

ON YOUR WAVELENGTH

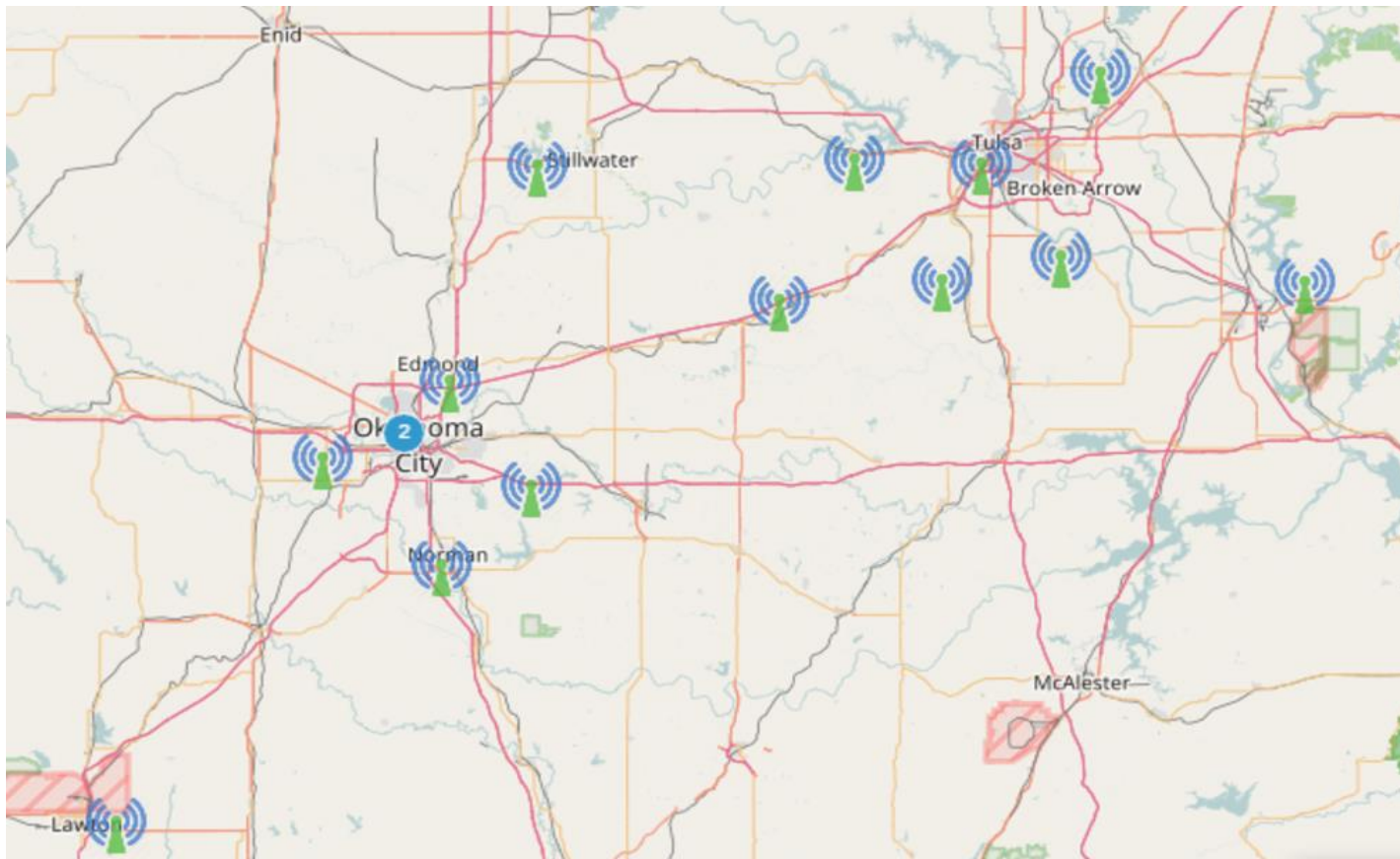
Channel Power Monitor

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The problem – how to *efficiently* monitor the performance of a number of transmitters, transmission lines and antennas at many remote sites?



