



# PCL 6000 Series Aural Studio-Transmitter Links



# Redefining Transmitters & Receivers

**T**HE FREQUENCY-AGILE PCL 6020 and PCL 6030 STLs offer a high performance, reliable and cost-effective alternative to leased lines and conventional analog radios. Built to withstand the harshest

RF environments and available in frequencies from 145 MHz to 1.9 GHz, with an installed base of over 2000 systems, they are the first choice of broadcasters worldwide.

As leaders in STL technology for 30 years, Moseley has engineered the PCL 6000 Series to offer unique and innovative features. Both the PCL 6010 transmitter and the PCL 6020 and 6030 receivers are frequency agile, which allows the user to easily change frequencies. A multi-channel option allows up to 16 pre-programmed frequencies to be selected from the front panel.

The transparent audio and versatility of the PCL 6000 Series meet the requirements of today's broadcasters. Now, digital,

monaural and composite operation is available from the same single system. When used with the Moseley DSP 6000 Encoder and Decoder, the PCL 6000 Series allows digital transmission of multi-channel, CD-quality audio using existing narrow-band channels from 100-500 kHz. Simply by selecting appropriate jumpers, the user can enable digital, composite stereo or 15 kHz monaural basebands. Two PCL 6000 systems can be employed in a dual discrete configuration to transmit right and left stereo programs with no measurable crosstalk.

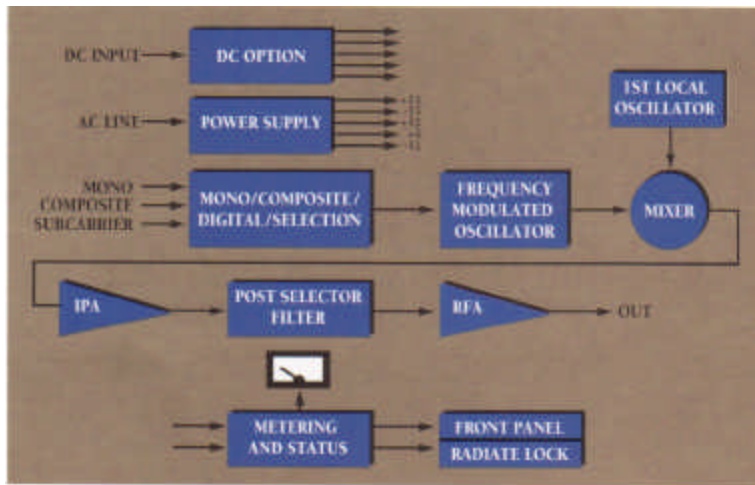
The physical module count on the PCL 6000 Series is kept to a minimum for highest MTBF without compromising ease of operation or maintenance. All oscillators, up-converters, discriminators and audio sections are individually isolated by jumpers for alignment or repair.

Extensive front-panel and remote metering of forward and reflected power, true RF level (in microvolts), program, subcarrier, input/ output, supply, and oscillator levels are standard.

Built-in receiver transfer circuitry provides an automatic changeover to a stand-by receiver in the event of a detected malfunction. ◀

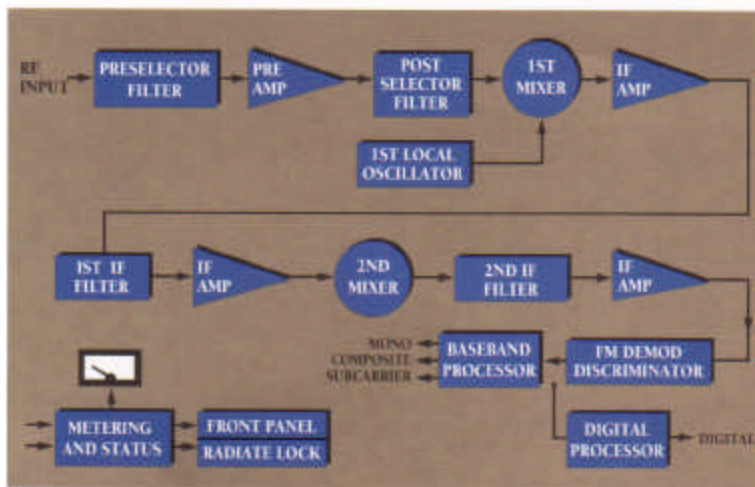
- *User programmable*
- *Frequency agile*
- *Excellent selectivity*
- *Switchable monaural/ composite/digital operation*
- *Comprehensive metering*
- *Built-in receiver transfer circuitry*
- *145 MHz to 1.9 GHz*
- *100-500 kHz channel spacing*
- *Multi-channel option*





