TEXMATE INC

Fits Lynx Leopard & Tiger 320 Series

AC AMPS TRUE RMS 1 OR 5 AMP MODULE

Input
Connected to Isolated Current Transformer.

State-of-the-Art Electromagnetic Noise Suppression.
Circuitry ensures signal integrity even in harsh EMC environments.

High Precision 1 or 5 Amp Shunt Resistor.
Improved linearity.

Active Bandpass Filter.
0.2 Hz to 10 kHz bandwidth.

Span Potentiometer.
Provides precise full scale adjustment.

Texmate Patented $\Delta\Sigma$ RMS-to-DC Converter.
High accuracy, extremely linear.

Span Adjust Header.
Provides fine full scale range adjustment.

Span Range Header.
Provides Coarse range adjustment.

Interface to Lynx, Leopard and Tiger Families
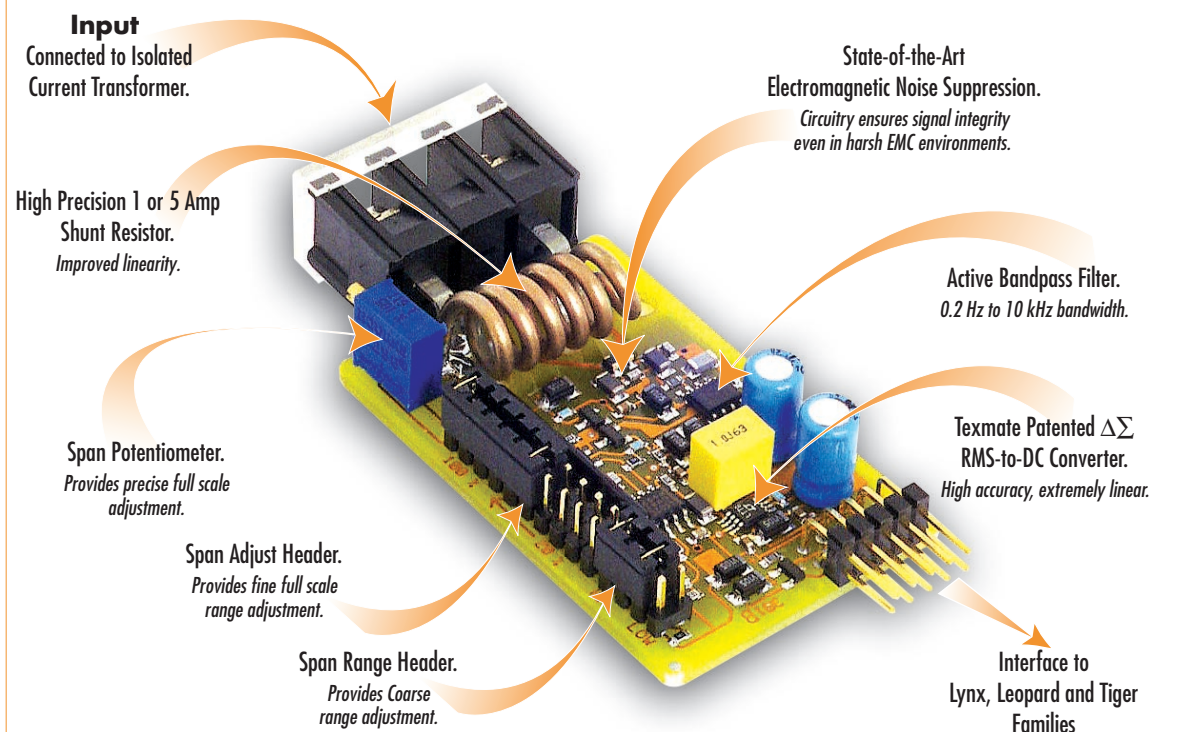

At last, the answer to precise and repeatable RMS current measurements for the AC power industry.

This revolutionary module utilizes the Texmate designed $\Delta\Sigma$ RMS-to-DC convertor circuit block. This circuit block provides true RMS measurements over a wide range of isolated input currents while maintaining excellent linearity up to a 10 kHz waveform frequency.