The solution – Bird’s Channel Power Monitor can monitor up to 32 transmitters and/or antennas per unit, with no limit on number of units per site, or number of sites per network. Monitors forward power, reverse power and VSWR on each transmission line. Alarms on reduced RF power, increased VSWR or decreased VSWR



5009 HF/VHF/UHF directional sensor



4042 VHF/UHF 500W channelised sensor for Land Mobile Radio



4045 VHF/UHF 500W directional sensor for Land Mobile Radio

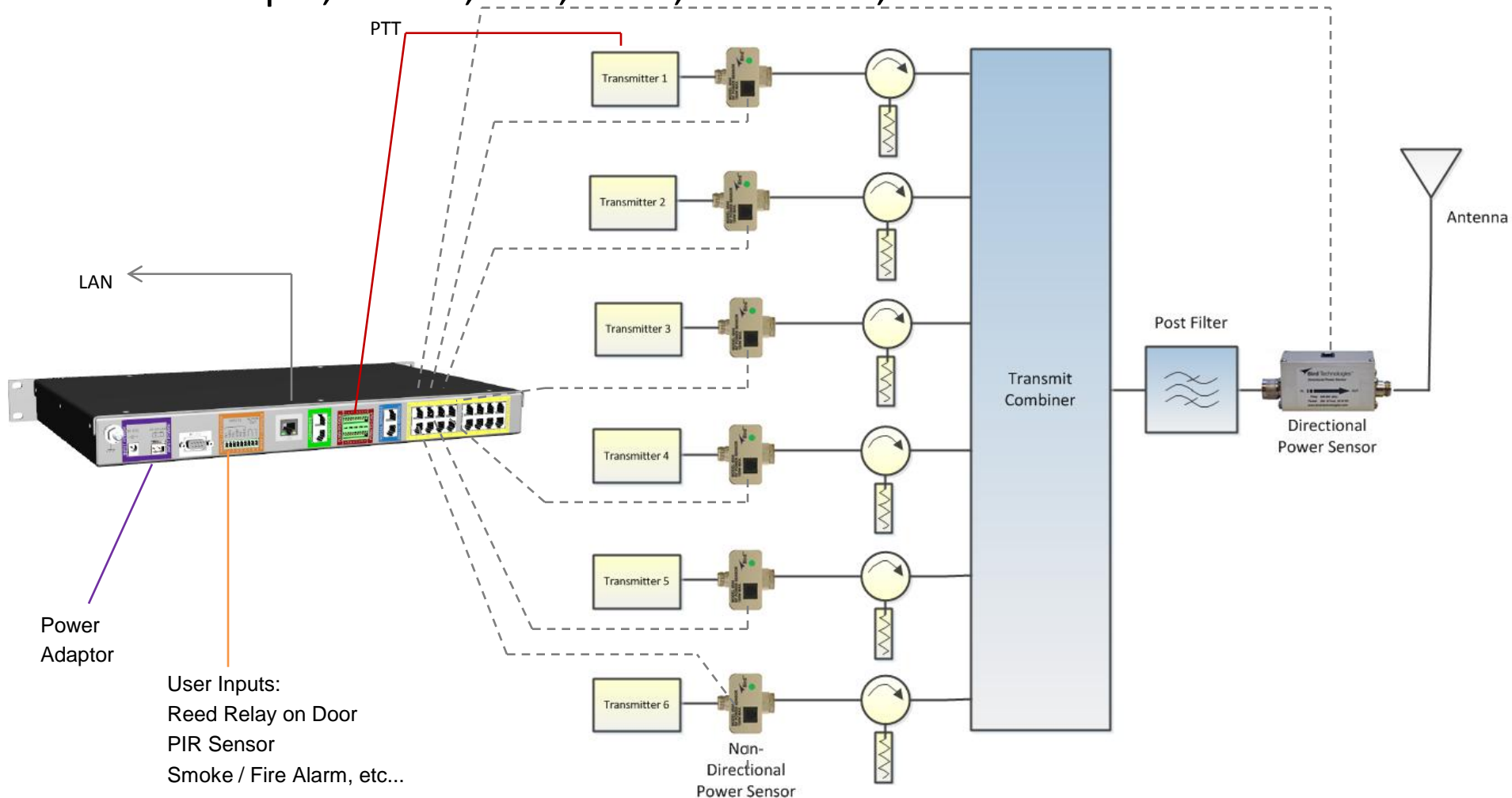


4043 VHF/UHF 100W non-directional sensor for Land Mobile Radio



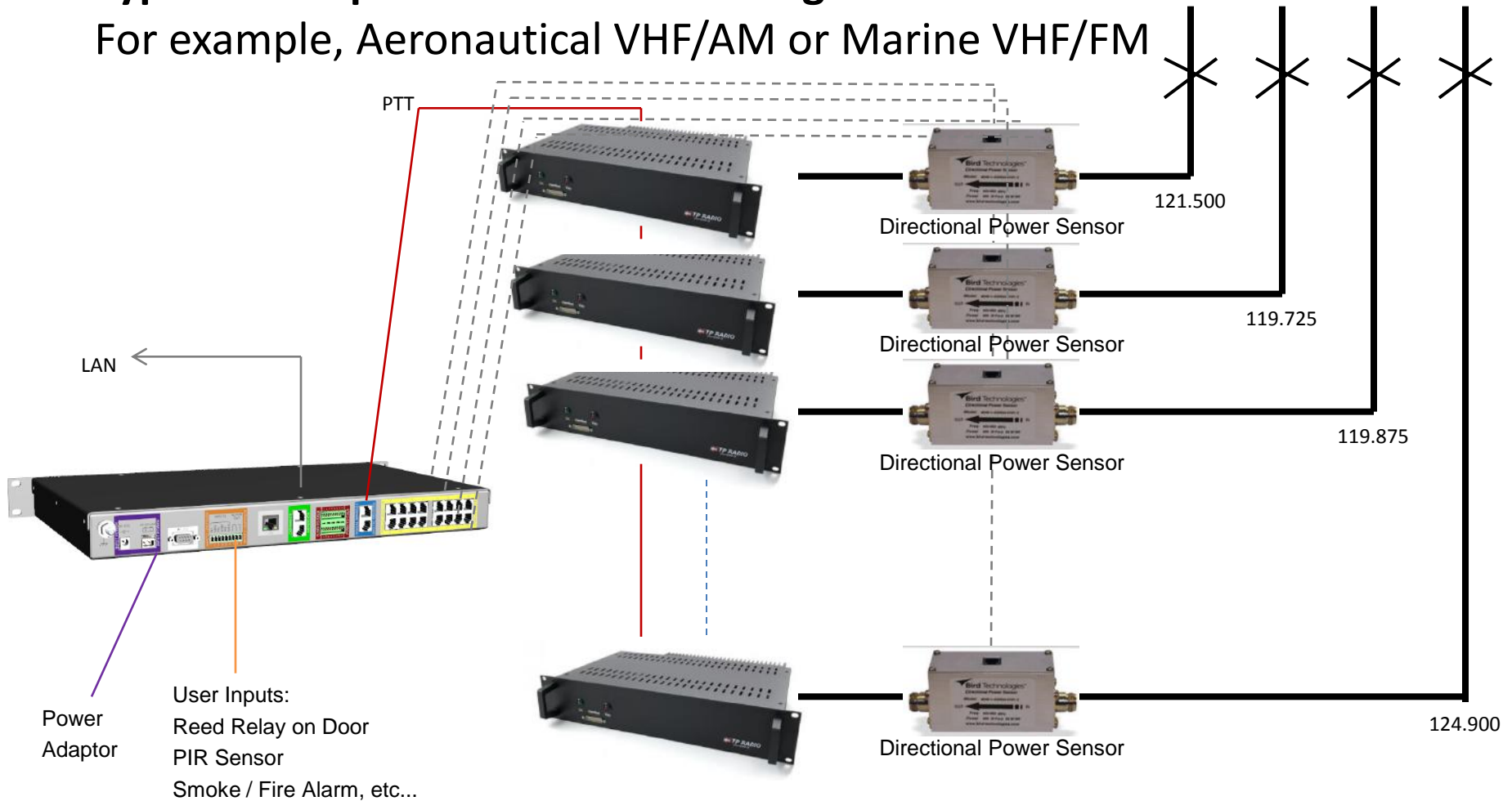
VHF/UHF broadcast sensors for rigid transmission lines, 7/8 inch to 6 1/2 inch, up to 50kW

Typical Example of CPM in a “Trunked” Radio System For example, TETRA, P25, DMR, MPT1327, etc...

