

# Line Post Sensor Transducers/Fault Alarms

mTech offers a series of transducers that interface with most line post sensors on the market. These devices can also serve as simple three-phase current or voltage transducers with the added feature of providing alarms on faults. In addition to monitoring excessive voltages or currents or an excessive drop in the voltage on the network, they can be used to detect any unbalance between the three phases, as well as ground faults. With multiple transducers along a line, fault locations can be pinpointed accurately and quickly.

**Input Type:** Line post sensor outputs are typically in the form of low level AC voltage; however, some might be as high as 120 volts or in the form of a 5 amp current. In other instances, the transducer may have to measure voltages or currents in a three-phase system, either directly or through current or potential transformers. mTech isolates inputs to its transducers from each other, from the power supply, and from the outputs. The user must specify the form of the output from the sensor that will be the transducer's input.

**Configuration:** One analog output and one alarm contact are available for each of the three phases. For the neutral line (separate section follows), there can be only one output, either analog or relay contact. The user can specify any of the given combinations of outputs for the desired application. Unused terminals are left unconnected within the transducer.

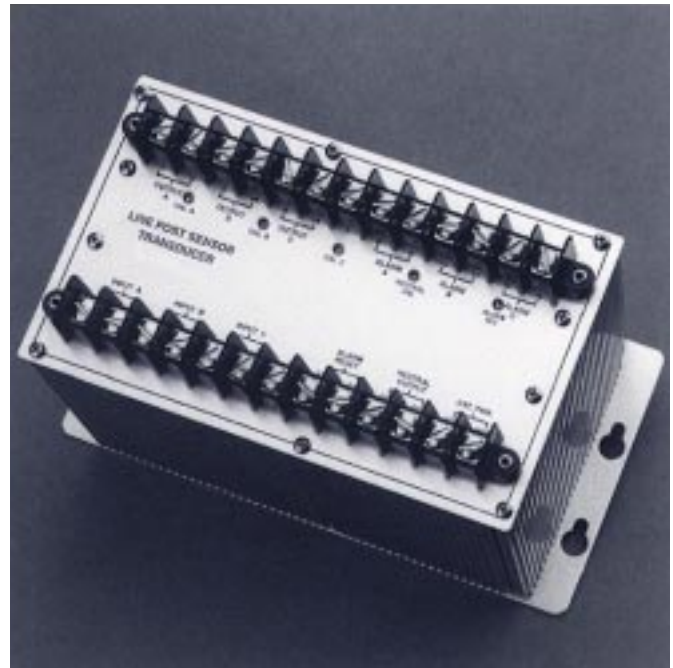
**Analog Output:** Various outputs are available as standard. Users can match the inputs to their RTUs, PLCs, meters, and other instrumentation. Outputs are isolated from the inputs and the power supply, but not from each other; the negative output terminals are tied together internally.

**Neutral:** Calculated as the vector sum of the inputs to the three phases, representing the current through the neutral line or the unbalance between currents or voltages of the three phases. This feature is very useful for fault detection. A neutral specified as 33% of phase indicates that any unbalance between the inputs from the three phases amounting to 33% of the full scale input to one phase will result in a full scale output for the neutral line. Different sensitivities can be selected, dependent upon the permissible unbalance in the system.

**Alarm % of Full scale:** A number of standard set points are available for the Alarm, as well as any other user-specified value. The set point is given as a percentage of full scale.

**Alarm Function:** An alarm can be triggered if the input either exceeds or goes below the set point. As a result, the transducer can monitor either overvoltage or undervoltage. If used for monitoring current through the line, the transducer should have its alarm set for overcurrent. The neutral alarm should be set to detect either any unbalance or excess of the neutral current limits.

**Alarm Contact:** Users can specify either Normally Open (NO) or Normally Closed (NC) contacts for the alarm outputs. These outputs are isolated from each other, the inputs, the power supply, and the analog outputs.



**Auxiliary Power:** External power is required to energize mTech's line post sensor transducers. Five standard AC and DC options are available. If you have different requirements, please consult the factory.