Input Module Order Code Suffix

IA09 (1 Amp)

IA11 (5 Amp)

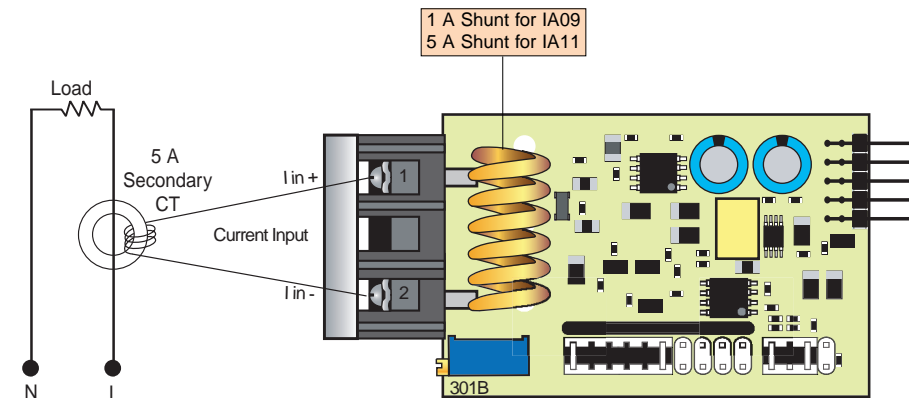| Hardware Module Specifications	
Current Range (Isolated)	IA09: 0-1 A AC, IA11: 0-5 A AC. 0.02 % linearity on both.
Frequency Range	0.2 Hz to 10 KHz (3 dB).
Resolution	1 mA over full scale input.
Accuracy	
Lynx	0.03 % of full scale input ± 2 digit.
Leopard	0.05 % of full scale input ± 2 digit.
Tiger	0.02 % of full scale input ± 1 digit.
Output Signal	Adjustable to 2 V full scale using on-board trimmer and header selections.
Forced Zero	Forces output to 0000 if below 1 % of full scale.
Meter Interface	Can be utilized in the Lynx, Leopard, and Tiger range of indicators, meter relays, and controllers.
Span Drift	± 500 ppm /°C of full scale maximum.

Some Relevant Operating System Features
Direct display of true RMS current.
Setpoint control (Tiger & Leopard).
Full scale calibration accurate for any sized signal.

INPUTS

⭐ High Accuracy

Amps AC Trms

Connector Pinouts

1 A Shunt for IA09
5 A Shunt for IA11

Load

5 A Secondary CT

I in +

Current Input

I in -

N   L

301B

Note:
The IA09 and IA11 input module has been designed for use with an isolating current transformer (CT).

IA11 wired to monitor RMS amps usage on a resistive load connected to a single phase mains supply

Figure 1 – IA09/IA11 Input Module Component Layout

Introduction

The AC amps true RMS input module is a universal module designed to function with the Lynx, Leopard, and Tiger range of indicators, meter relays, and programmable meter controllers (PMCs).

IA09 has a 1 amp high-precision shunt resistor installed for an isolated current range of 0 to 1 amp, while IA11 has a 5 amp high-precision shunt resistor installed for an isolated current range of 0 to 5 amps. A span potentiometer, span adjust header, and a span range header are used to adjust the input signal full scale. A zero input current produces a 0 V output signal, meaning no zero adjustment is necessary.

Tiger Controllers and Leopard Meter Relays

The Tiger and Leopard range use internal software functions to calibrate the span. However, it may be necessary to adjust the span potentiometer to bring the maximum input signal within the full scale range of the instrument.