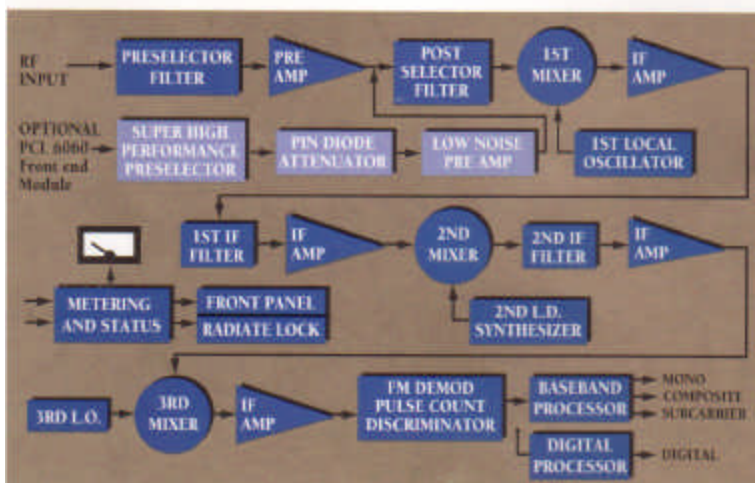
## PCL 6010 Transmitter

The PCL 6010 uses direct modulation techniques. A synthesized reference oscillator is used for FM generation. Conversion of the FM-modulated oscillator frequency to the final output frequency is done via an up converter/mixer technique instead of the usual frequency-multiplication. For long STL paths, an external 40-watt power amplifier is available.



## PCL 6020 Receiver

The dual-conversion PCL 6020 Receiver uses an FM quadrature detector to provide your system with maximum fidelity. Excellent selectivity characteristics ignore adjacent channels in your area. The receiver IF bandwidth can be set for channel spacing of 100 kHz to 500 kHz, depending on RF congestion in your area and channel availability.



## PCL 6030 Receiver

The triple conversion PCL 6030 Receiver uses a digital pulse-counting discriminator for extremely low distortion and low noise characteristics. Superior selectivity characteristics ignore adjacent channels 25 dB stronger than your received signal. An optional PCL 6060 front-end module with high selectivity and adjustable gain preamp is recommended for front-end protection at cellular telephone sites.

