ADTECH
95 Mt. Read Blvd # 149
Rochester, New York 14611 USA
Phone: 1.585.698.1845
Fax: 1.585.697.0445

www.adtech-inst.com

Lead-Lag Module Model No. LLM 64

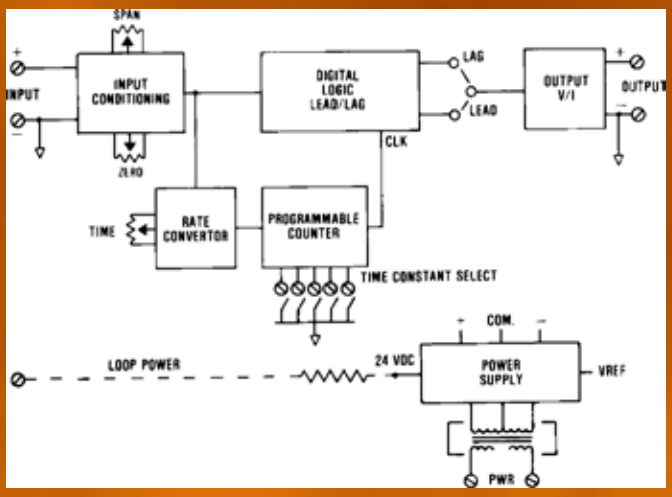
The Adtech Model LLM 64 lead-lag module offers an accurate and economical means of producing a phase lead or phase lag between an input current or voltage signal and output process signal, such as 4-20 mA DC, or 1-5 VDC. It utilizes precise digital techniques to do this function.

In the lead mode, a step input produces a fast rise (or fall) wave form with a gain of 10, then the output decays like an RC response toward the steady state output level. In the lag mode, a step input produces an output typical of a single pole low pass filter.

The LLM 64 provides standard process current or voltage signals on the output with a maximum of 10 mV P/P output ripple.

Recalibration to other desired ranges is accomplished easily. The use of temperature-stable, low-noise components provides excellent stability and noise immunity.

The LLM 64 employs the latest digital and analog design and components utilizing proven techniques for superior reliability, accuracy, and serviceability.



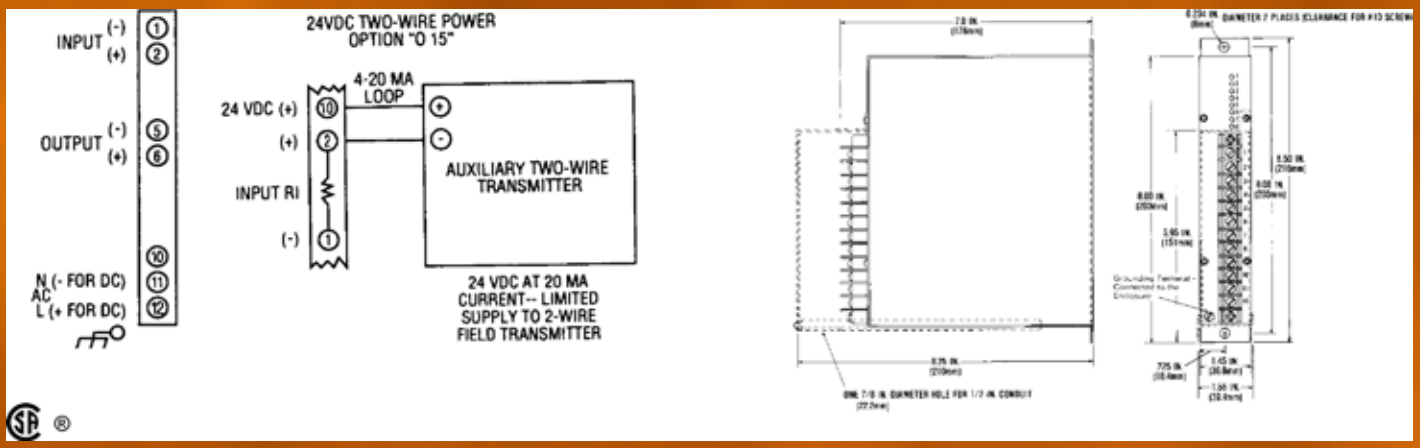
TYPICAL APPLICATIONS

- Process feedforward and feedback control
- Response restriction of actuator motors
- Recorder pen noise reduction
- Rate-of-change computer