When the input signal is beyond the full scale range of a Tiger controller, the display flashes [OVER]. When the input signal is beyond the full scale range of a Leopard meter, the top segment of each digit of the display flashes.
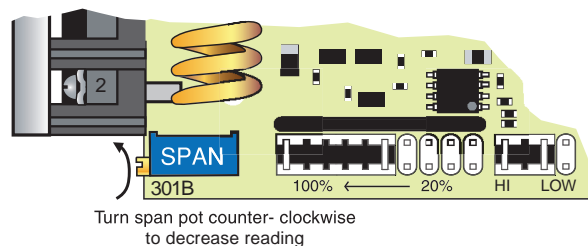

SPAN

301B   100% ← 20%   HI   LOW

Turn span pot counter- clockwise to decrease reading

Figure 2 – Span Potentiometer Adjustment

With the span range header set to HI and the span adjust header set to 100%, turn the 15 turn span potentiometer counter-clockwise to decrease the signal until a reading appears on the display (See Figure 2). Now calibrate the instrument using the software calibration method for your instrument.

Lynx Indicators

Calibration settings on all Lynx indicators are carried out using the built-in headers and span potentiometer. The 15 turn span potentiometer has an approximate span adjustment of 20% of the full scale signal. Together, the span range header and the span adjust header expand the range of the span potentiometer into 10 equal adjustable portions, each portion being 10% of the full scale range.

When the input signal is beyond the full scale range of a Lynx indicator, a 1 is displayed in the most significant digit with all other digits blank.

Span Potentiometer (Pot)

The 15 turn span potentiometer is located on the right-hand side of the input module (when viewed from the rear of the meter). Typical adjustment is 20% of the input signal range (See Figure 3).
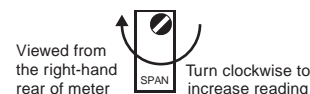
Viewed from the right-hand rear of meter | SPAN | Turn clockwise to increase reading

Figure 3 – Span Pot

Span Adjust Header

This unique five-position header expands the adjustment range of the span potentiometer into five equal 20% sectors, across 100% of the input signal span. Any input signal span can then be precisely scaled down to provide any required display span from full scale to the smallest viewable unit (See Figures 4 and 5).

Header Positions
5 4   3   2 1
100% ← 20%
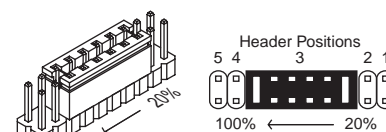
Figure 4 – Span Adjust Header

1 2   3   4 5
100% ← 20%

Span Adjust Header position	1	2	3	4	5
Span Pot %	20%	20%	20%	20%	20%
Signal Span %	20%	40%	60%	80%	100%

Equivalent Circuit

Span Pot

Input Signal Low — Input Signal High

Acts like a 75 turn, 1 megohm potentiometer
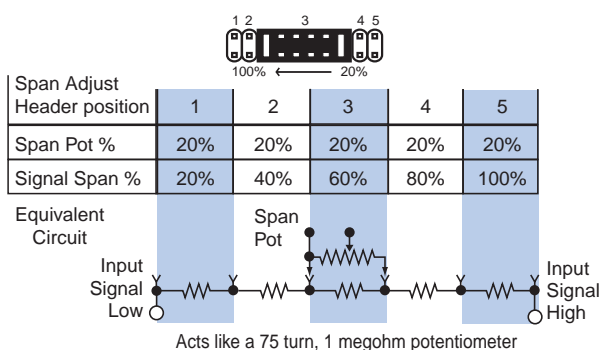
Figure 5 – Span Adjust Header Operation

Span Range Header

The span range header works together with the span adjust header by splitting its adjustment range into a **high** and a **low** range. This has the effect of dividing the adjustment range of the span potentiometer into ten equal 10% sectors across 100% of the input signal span (See Figures 6 and 7).
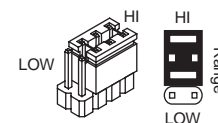
HI   HI
LOW   Range
  LOW

Figure 6 – Span Range Header

Span Adjust Header
1 2   3   4 5
100% ← 20%

Span Range Header

Span Adjust Header
1 2   3   4 5
100% ← 20%

LOW RANGE — HI RANGE

Span Adjust Header position	1	2	3	4	5	1	2	3	4	5
Span Pot %	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Signal Span %	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Equivalent Circuit