# Specifications

## General System

<b>Frequency Range</b>	140-176, 200-240, 300-330, 440-470, 890-960 MHz, 1.5-1.7 GHz
<b>Power Source</b>	120/240 VAC, $\pm 10\%$ , 50/60 Hz
<b>RF Output</b>	
1500-1900 MHz	5 watts maximum, 1 watt minimum
890-960 MHz	10 watts maximum, 5 watts minimum
140-470 MHz	15 watts maximum, 7 watts minimum
<b>RF Output Connector</b>	Type N female, 50 ohm
<b>Frequency Stability</b>	Better than 0.00025%, 0°C to +50°C
<b>Spurious and Harmonic Emission</b>	More than 60 dB below carrier level
<b>Modulation</b>	Analog, digital or combined
<b>RF Input Connector</b>	Type N female, 50 ohm
<b>Sensitivity for 60 dB SNR</b>	10 $\mu$ V (mono or composite de-emphasized) 100 $\mu$ V (stereo demodulated de-emphasized)
<b>Channel Spacing</b>	User specified 100-500 kHz
<b>Adjacent Channel Rejection (500 kHz)</b>	Digital to digital 35 dBc Digital to analog 20 dBc Analog to digital 30 dBc See individual system specs
<b>Frequency Response</b>	
<i>Monaural:</i>	$\pm 0.3$ dB or better, 30 Hz to 15 kHz
<i>Composite:</i>	$\pm 0.2$ dB or better, 30 Hz to 53 kHz $\pm 0.3$ dB or better, 30 kHz to 75 kHz
<b>Deviation for 100% Modulation</b>	
<i>Monaural:</i>	$\pm 40$ kHz; other deviation optional
<i>Composite:</i>	$\pm 50$ kHz; other deviation optional
<i>Digital:</i>	Function of data rate
<b>Modulation Capability</b>	
<i>Analog:</i>	One program and two subcarrier channels
<i>Digital:</i>	Four program and two data channels
<b>Modulation Inputs</b>	<b>User-Switchable Monaural/Composite/Digital</b>
	Two multiplex inputs
<i>Monaural:</i>	+10 dBm, 600 ohms, balanced, floating, barrier strip screw input
<i>Composite:</i>	+3.5 Vp-p, 6 k-ohms unbalanced, type BNC female connector
<b>Modulation Outputs</b>	<b>User-Switchable Monaural/Composite/Digital</b>
	Two multiplex inputs
<i>Monaural:</i>	+10 dBm, 600 ohms, balanced, floating, barrier strip screw input
<i>Composite:</i>	+3.5 Vp-p, 6 k-ohms unbalanced, type BNC female connector

## PCL 6020 System Specification

<b>Signal-to-Noise Ratio</b>	
<i>Monaural:</i>	73 dB or better, typically 75 dB below 100% modulation
<i>Composite:</i>	73 dB or better, typically 75 dB below 100% modulation, demodulation, de-emphasized left or right
<b>Nonlinear Crosstalk Subchannel/Main Channel</b>	52 dB or better
<b>Stereo Separation</b>	52 dB or better, 50 Hz to 15 kHz, typically 55 dB or better
<b>Adjacent Channel Rejection</b>	An adjacent signal 15 dB higher than desired signal will degrade SNR by less than 3 dB
<b>THD and IMD</b>	
<i>Monaural:</i>	0.2% or less, 30 Hz to 15 kHz, typically better than 0.15% at 1 kHz
<i>Composite:</i>	<i>Stereo demodulated:</i> 0.2% or less, 30 Hz to 7.5 kHz, typically better than 0.15% at 1 kHz <i>Convolved stereo demodulation products:</i> .50 dB below the 400 Hz, 100% mod. ref. level from 7.5 kHz to 15 kHz

## PCL 6030 System Specification

<b>Signal-to-Noise Ratio</b>	
<i>Monaural:</i>	76 dB or better, typically 78 dB below 100% modulation
<i>Composite:</i>	76 dB or better, typically 78 dB below 100% modulation, demodulation, de-emphasized left or right
<b>Nonlinear Crosstalk Subchannel/Main Channel</b>	53 dB or better
<b>Stereo Separation</b>	53 dB or better, 50 Hz to 15 kHz, typically 55 dB or better
<b>Adjacent Channel Rejection</b>	An adjacent signal 25 dB higher than desired signal will degrade SNR by less than 3 dB
<b>THD and IMD</b>	
<i>Monaural:</i>	0.2% or less, 30 Hz to 15 kHz, typically better than 0.15% at 1 kHz
<i>Composite:</i>	<i>Stereo demodulated:</i> 0.1% or less, 30 Hz to 7.5 kHz, typically better than 0.10% at 1 kHz <i>Convolved stereo demodulation products:</i> .50 dB below the 400 Hz, 100% mod. ref. level from 7.5 kHz to 15 kHz

## PCL 6060 Cell Site Protection Option

<b>Third Order Intercept</b>	0 dBm
<b>Adjacent Channel Rejection</b>	An adjacent signal 30 dB higher than desired signal will degrade SNR by less than 3 dB

*These specifications are subject to change without notice.*