

PPM9 & TWIN TWIN PPM

- INHERENT STABILITY WITH LAW UNDER MICROPROCESSOR CONTROL
- MANUFACTURED UNDER LICENCE FROM THE BBC: AM20/5
- BS6840-10, BS5428-9, IEC 268-10A TYPE II



The TWIN TWIN PPM is an attractive rack mounting unit comprising two TWIN movements and two PPM9 boards to give simultaneous monitoring of A/B on Red and Green and M/S on White and Yellow pointers. Together these provide complete information about stereo signals, in contrast to the ambiguous readings of phase meters. Audio sockets provided for each channel are XLR 3 pole male and female in parallel and a 2.5 metre connector lead to BS6500 is supplied for the mains input.

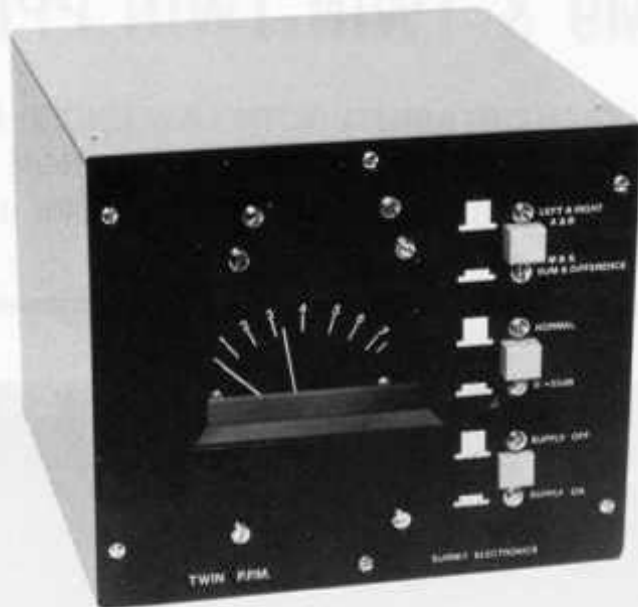
PPM9 is a two channel PPM driver providing several worthwhile improvements over analogue designs. It may be switched remotely between Left and Right (A/B) and Sum and Difference (M/S) operation. S + 20dB may also be selected for precision centring of mono sources.

The board is small enough to fit within the profile of TWIN movements and the few fully independent presets for meter characteristics are situated along the top edge. PPM9 inputs have high performance transformerless electronic line balance with dc isolation, rf filtering and input protection. Movements have glass illumination windows and the S display has an easily distinguished striped pointer, both improvements initiated by ourselves and required for BBC use.



The logarithmic law is defined by software on a single chip microcomputer and is thus totally stable and drift free. The microcomputer executes a program stored in internal EPROM which also contains programs to help with testing and alignment of the unit. A 'watchdog' timer is provided to guard against incorrect operation of the computer. PPM9 will operate from a 24 volt supply of either polarity or floating. Also provided are an additional unbalanced M input and facilities for remote movements.

The Illuminated Stereo Twin Meter Box is a mains powered unit including a PPM9 drive board. A Sum and Difference selector switch is provided along with Normal/S + 20dB and Supply switches. The non-reflective black front panel gives good visibility while making the unit unobtrusive, particularly in the reduced lighting conditions of television control rooms. The units meet IEC65-2, BS415 safety and are supplied with a 2.5 metre IEC connector lead to BS6500. Audio inputs are XLR 3 pole female.



PPM9 SPECIFICATION –

Fully complies with BS6840-10 (IEC268-10A and BS5428-9 revisions)

Input impedance	40kOhms balanced, floating Protected against static voltages on signal lines
Input sensitivity for Mark 4	A+B 0dBV.7 M+S -3dBV.7 coherent on both inputs reads Mk 4 on M and Zero on S. +3dBV.7 on one channel reads Mk4 on M and Mk 4 on S. (S sensitivity can be increased by 20dB)
Line balance. 20Hz - 20kHz	Better than -60dB from 600 Ohms source
Common mode rejection. 20Hz - 20kHz	Better than -45dB
Separate M input, for Mark 4	-6dBV.7 Input impedance 18kOhms unbalanced
Scale law	4dB increments between Mark 1 and Mark 7 (-12/+12dB)
Low level performance	Isolated 10ms burst of 5kHz at 30dB below Mark 6 reading gives 3% deflection
Calibration accuracy and temperature stability	Dependent on display movement. Software adjustment for meter non linearity provided.
Frequency response at any Mark	20Hz - 20kHz±0.3dB 10Hz -2dB; 40kHz -1dB
Rise time: response to isolated bursts of sine wave whose steady state amplitude deflects to Mark 6	100ms of 5kHz 0 ±0.5dB 10ms of 5kHz -2.5 ±0.5dB 5ms of 5kHz -4.0 ±0.75dB 1.5ms of 5kHz -9.0 ±1.0dB 500µs of 10kHz -17.0 ±2.0dB
Fall back time	Mark 7 to Mark 1 2.8s ±0.15s
Dynamic linearity and overload characteristics	When above 10ms or 1.5ms bursts of 5kHz altered in level between -20dB and +10dB indications change in direct proportion. 100V AC input sustained indefinitely
Reversibility error	Bipolar rectification within 0.2dB at all Marks, any frequency 10Hz - 40kHz
Distortion introduced into 600 Ohms signal line	Supply on or off, 20Hz - 20kHz at +20dBV.7: Less than -70dB, 0.03%
Supply	24V +10/-20% at 150mA, either polarity or floating, fused: 20mm 250mA, reverse polarity protected
Printed circuit dimensions	96 x 111 x 30mm
Connections	25 way D connector, female, supplied