Span Pot

Input Signal Low — Low Range — High Range — Input Signal High

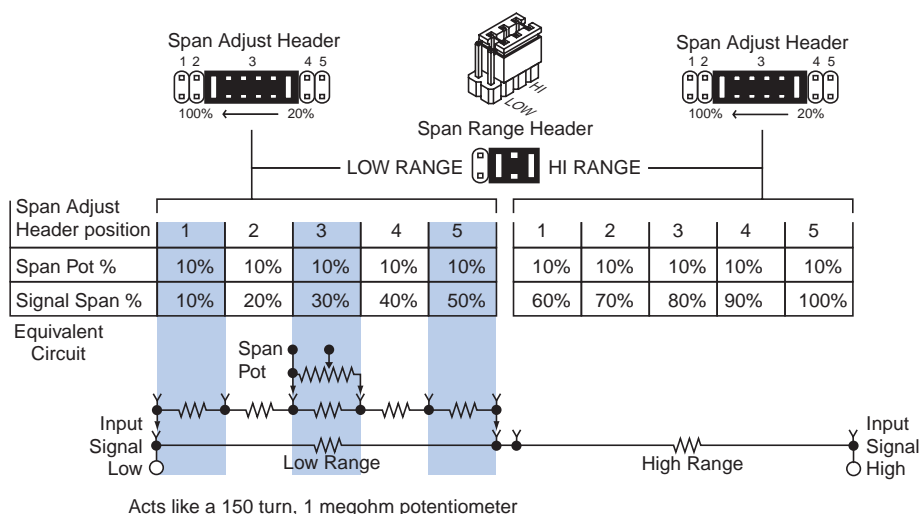Acts like a 150 turn, 1 megohm potentiometer

Figure 7 – Span Range Header Operation

Lynx Indicator Calibration Setup

To successfully calibrate a Lynx indicator over the input signal span with an IA09 or IA11 input module installed, the headers must be correctly set and the span pot adjusted to the final display setting.

Example

With an IA11 input module installed in a DX-35 Lynx indicator, we want to show a digital representation of a 5 A input signal on the display. As the DX-35 has a maximum of 1999 counts, 5 A could easily be shown to two decimal places by setting the span setting to 500 counts.

To configure the input module to show 500 counts for an isolated input signal of 5 A, proceed as follows:

1) The first adjustment to make is the coarse range setting. Set the span range header to the LOW position (See Figure 8).

   This effectively halves the maximum counts of the DX-35 from 1999 to 1000 (+ or – 20% of 1999. This could be as much as 400 counts).

2) The next adjustment is the fine range setting. Set the span adjust header to the 40% position (See Figure 9).

   This position should leave you with a display setting lower than 500 counts. By how much, depends on the position of the span pot.

3) The final adjustment can now be made using the span pot (See Figure 10).

   As the display reading is below the required setting of 500 counts, turn the span pot clockwise to increase the counts until the display shows a reading of 500 counts.
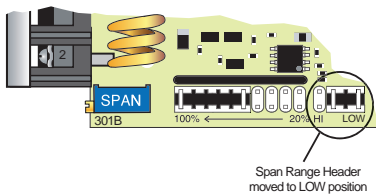
Figure 8 – Span Range Header Adjustment
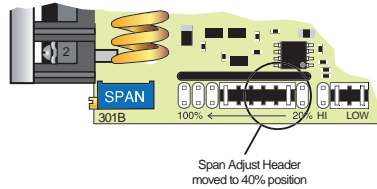
Figure 9 – Span Adjust Header Adjustment
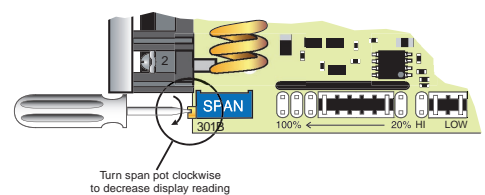
Figure 10 – Span Pot Adjustment

For product details visit www.texmate.com

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Texmate has facilities in Japan, New Zealand, Taiwan, and Thailand. We also have authorized distributors throughout the USA and in 28 other countries.