FEATURES

- Lead-Lag Ranges: 1 second to 50 hours
- Lead-Lag Mode: Strap selectable
- Low-Pass Filter or Signal Averager: 2.5 micro Hz to 5 Hz adjustable
- DC Current Inputs: 4-20 mA, etc.
- DC Voltage Inputs: 1-5 VDC, etc.
- High Input Impedance: 10 megohms minimum
- Zero-based inputs: Current and voltage
- DC Process Signal Outputs: Current and voltage
- Repeatability:+0.02% of span typical
- High Accuracy:+0.1% of span

CONNECTIONS / DIMENSIONS



INPUT/OUTPUT

Input Signals
4-20 mA DC (Z in 250 ohms)
10-50 mA DC (Z in 100 ohms)
0-1 mA DC (Z in 5K ohms)
0-10 mA DC (Z in 500 ohms)
1-5 VDC (Z in 10 megohms)
0-5 VDC (Z in 1 megohm)
0-10 VDC (Z in 1 megohm)
Other zero-based current and voltages are available.
Contact closure-standard unit only

Output Signals/ Output Drive (RL)

Signal	AC Power(RL)	DC Power(RL)
4-20 mA DC	0-1,000 ohms max.	0-900 ohms max.
10-50 mA DC	0-400 ohms max.	0-350 ohms max.
0-1 mA DC	0-20,000 ohms max.	0-18,000 ohms max.
1-5 VDC	100K ohms min.	100K ohms min.
0-10 VDC	200K ohms min.	200K ohms min.

Ramp ranges: Specify time constant

PERFORMANCE

Calibrated Accuracy: ±0.1%
Linearity: ±0.1% maximum, ±0.04% typical
Repeatability: ±0.05% maximum
Temperature Stability: ±0.01%/ °F maximum, ±0.004% / °F typical
Load Effect: ±0.01% zero to full load
Output Ripple: 10 mV P/P maximum
Response Time: Depends on ramp rate & function
Temperature Range: 0° to 140°F (-18° to 60°C) operating; -40° to 185°F (-40° to 85°C) storage
Power Supply Effect: ±0.05% for a ±10% power variation

Note: All accuracies are given as a percentage of span.

POWER

115 VAC: 50/60 Hz, 0.7 PF	(Standard)	48 VDC: Isolated	(Option P3)
12 VDC: Isolated	(Option P8)	125 VDC: Isolated (105-140 VDC)	(Option P4)
24 VDC: Non-Isolated	(Option P1)	230 VAC: 50/60 Hz, 0.7 PF	(Option P5)
24 VDC: ISOLATED	(Option P2)		

Note: All units 3 watts maximum, and a ±10% power variation

MECHANICAL

Electrical Classification: General Purpose
Connection: Barrier terminal strip (3/8" spacing, No. 6 screws)
Controls: Multiturn zero, span, and time- constant controls
Mounting: Surface mounting standard. See Housings section for options.
Weight: Net Unit: 2.6 pounds (1.18 kilograms); Shipping: 3.0 pounds (1.36 kilograms)

OPTIONS

Option Number	Description
I 18	Low impedance DC current inputs (1/10 of standard (Z) (Lit 56 only)
O 10	Bipolar current (larger than ± 1 mA)
O 11	Bipolar voltage to ±10 VDC: at 1 mA, bipolar current ±1 mA
O 15	Two-wire transmitter excitation
H 10	Thin-line conduit mounting plate and terminal cover
H 13B, H 14B, H 15B	NEMA 4, 7, and 12 enclosures
H 16	PFA 12 high-density, plug-in enclosure

Ordering Information

- Model number
- Input signal
- Time constant
- Output signal
- Prime power with option no.
- Input/output options
- Housing and miscellaneous options

Please refer to the Housing and/or Option Section for more specific and detailed information.