## Specifications

**Accuracy (@ 25°C ±2°C):** 0.25% of full scale

**Temperature Range:** -20°C to +70°C

**Operating Humidity:** 0-95% non-condensing

**Long-Term Drift:** <0.1%/year, non-cumulative

**Power Factor:** Any

**Input Impedance:** Input 0-20 V, 1 M Ohms typical; all others, 0.1 VA input burden max.

**Output Ripple:** 0.5% of full scale max.

**Dielectric Test:** 2,000 Vrms for 1 minute

**Surge Withstand:** ANSI C37.90a (IEEE 472)

**Response Time:** 200 msec to 90%; 400 msec to 99%; alarm - 10 msec minimum (actual trip time depends on magnitude of fault and operating level prior to fault)

**Calibration Adjustment:** Span, ±10% standard; zero, ±2% standard; alarm, ±25% standard

**Operating Frequency:** 60 Hz ±10% with accuracy unless specified otherwise by suffix to part number

**Power Requirements:** 8 VA maximum

## Available Models – Line Post Sensor Transducers/Fault Alarms

To Order, Specify:

### A. MODEL

Line Post Sensor Transducer (Supplied in Extruded Aluminum Metal, Surface Mount) LP

### B. INPUT TYPE

AC Current A  
AC Voltage V

### C. CONFIGURATION

4 Analog Outputs & 3 Alarms 3  
3 Analog Outputs & 4 Alarms 4  
3 Analog Outputs & 3 Alarms 5  
4 Analog Outputs Only 6  
3 Analog Outputs Only 7  
4 Alarms Only 8  
3 Alarms Only 9

### D. INPUT TO TRANSDUCER

5 A 0  
10.00 V 1  
2.00 V 2  
3.00 V 3  
4.00 V 4  
5.00 V 5  
120 V 6  
Special X

### E. NEUTRAL % OF PHASE

33% 0  
10% 1  
20% 2  
25% 3  
50% 4  
75% 5  
100% 6  
Special X  
If not applicable Z

### F. ANALOG OUTPUT

0 - 1 mA 0 - 15,000 Ohms 0  
0 - 3 mA 0 - 5,000 Ohms 1  
0 - 5 mA 0 - 3,000 Ohms 2  
0 - 10 mA 0 - 1,500 Ohms 3  
4 - 20 mA 0 - 750 Ohms. 4  
0 - 100 mV 20 Ohms min. 5  
0 - 1 V 200 Ohms min. 6  
0 - 5 V 1,000 Ohms min. 7  
0 - 10 V 2,000 Ohms min. 8  
1 - 5 V 1,000 Ohms min. 9  
Special X

### G. ALARM % OF FULL SCALE

133% 0  
150% 1  
100% 2  
75% 3  
50% 4  
33% 5  
25% 6  
Special X

### H. AUXILIARY POWER

120 VAC 0  
240 VAC 1  
24 Vdc 2  
48 Vdc 3  
125 Vdc 4  
Special X

### I. ALARM CONTACT

Normally Open NO  
Normally Closed NC  
If not applicable Z

### J. ALARM FUNCTION

Overvoltage/Overcurrent O  
Undervoltage U  
If not applicable Z

### K. SAFETY FEATURE

On Power Supply Failure, Relays Switch to ALARM A  
On Power Supply Failure, Relays Switch to NORMAL N  
If not applicable Z

### L. SUFFIX

25% - 125% Adjustment (analog output only) A  
50 Hz C  
Case Ground Terminal G  
Special X

**EXAMPLE:** LP-A-4-0-2-3-5-0-NO-O-A-G is the ordering code for a Line Post Sensor Transducer in a metal surface mount case, an AC current input, a 3 analog outputs/4 alarms configuration, a 5 A input to transducer, 20% neutral % of phase, 0-10 mA 0-1,500 Ohms analog output, 33% alarm % of full scale, 120 VAC auxiliary power, a Normally Open alarm contact, overvoltage/overcurrent alarm function, power supply failure relays that switch to ALARM, and a case ground terminal.

See page 38 for connections.