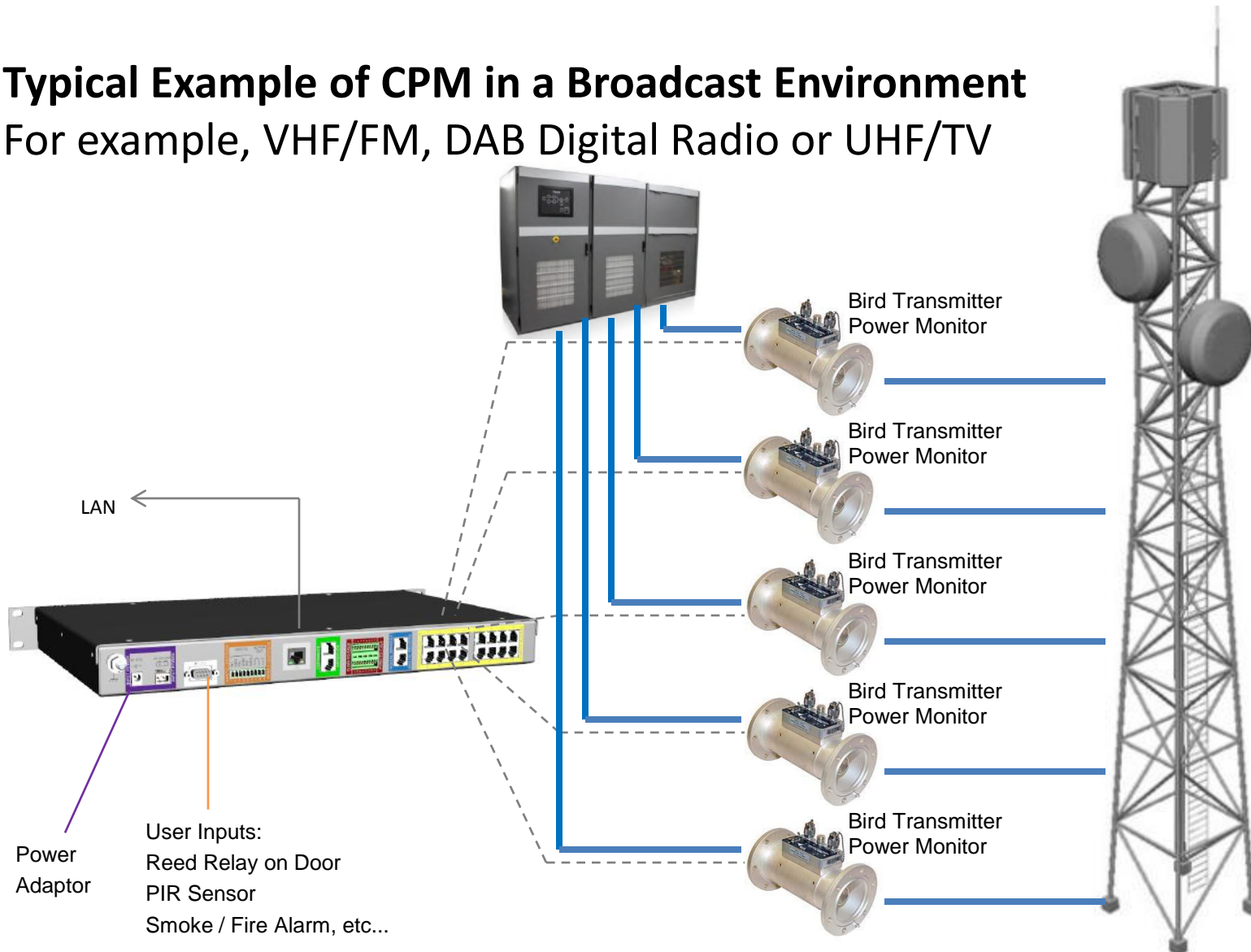


Typical Example of CPM in an Analogue Radio Network

For example, Aeronautical VHF/AM or Marine VHF/FM



Typical Example of CPM in a Broadcast Environment For example, VHF/FM, DAB Digital Radio or UHF/TV



So what is Channel Power Monitor?

- Provides real-time monitoring of multiple transmitters and antennas
- Wide range of sensors, covering Broadcast and Land Mobile Radio frequencies and power levels
- User-friendly display on “local” unit
- Built-in web server allows monitoring with web browser or Android app
- Supplied with MIB, allowing remote management with any SNMP version 2 management system
- Alarm on reduced power output, increased VSWR and reduced VSWR, alerting users as follows
 - Red alarm light on panel
 - Red alarm bars on web browser and Android app
 - SNMP traps to external devices
 - Alarm relay to external devices (lamps, klaxons, etc...)
- Three “user” inputs for external sensors (door reed relays, PIR, smoke detectors, etc...)
- Data recording allows early diagnosis and repair of failing components
- AC supply with 24V station battery backup

Non-Directional Power Sensors for Land Mobile Radio

- Part number 4044
- Provides confirmation of transmitter output power
- 100W FSD
- Uses PTT input from base station radio, transmitter or repeater to alarm in the event of reduced RF output power
- Connects to 0-4V DC analogue sensors input of CPM
- Available for VHF, UHF and 700/800/900MHz



