

# SMAC<sup>SM</sup> by ATX

Status Monitoring  
And Control Solutions  
(HMS Compliant, SNMP Based)



Patent Pending

PCR-SW  
(front view)

## Pilot Carrier Redundancy Switch Frequency Agile Pilot Carrier Redundancy Source

### Application

This 1RU standalone device acts as a highly reliable, primary and backup CW pilot channel source. The sources are internally redundant and have agile frequency control. Loss of pilot channel in an HFC system can result in line amplifier's AGC circuits saturating their gain, which can cause permanent damage or a full spectrum outage. Upon loss of primary pilot tone, this product will failover to a backup tone so that outside plant is not affected while MSOs are alerted to the failure and can replace the original source on their schedule.

### Features

- Reliable generation of both primary and backup pilot channel CW tones at any frequency set by customer
- Constant monitoring of all internal systems with front panel and SNMP alarming
- Local set-up via easy to use front panel LCD menu
- High RF output level
- Redundant, hot-swappable power supply modules
- Compact 1RU chassis
- Single F(f) output port, with multiple front F(f) test points to monitor combined or individual source



SMAC PCR-SW-A1 (front view)



SMAC PCR-SW-A1 (rear view)

### Specifications

#### Frequency Agile PCR Source

	PCR-SW-A1
SOURCE FREQUENCY RANGE	50-1000 MHz
RETURN LOSS	16 dB
PILOT OUTPUT LEVEL (at RF OUT Port)	35-60 dBmV (50-600 MHz) / 30-55 dBmV (600-1000 MHz)
PILOT (OSC) TEST POINT LEVEL <sup>(1)</sup>	-40 +/- 1 dB
OUTPUT TEST POINT LEVEL <sup>(1)</sup>	-40 +/- 1 dB
FRONT PORTS	OSC A TP, OSC B TP, RF OUTPUT TP, all 75 Ω F(f)
REAR PORTS	RF OUT, DB9 (not used), 10/100 RJ45 Port
SWITCHING TIME	<10ms
CONTROL/MONITOR	WEB GUI, SNMP, Front LCD
POWER	Dual Redundant Switching Power Supplies (Diode OR'd and Hot-swappable)
POWER INPUT	AC Version = 100-240 VAC, 47-63 Hz with IEC Compliant
	AC Cords (one per Power Supply)
	DC Version = -40 to -60 VDC Terminal Block Input Only

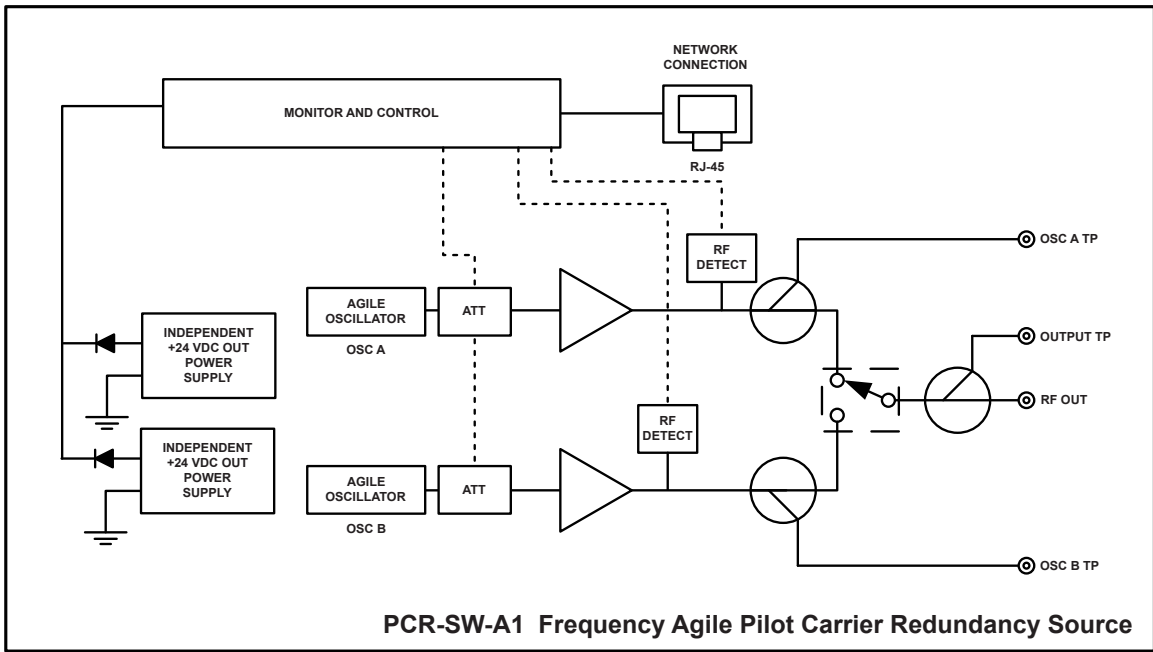
# Frequency Agile Pilot Carrier Redundancy Source

