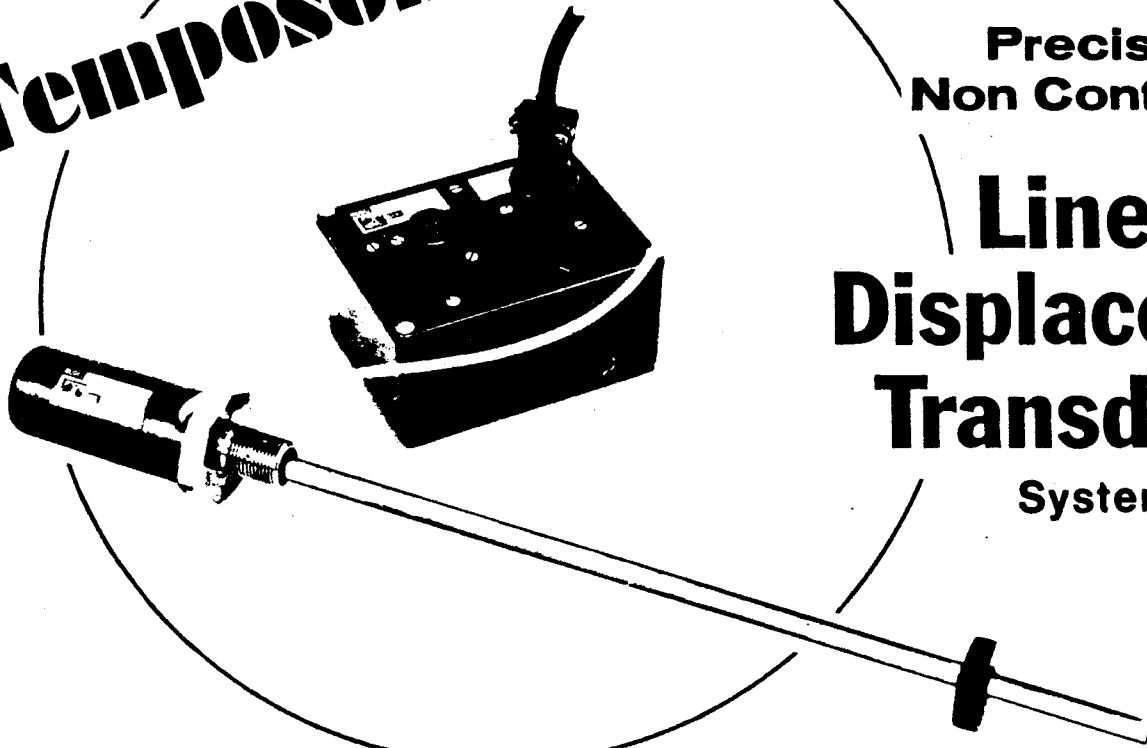


**Temposonics™**



## Series DCTM

**Precision  
Non Contacting**

# Linear Displacement Transducer System

### DESIGN AND PERFORMANCE FEATURES

- Excellent linearity over long and short stroke (.05%).
- Infinite Resolution.
- Output is absolute - not incremental (no loss of position).
- Non-contacting design, no wear, no friction.
- Completely solid state - all electronics included.
- Extremely stable - no adjustments necessary.
- Sealed stainless steel sensor withstands 3,000 PSI pressure.
- Options for remote preset switching and remote reading.
- Compact package - easily installed.
- Includes provisions for external fine zero-position trim adjustment.
- May be adapted to use external D. C. reference for output voltage.
- Quartz Crystal time reference.
- Constructed for operation in corrosive environment and high pressures.
- May be installed to couple with magnet through wall of non-magnetic material.
- Clearance between magnet and sensor can exceed 1 inch (special).
- Velocity output available (optional).

COMPLETELY SOLID STATE, UTILIZES  
MAGNETOSTRICTIVE PRINCIPLE.

ANALOG OUTPUT  
FROM 0 TO 10 VOLTS DC.  
OTHER OUTPUTS AVAILABLE

PULSE TRAIN OUTPUT FOR DIRECT  
DIGITAL PROCESSING

MODEL NUMBER	DISPLACEMENT RANGE
DCTM-12	0 to 12" \$454 <sup>00</sup> 3/8
DCTM-24	0 to 24"
DCTM-36	0 to 36"
DCTM-48	0 to 48"
DCTM-60	0 to 60" \$756 <sup>00</sup> 10/8
DCTM-120	0 to 120"

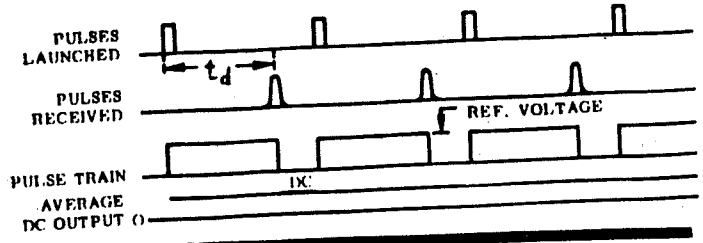
DCTM over 120" - Special Order

Standard units in one foot increments  
to ten feet.

## OPERATION

Strain pulses are launched in a ferromagnetic (magnetostrictive wire) by the interaction of pulse current through the wire and magnetic field from magnet. These pulses arrive at a fixed reference a time interval later. This time interval is precisely related to the controlled properties of the wire within a protective tube.

These precise time based pulses are either converted to a D.C. analog output voltage or can be used to gate a precision quartz clock to obtain a count or digital output.