Directional Power Sensors for Land Mobile Radio

- Part number 4045
- Reads forward and reflected power
- 500W forward and 50W reflected FSD
- Connects to 0-4V DC analogue sensors input of CPM
- Available for VHF, UHF and 700/800/900MHz



Directional Power Sensors for Land Mobile Radio

- Part number 5009
- Reads forward and reflected power
- Frequency Range and Forward/Reflected FSD selected by choice of elements
- Connects to 0-4V DC analogue sensors input of CPM

Frequency Range	Forward Power Range	Reflected Power Range	Forward Element	Reflected Element
2-30 MHz	1.25 to 50 W 12.5 to 500 W	125 mW to 5 W 1.25 to 50 W	DPM-50H DPM-500H	DPM-5H DPM-50H
25-60 MHz	1.25 to 50 W 12.5 to 500 W	125 mW to 5 W 1.25 to 50 W	DPM-50A DPM-500A	DPM-5A DPM-50A
50-125 MHz	1.25 to 50 W 12.5 to 500 W 25 to 1.0 kW	125 mW to 5 W 1.25 to 50 W 25 to 100 W	DPM-50B DPM-500B DPM-1000B	DPM-5B DPM-50B DPM-100B
100-250 MHz	1.25 to 50 W 12.5 to 500 W 62.5 to 2.5 kW	125 mW to 5 W 1.25 to 50 W 6.25 to 250 W	DPM-50C DPM-500C DPM-2500C	DPM-5C DPM-50C DPM-250C
200-500 MHz	125 mW to 5 W 1.25 to 50 W 12.5 to 500 W	12.5 mW to 500 mW 125 mW to 5 W 1.25 to 50 W	DPM-5D DPM-50D DPM-500D	DPM-.5D DPM-5D DPM-50D
400 - 800 MHz	125 mW to 5 W 1.25 W to 50 W 2.5 W to 100 W 12.5 W to 500 W 25 W to 1 kW	12.5 mW to 500 mW 125 mW to 5 W 250 mW to 10 W 1.25 W to 50 W 2.5 W to 100 W	DPM-5E-400 DPM-50E-400 DPM-100E-400 DPM-500E-400 DPM-1000E-400	DPM-.5E-400 DPM-5E-400 DPM-10E-400 DPM-50E-400 DPM-100E-400
800 - 1000 MHz	125 mW to 5 W 1.25 W to 50 W 2.5 W to 100 W 12.5 W to 500 W 25 W to 1 kW	12.5 mW to 500 mW 125 mW to 5 W 250 mW to 10 W 1.25 W to 50 W 2.5 W to 100 W	DPM-5E-800 DPM-50E-800 DPM-100E-800 DPM-500E-800 DPM-1000E-800	DPM-.5E-800 DPM-5E-800 DPM-10E-800 DPM-50E-800 DPM-100E-800



Directional Power Sensors for Land Mobile Radio

- Part number 4043
- Reads forward and reflected power
- 500W forward and 50W reflected FSD
- Connects to RS-485 serial bus sensor input c
- Available for VHF, UHF and 700/800/900MH



Channelised Power Sensors for Land Mobile Radio

- Part number 4042
- 500W forward and 50W reflected FSD
- Connects to RS-485 serial bus sensor input of CPM
- Can be configured from CPM to show forward and reflected power, and VSWR, on each frequency in the system, down to 6¼kHz spacing
- Also shows aggregate forward and reflected power, and VSWR
- 100-1000MHz



4042 Sensor Channels			
4042			
Name	FWD Power	REFL Power	VSWR
UKGen 1 164.0500	0	0	1
UKGen 2 164.0625	0	0	1
UKGen 3 169.0875	24.89	0.03	1.07
UKGen 4 169.3125	0	0	1
Total	24.89	0.03	1.07