## Specifications (cont'd)

### Frequency Agile PCR Source

	PCR-SW-A1
POWER CONSUMPTION	15W
OPERATING TEMPERATURE	0°C to +50°C (+32°F to +122°F)
HUMIDITY	5-95% (without condensation)
DIMENSIONS	1RU, Rack Mount: 1.75"H x 19.0"W x 17.0"D (4.45H x 48.26W x 43.18D cm)
WEIGHT	9.77 lbs (24.8 kg)

NOTE:  
 (1) Relative to RF OUT port.



PCR-SW-A1 Frequency Agile Pilot Carrier Redundancy Source  
 Functional Schematic

## Pilot Carrier Redundancy Switch

### Features

- Detects the failure of up to two system pilot carriers and reinserts internal replacement oscillator
- Reinserts replacement oscillator at two different RF output levels based on user defined threshold settings
- Monitor and control of all functions through front panel or over the data network (HMS compliant, SNMP v2c) or Web browser
- Crystal controlled, low spurious oscillators
- LCD display shows the current alarms and allows detector thresholds to be set
- Independent removable and replaceable AC power supplies provide full power redundancy
- Compact 1RU chassis
- Simple two-cable connection
- Suitable for headend and hubsite applications
- Front panel test points for oscillator levels and combined full system output level monitoring
- Field-upgradeable and swappable pilot carrier filters and replacement oscillators



### Specifications

#### Pilot Carrier Redundancy Switch

	PCR-SW
<b>BANDWIDTH</b>	50-1000 MHz
<b>INPUT LEVEL (Per Channel)</b>	30-45 dBmV
<b>INSERTION LOSS (Max) (RF IN to RF OUT)</b>	2.7 dB
<b>RETURN LOSS (Input)</b>	16 dB
<b>RETURN LOSS (Output)</b>	16 dB
<b>PILOT OUTPUT LEVEL (at RF OUT Port)</b>	30-45 dBmV <sup>(1)</sup>
<b>PILOT TEST POINT (Relative to RF OUT Port)</b>	-20 +/- 1 dB
<b>RF OUTPUT TEST POINT</b>	-20 +/- 1 dB
<b>INPUTS (Rear Panel)</b>	RF IN
<b>OUTPUTS (Front Panel)</b>	RF OUT, -20 dB Output TP, -20 dB OSC A TP, -20 dB OSC B TP
<b>OUTPUTS (Rear Panel)</b>	RF OUT
<b>DISPLAY (Front Panel)</b>	2-line/16-character - Back-lit LCD Display
<b>SWITCHES (Front Panel)</b>	Up, Down, Right, Left Enter, F1, F2
<b>SWITCHING TIME</b>	<10ms
<b>NETWORK CONNECTION (Web Page Set-up and SNMP 2.1 &amp; HMS Compliant Monitoring)</b>	RJ-45 Connector
<b>OSCILLATORS</b>	Up to Two, Crystal Controlled and Removable/Replaceable
<b>POWER</b>	Dual Redundant Switching Power Supplies (Diode OR'd and Hot-swappable)
<b>POWER INPUT</b>	AC Version = 100-240 VAC, 47-63 Hz with IEC Compliant AC Cords (one per Power Supply) DC Version = -40 to -60 VDC Terminal Block Input Only
<b>POWER CONSUMPTION</b>	15W
<b>OPERATING TEMPERATURE</b>	0°C to +50°C (+32°F to +122°F)
<b>HUMIDITY</b>	5-95% (without condensation)
<b>DIMENSIONS</b>	1RU, Rack Mount: 1.75"H x 19.0"W x 17.0"D (4.45H x 48.26W x 43.18D cm)
<b>WEIGHT</b>	9.77 lbs (24.8 kg)

