vpp) @ 10KΩ
Transmission activation output	Transistor collector, max. 20V and 30mA.
Input level for busy channel indication	≥2V @ 10KΩ

Internal radio	
Frequency range	403-434 MHz or 450-480 MHz
Channel bandwidth	12.5 or 25 kHz
Channel step	6.25 or 10 kHz
Frequency control	Syntetisator
Frequency stability	1.5 ppm
Receive/Transmit transition	≤10msec
Output transmission power	2W (+33dBm)
"Spurious" and "Harmonic FM"	≤ -20dBm
Transmitter stability	Preserved up to 10:1 VSWR
Receiver sensitivity @ 10 ⁻⁵ BER	-116dBm
Selectivity	≥60dBm
Antenna connector	Female TNC
Antenna impedance	50Ω
Consumption	Reception ≤100mA, transmission ≤1.6A

General	
LED indication	PWR, TXD ,RXD, CON, AIR, BUSY, RET, DGP
Power Supply	10-16 VDC
Power Supply connector	2-pol jack
Connector for external microphone (optional)	RJ-45
Operating temperature	-30°C to +60°C
Storage temperature	-40°C to +85°C
Humidity	95% maximum RH at 40°C, non-condensating
Case	Aluminum profile
Dimensions	112 x 30 x 165 mm

Model:

PRM III	-	M	□	-	□	-	□	□
Modulation								
FFSK 1.2/2.4 kbps			1					
GMSK 0.5 4.8/9.6 kbps			2					
GMSK 0.3 8/16 kbps			3					
Radio station								
External				E				
Internal				I				
Range*								
403-434 MHz						2		
450-480 MHz						5		
Channel*								
12.5 kHz								1
25 kHz								3

* Only for models with internal radio station.