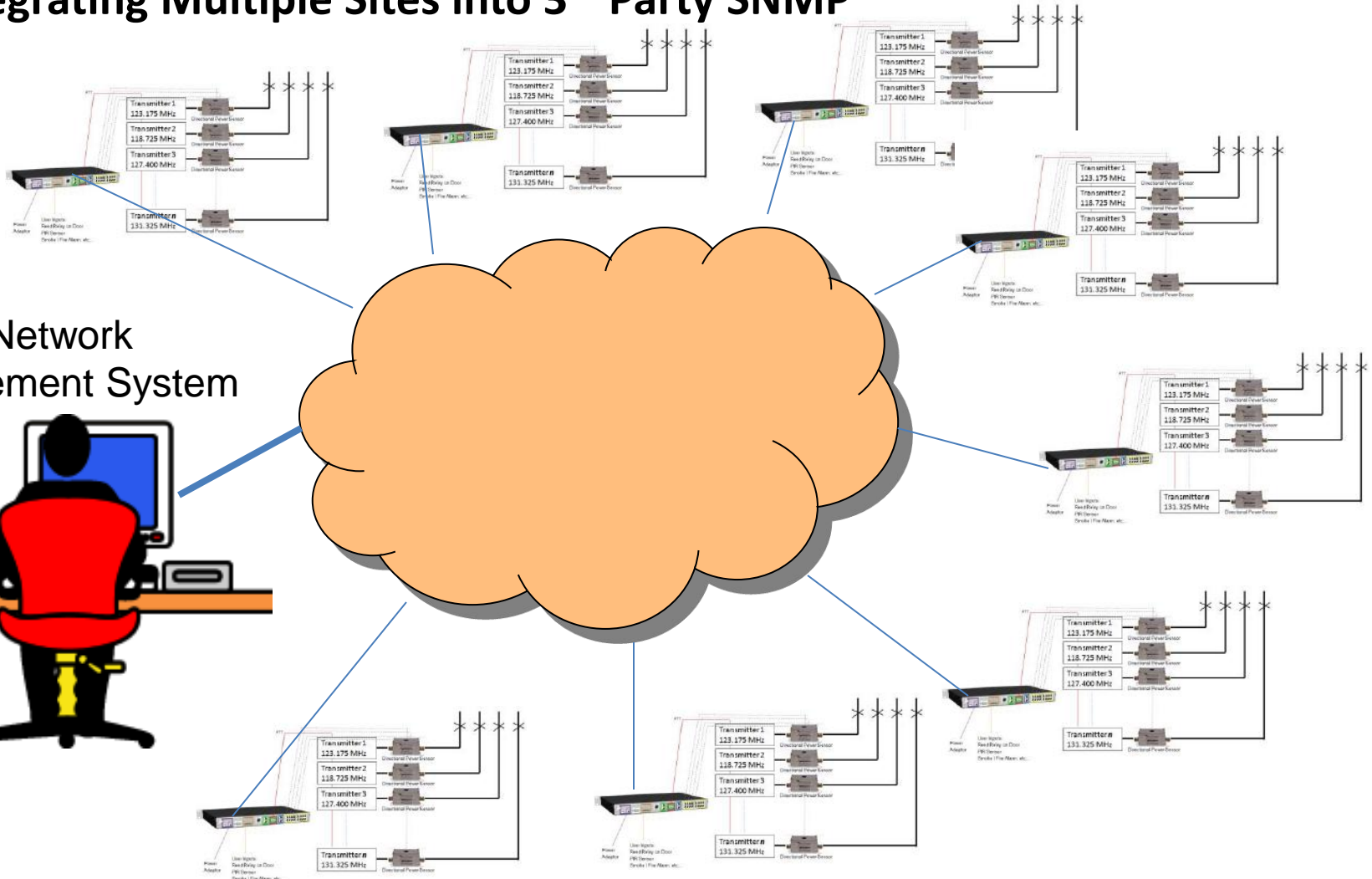
Directional Power Sensors for Broadcast

- Part number TPM
- Reads forward and reflected power
- Select model according to rigid line and power output of transmitter (see below)
- Connects to 0-4V DC analogue sensors input of CPM

CHART A		VHF (54-216 MHz)		UHF (470-806 MHz)
Line Size	Power Designator	Forward Power Range	Power Designator	Forward Power Range
7/8"	Low	15 W - 500 W	Low	15 W - 500 W
	Medium	30 W - 1.0 kW	Medium	30 W - 1.0 kW
	High	80 W - 2.5 kW	High	80 W - 2.5 kW
	Very High	150 W - 5.0 kW		
1 5/8"	Low	30 W - 1.0 kW	Low	30 W - 1.0 kW
	Medium	80 W - 2.5 kW	Medium	80 W - 2.5 kW
	High	150 W - 5.0 kW	High	150 W - 5.0 kW
	Very High	300 W - 10 kW		
3 1/8"	Low	150 W - 5.0 W	Low	150 W - 5.0 W
	Medium	300 W - 10 kW	Medium	300 W - 10 kW
	High	800 W - 25 kW	High	800 W - 25 kW
	Very High	1.5 kW - 50 kW		