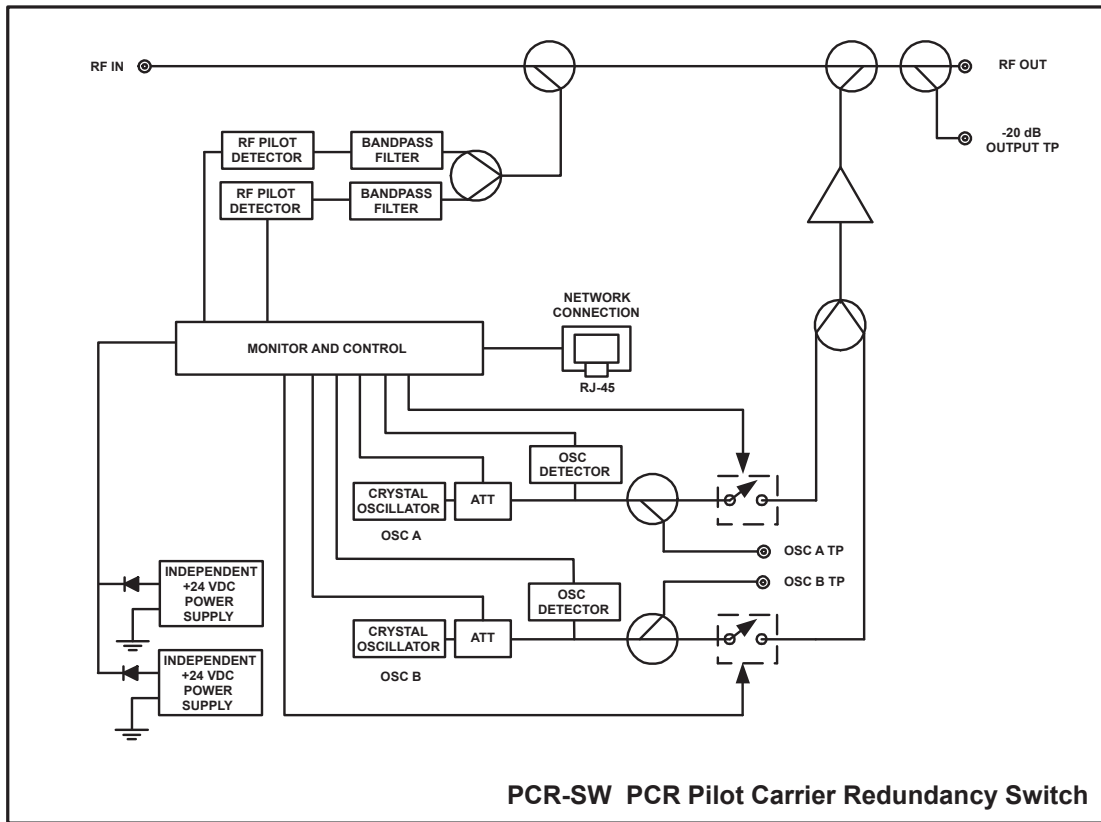
NOTE:

(1) For pilot channels ≤ 500 MHz: input detection level noise floor is 23 dBmV.

For pilot channels > 500 MHz: input detection level noise floor is 25 dBmV.

Ensure reference level is high enough that hard fail threshold does not go below these values.

## Pilot Carrier Redundancy Switch



Functional Schematic

## Ordering Information

Part Number	Description
PCR-SW-A1AC	1RU Pilot Carrier Redundancy Source, Single Channel, Agile Frequency, includes Two AC Power Supplies
PCR-SW-A1DC	1RU Pilot Carrier Redundancy Source, Single Channel, Agile Frequency, includes Two 48 VDC Power Supplies
PCR-SW-xx/yy	1RU Two Pilot Redundancy Switch (xx/yy = pilot frequencies in MHz), AC Power
PCR-SW-xx	1RU One Pilot Redundancy Switch (xx = pilot frequency in MHz), AC Power
PCR-SW-DC-xx/yy	1RU Two Pilot Redundancy Switch (xx/yy = pilot frequencies in MHz), -48 VDC Power
PCR-SW-DC-xx	1RU One Pilot Redundancy Switch (xx = pilot frequency in MHz), -48 VDC Power
PCR-OSC-xx <sup>(1)</sup>	Replacement Oscillator (xx = oscillator frequency in MHz)
PCR-NBP-xx <sup>(1)</sup>	Replacement Narrow Bandpass Filter (xx = filter centre frequency in MHz)
PCR-PS	Replacement Power Supply Module, AC Power
PCR-PSV0 <sup>(2)</sup>	Replacement Power Supply Module for Legacy SMAC Units
PCR-PS-DC	Replacement Power Supply Module, -48 VDC Power

### NOTES:

- (1) For non-frequency agile versions of PCR-SW. Can be ordered separately as backup modules or to change frequency of source and detection. Both OSC and filter required and must be same frequency as each other to function.
- (2) Only required as replacement for original series of PCR-SW, ordered prior to 2010. A different power connector is used on these.

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