

PIU Board

Communication Ports

RS232	Serial RS-232
RS485	Multi Drop 2 Wire
Adapter	Serial interface between PIU as adapter and PICCOLO-XR (UART levels)
Boot-Strap	Software programming port

Internal Radio

RF Frequency	UHF 450–470 MHz (Service Toolkit programmable)
Channel spacing	12.5 KHz
Internal Modem	DPSK 1200
TX RF Low power mode:	8 – 12 mW @+25 °C (+77 °F)
	5 – 16.3 mW @-30 °C - +60 °C (-22 °F to 140 °F)
TX RF High power mode:	80 – 120 mW @+25 °C (+77 °F)
	50 – 120 mW @-30 °C - +60 °C
Frequency Error:	± 0.0001% max.
TX deviation:	2KHz ± 15%
RX BER	BER<1% (See Note 5 on p. 43)
LEDs	Red, Orange, Green (SW Programmabile)

Power

Input Voltage

External Source
(DC Power In) 6.00 to 16.00 VDC

External Source
(24V ~ IN) 24VAC±20%

Power Modes

Adapter Mode (Using the internal 9 V battery)

Normal Operation 1 – 5 mA (See Note 4 on p. 43)

Sleep Mode

LPM0 250 – 400 μ A (See Note 1 on p. 43)

LPM3 140 – 290 μ A (See Note 1 on p. 43)

Power Fail Mode

LPM3 270 – 850 μ A (See Note 3 on p. 43)

APPENDIX A: PIU AND PICCOLO-XR SPECIFICATIONS

PIU Mode (Using a 12 V or 6 V external power source)

Radio Transmission

(TX power-10 mW)	25 – 40 mA	(PWR IN =14 V)
	65 – 90 mA	(PWR IN = 6 V)
(TX power-100 mW)	30 – 65 mA	(PWR IN =14 V)
	85 – 135 mA	(PWR IN = 6 V)

Standby current

Radio Receives	13 – 18 mA	(PWR IN =14 V)
	30 – 38 mA	(PWR IN = 6 V)

Sleep Mode

LPM0	200 – 320 μ A (See Note 2 on p. 43)
LPM3	130 – 250 μ A (See Note 2 on p. 43)

Power Monitors

Power OK Voltage	(Service Toolkit Adjustable Default = 12 V DC) \pm 200 mV
LOW Power Voltage	(Service Toolkit Adjustable Default = 11.2 V DC) \pm 200 mV
Very Low Battery	(Service Toolkit Adjustable Default = 10.8 V DC) \pm 200 mV

Reverse Input Voltage Connection	Protected
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APPENDIX A: PIU AND PICCOLO-XR SPECIFICATIONS

Note 1: Power In = 9 V DC (Adapter), RS232 = shutdown, RS485 = disable, Radio (On Board Circuits) = off, internal Radio is off. RS232 cable connected.

Note 2: Power Supply = 14 V DC (PIU), RS232 = shutdown, RS485 = disable, Radio (On Board Circuits) = off, internal Radio is off. RS232 cable connected.

Note 3: Power In = 5.4 V DC (Power fail), RS232 = shutdown, RS485 = disable, Radio (On Board Circuits) = off, internal Radio is off. RS232 cable connected.

Note 4: Power In = 9 V DC (Adapter), RS232 = auto shutdown, RS485 = disable, Radio (On Board Circuits) = off, internal Radio is off. RS232 cable connected.

Note 5: Apply 1.2 KHz FM signal with 2 KHz Deviation, Sensitivity @-110 dBm to the radio, and read BER. At extreme temperatures apply -104 dBm.

PICCOLO XR Specifications

Environmental

Operating Temperature	-30 °C to +60 °C (-22 °F to +140 °F)
Storage Temperature	-40 °C to +85 °C (-40 °F to + 185 °F)
Relative Operating Humidity	0 to 95% without condensation @ +50 °C (122 °F)
Operating Altitude	-400 m to +4000 m (-1300 ft to 13,000 ft) above sea level
Housing	IP66

Mechanical

Dimensions	127x117x41.5 mm ± 1 mm (5.00"x4.60"x1.63")
Weight	240 gr ± 24 gr (8.5 oz ± 0.85 oz)
User Connection	17 pin User Cable (26 pin D-type connector)
Wire Gage	22 AWG

PICCOLO XR Board

INPUTS:

Number of Inputs	Modularity: 1, 2, 4, 7, 8
Dry contact Input Ratings	Open: > 45 k Ω (OFF) Closed: < 6 k Ω (ON)
Minimum pulse width	100 msec
Maximum pulse rate	7200 pulses per hour

APPENDIX A: PIU AND PICCOLO-XR SPECIFICATIONS

OUTPUTS:

Number of Outputs	Modularity: 1, 2, 4
Output Drive Voltage	9 - 20 Volts ($\pm 10\%$) (Service Toolkit Adjustable)- 2200 μ F capacitor
Output Short Circuit Protection	>5 A

Communication Ports

UART 1 port	Serial port uart levels (Async.)
UART 2 port	Serial port UART levels (Async.)
Bootstrap Port	Software programming port

Internal Radio

RF Frequency	UHF 450–470 MHz (Service Toolkit programmable)
Channel spacing	12.5 KHz
Internal Modem	DPSK 1200
TX RF Low power mode:	8 – 12 mW @+25 °C (+77 °F)
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TX RF High power mode:	80 – 120 mW @+25 °C (+77 °F)
	50 – 120 mW @–30 °C - +60 °C
Frequency Error	$\pm 0.0001\%$ max.
TX deviation	2KHz $\pm 15\%$
RX BER	BER<1% (See Note 10 on p. 47)