Integrating Multiple Sites into 3rd Party SNMP



SNMP Network Management System



Sensor Configuration

User can name each channel, alphanumerically

Bracknell Marina

Analog Sensor Settings

Name	Enable/Disable	Max Power	PTT	Min VSWR Alarms	Max VSWR Alarms	Min Power Alarms
156.800 Calling	<input checked="" type="checkbox"/>	500	Normally Open	1.1	1.8	3
156.375 Coastguard	<input checked="" type="checkbox"/>	500	Normally Open	1.1	1.8	3
157.850 Marina	<input checked="" type="checkbox"/>	500	Normally Open	1.1	1.8	3
Channel 4	<input type="checkbox"/>	100	Disable	1	1	0
Channel 5	<input type="checkbox"/>	100	Disable	1	1	0
Channel 6	<input type="checkbox"/>	100	Disable	1	1	0

User can define which of the analogue (0-4V) and digital (RS-485) sensor channels are monitored and displayed

User can define FSD of the sensors, allowing use of any Bird analogue (0 to 4V) power sensors

PTT inputs allow switched channels to be monitored for power output only when PTT is active. User can define sense of PTT switching

Channels equipped with directional sensors (for example, 4045) to alarm if pre-defined maximum VSWR is exceeded, or if pre-defined minimum VSWR threshold is reached

User can define an alarm condition in the event that forward power falls below pre-defined threshold

System Configuration

Bracknell Marina

Analogue Sensors
Digital Sensors
System Configuration
Save Settings

User Input Settings

Name	Enable/Disable	Default State	Alarm
Radio Cabin Door	<input checked="" type="checkbox"/>	Normally Closed	<input checked="" type="checkbox"/>
Radio Cabin PIR	<input checked="" type="checkbox"/>	Normally Open	<input checked="" type="checkbox"/>
Radio Cabin Smoke	<input checked="" type="checkbox"/>	Normally Open	<input checked="" type="checkbox"/>

SNMP Target IP: Channel Power Monitor 192.168.1.5

Site Name: Bracknell Marina

Logging: Download Log File Delete Log File Not Logging 5 seconds

Alarm Output Relay: Reset Alarm Auto Reset

Configuration File: Import Export

Firmware Rev: 2.55 Webpage Rev: 2.55
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User can name the three auxiliary inputs, alphanumerically

User can specify IP address of SNMP management system

User can name the site

Configuration can be exported to, or imported from host PC

User can define whether the alarm relay is self-resetting or requires manual reset

User can specify the type and frequency of event logging

User can define whether auxiliary inputs are enabled or disabled

User can specify whether auxiliary inputs are "normally open" or "normally closed"

Examples of Web Browser On-Screen Alarms (1)

Bracknell Marina			
Sensors			
Name	FWD Power	REFL Power	VSWR
156.375 Coastguard	0	0	1
157.850 Marina	0	0	1
156.800 Calling	5.22	0.82	2.31
4042 Sensor Channels			
User Inputs			
Radio Cabin Door		Normally Closed	<input checked="" type="checkbox"/>
Radio Cabin PIR		Normally Open	<input checked="" type="checkbox"/>
Radio Cabin Smoke		Normally Open	<input checked="" type="checkbox"/>

High antenna VSWR on channel 3. The preset threshold of 2.0:1 has been exceeded.

Sensors		
Name	FWD Power	RE
156.375 Coastguard	0	0
157.850 Marina	0	0
156.800 Calling	0	0

Failed transmitter on Channel 2. The PTT line has been activated, but there is no RF (the threshold was set to >3W)

Examples of Web Browser On-Screen Alarms (2)

Bracknell Marina			
Sensors			
Name	FWD Power	REFL Power	VSWR
156.375 Coastguard	0	0	1
157.850 Marina	0	0	1
156.800 Calling	4.35	0	1

4042 Sensor Channels			
User Inputs			
Radio Cabin Door		Normally Closed	■
Radio Cabin PIR		Normally Open	■
Radio Cabin Smoke		Normally Open	■

Firmware Rev: 2.55 Webpage Rev: 2.35

The VSWR on channel 1 has fallen below the minimum threshold. This may be an early sign of moisture ingress into the coaxial cable.

The radio cabin door sensor has also been activated. Possible intruder?

