

SPECIFICATIONS, Model 442 digital control lock in

Input Stage

Input Signal Modes: Single Ended or Fully Differential, AC or DC coupled.

Input Gain: x1, x3.3, x10, x33, x100, x330, x1000

Analogue Connections: SMB connectors

Input Impedance: 10^{12} Ohms || 1nF, dc coupled

Maximum Inputs: ± 12 V DC before saturation occurs.

Gain Accuracy: 1%

Gain Stability: 200ppm/ $^{\circ}$ C

Frequency: 10Hz to 100kHz

Output Stage

Outputs: X, Y and R

Output Gain: x1, x10, x100, x1000 (Equivalent to Dynamic Reserves of 0dB, 20dB, 40dB and 80dB respectively)

Time Constant Settings: 100 μ s, 330 μ s, 1ms, 3.3ms, 10ms, 33ms, 100ms, 330ms, 1s, 3.3s, 10s, 33s

Output Offset Trim: ± 1 V in 256 steps

Reference Stage

Frequency: 10Hz to 100kHz

Signal Types: Standard TTL or CMOS with mark to space ratio from 1:10 to 10:1. Rising edges only used by the instrument. Sine, triangular, square waves, etc. with amplitudes from 200mV to 10V rms.

Fine Phase Adjust: 0° to 150° in 256 steps

Coarse Phase Adjust: 0° , 90° , 180° & 270° @ reference frequency

0° , 90° , 180° & 270° @ 2 x reference frequency

Bypass: Both the coarse and fine phase circuitry can be bypassed using jumpers.

General

Size: 100x160mm - Standard Eurocard

Digital Connector: 64 pin type C DIN41612

34 pin IDC connector

Power: 75mA @ +15V, 0V, 60mA @ -15V

The device will also operate from ± 12 V but with reduced headroom

Computer Interface: 8 bit interface with Chip Select and Write signals.

All settings are undefined at power up.

The interface can be directly connected to the Parallel Port of a PC. DOS based software to control the lock-in amplifier board from the PC is included together with source code.

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