## APPLICATION NOTES

1. The ultrasonic waveguide is enclosed in a non-magnetic tubing (transducer beam) so that the magnetic positioning head can couple its magnetic field to the waveguide. Magnetic fields normally generated by 60 Hz or 400 Hz equipment will not have an effect on the operation because these frequencies will be rejected by the narrow band-width detector utilized.
2. The magnetic positioning head has holes for mounting or may be clamped in position.
3. Normally, the transducer beam is fixed and the positioning head is movable. However, this can be reversed if desired — relative displacement between the two parts provides the output signal.
4. Adjustable multi-point sensing and switching (solid state or relay) can be supplied as accessory equipment.

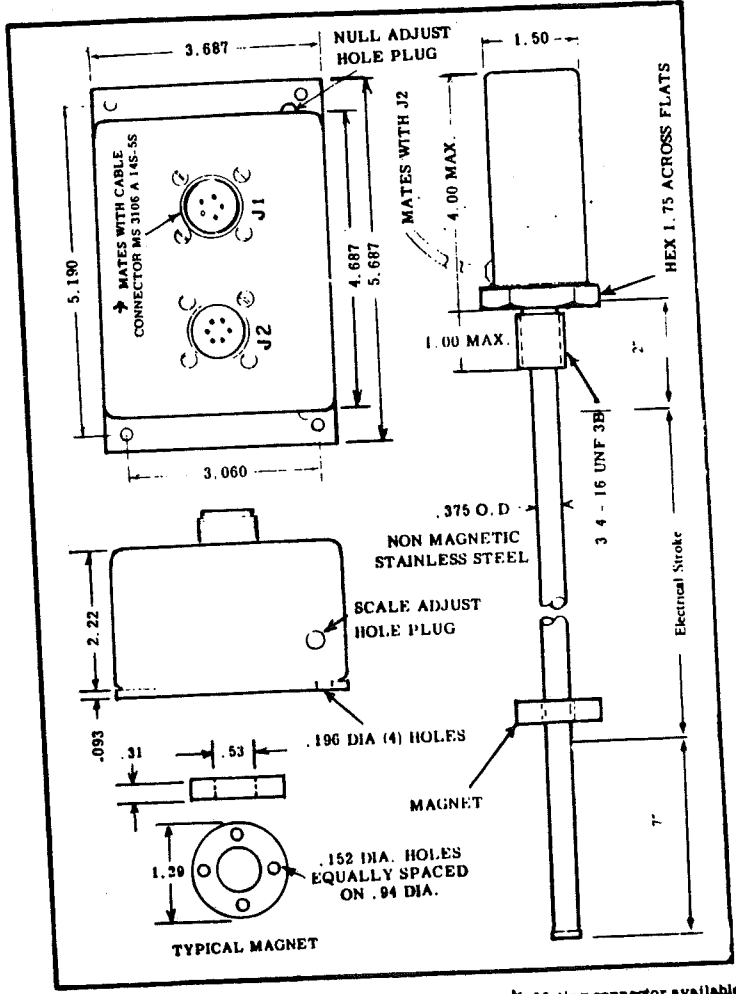
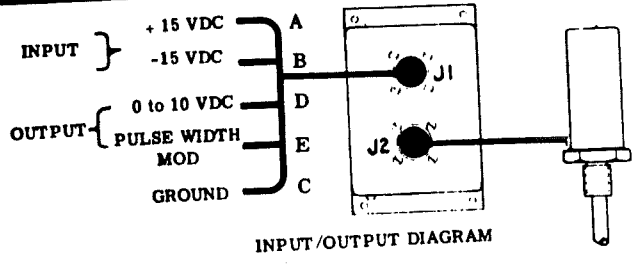
## STANDARD SPECIFICATIONS

ELECTRICAL STROKE	Standard - up to 10 feet (longer strokes available.)
NULL	Positioned as required.
NULL ADJUSTMENT	2% of total stroke nominal.
NON-LINEARITY	Less than ± 0.05% of full range.
REPEATABILITY	Better than ± 0.002% of full range.
TEMPERATURE COEF. OF SCALE FACTOR	Less than 10PPM/°F for 10" to 30" Less than 5PPM/°F for over 30"
FREQUENCY RESPONSE	Frequency response is a function of length and the type of filtering used. 200 Hz to 50 Hz is typical for lengths of 24" to 100" respectively - wider response frequencies are available on request.
RIPPLE	Less than 0.8% of RMS of full range.
OUTPUT VOLTAGE	0 to +10 vdc (4 to 20MA avail.)
SPECIAL OUTPUT	Pulse width modulated output signal TTL compatible.
OUTPUT IMPEDANCE	Less than 10 ohms.
OPERATING TEMPERATURE RANGE	35°F to 180°F. (wider range avail.)
STORAGE TEMPERATURE RANGE	-40°F to 180°F.
OPERATION IN HYDRAULIC FLUID	The 3/8" rod is capable of operating in hydraulic fluid and will withstand 3,000 psi operating pressure.
SCALE ADJUSTMENT	1% of total stroke nominal.

### SPECIAL NOTES ON TEMPERATURE PERFORMANCE

**Separate Electronics:**  
Standard units use commercial electronics and operate up to 150°F.  
Special units with special electronics operate up to 180°F.  
T C of Analog Box with 30PPM/°F. is special.  
55PPM/°F. is standard.

**Transducer Rod Assembly:**  
Stroke lengths over 12" can operate up to 180°F. Standard  
Stroke lengths 12" or under need special electronics for operation over 150°F.



\* Mating connector available as optional equipment

## OPTIONS

- 115V, 60 Hz
- Bar magnets are available for operation in limited access applications
- Wider ranges of operating temperatures are available on request
- Transducers can be supplied to operate with customer furnished electronics
- Remote presetting of limit switches

# Temposonics Incorporated