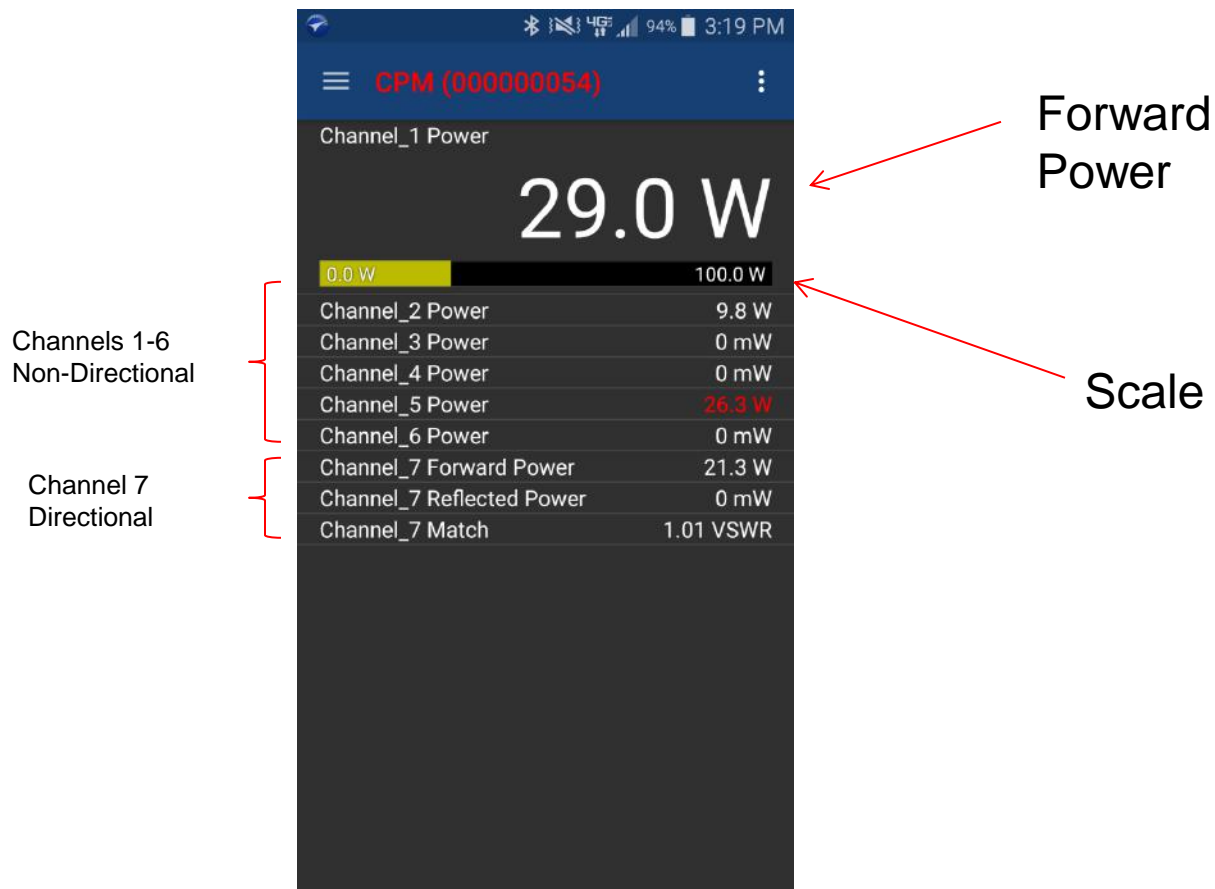
User Inputs			
Radio Cabin Door		Normally Closed	■
Radio Cabin PIR		Normally Open	■
Radio Cabin Smoke		Normally Open	■

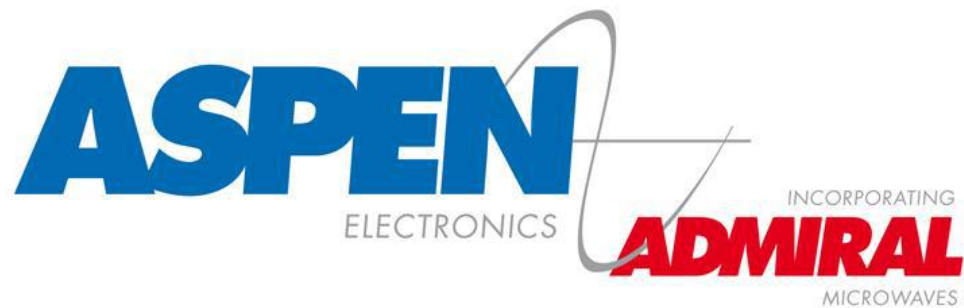
Firmware Rev: 2.55 Webpage Rev: 2.35

The radio cabin door and radio cabin PIR sensors have been activated. Intruder!

Monitoring CPM with an Android Phone

CPM can also be monitored with a (free) app, which may be downloaded from the Google Play Store:





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[Contact us for more information and discuss your requirements for this product.](#)