TRANSMAGNETICS

SERIES K678, L678, 1637

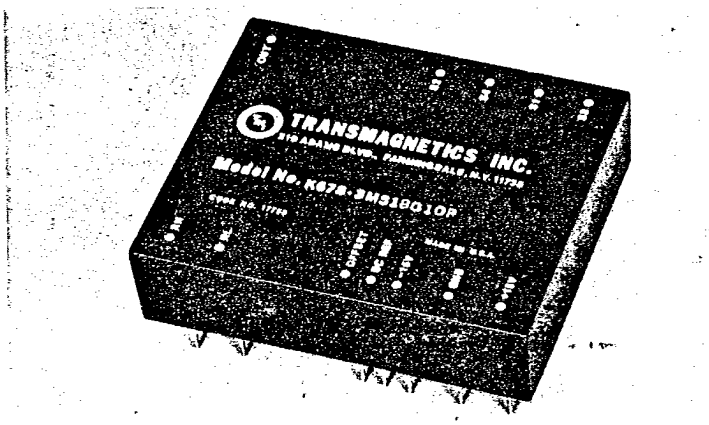
Revised September 1987

SYNCHRO/RESOLVER or SINE/COSINE to LINEAR DC

WITH ±10° SYNCHRO ZERO OFFSET CAPABILITY

FEATURES:

- **Infinite resolution**
- **42" max. height**
- **Dual channel units available**
- **No warm-up or adjustments required**
- **Switching point is non-ambiguous**
- **Output is insensitive to changes in reference amplitude and frequency**
- **All models are short-circuit proof**
- **Full transformer isolation**
- **Reverse polarity protected**
- **Hermetically sealed units on request**
- **Connector termination available in C package**
- **Meets MIL-STD-202D, Methods 101C, 105B, 106C 107C, 202D, 204B and 205D**
- **High reliability 883 or MIL-M-38510 units available**



DESCRIPTION :

Series K678 and 1637 are small light weight, low profile, solid state units, that convert all standard synchro, resolver, or flux valve inputs into a linear DC voltage that is proportional to the input shaft angle. The Series L678 converts 2 DC inputs, represented by 10 sinθ and 10 cosineθ into a linear DC voltage. The synchro input data is updated every cycle of the line frequency and internal correction circuits average out the conversions to produce a smooth continuous output.
The output voltage may be offset, for aircraft test instrumentation applications, to produce 0 to +5 VDC for any input angle configuration.
Our unique null offset features enables the user to change the synchro "zero" by as much as 10^0 by feeding a voltage from our reference into the offset input.

ACCURACY:

Series	@25°C	Code C 0°C to +70°C	Code M −55°C to +85°C
K6678	±6′	±15′	±18′
K678	±15′	±17′	±20′
K678B	±60′	±60′	±60′
1637	±15′	±17′	±20′
L678	±15′	±17′	±20′

NOTE: Accuracy data allows for 10% amplitude and 10% frequency variation.

DC REFERENCE FOR LIMIT SWITCH APPLICATIONS:

For those applications where a consistent setpoint is required, our internal DC reference should be specified. The user then has a stable (+7VDC + 0.1%) reference available. Temco is 0.005%/°C and min. load is 2K.

With a specified output format of 0 to 360° = 0 to +7VDC the user can set up an infinite number of trip points using resistive dividers across the reference.

DYNAMIC RESPONSE:

Units will track input up to 2400°/sec.
400 Hz units will have a lag of 40 arc sec./rpm maximum.
50/60 Hz units will have a lag of 4 arc min./rpm maximum.
Dynamic lag is defined as the delay introduced by the converter that causes the indicated output to lag the input.

Input Code	SERIES K678	SERIES 1637	Input	Frequency (Hz ±10%)	Ref. (V,rms)* (±10%)	L-L (V rms)	L-L Imped. Min.	Ref. Current (MA)
1	X	X	Synchro	400	115	90	40K	1.5
2	X	N/A	Synchro	50/60	115	90	40K	1.5
3	X	X	Synchro	400	26	11.8	40K	1.5
4	X	X	Resolver	400	115	90	40K	1.5
6.	X	X	Resolver	400	26	11.8	40K	1.5
8	X	N/A	Synchro	50/60	115	57.5	40K	1.5
9	X	N/A	Synchro	400	115	11.8	40K	1.5

L678 Input: 10 sineθ and 10 cosineθ between limits of—10 VDC to +10 VDC.
*Other voltages and frequencies are available.

Specify Series K678 and L678 when input angle varies ± 180° for a total of 360°.
Specify Series 1637 when input angle varies ± 89.5° for a total of 179°. This unit does not require a reference input.
Specify Series N678 that includes an internal power supply.

Output Codes for Series K678 and L678:

18010: −10 to +10VDC for angles from −180° to +180°
18005: − 5 to + 5VDC for angles from −180° to +180°
180+5: 0 to + 5VDC for angles from −180° to +180°
36010: 0 to +10VDC for angles from 0° to 360°
36005: 0 to + 5VDC for angles from 0° to 360°

Other scale factors are available.

Output Codes for Series 1637:

S08910: −10 to +10VDC for angles from −89.5° to +89.5°

Output Impedance:

10 ohms max. Output drive capability is 2 ma for rated accuracy. Output is short-circuit proof.

Output Ripple:

Series K678 & L678: 2mV RMS maximum
1637: 10mV RMS maximum

Isolation:

Input and reference are transformer isolated. Insulation resistance from any AC input is greater than 50 Megohms at 200 VDC. Note: L678 does not have input transformer isolation.

DC Power Requirements

Series K678 & L678: ±15VDC ±3% @ 45 mA max.
1637: ±15VDC ±3% @ 50 mA max.

Protection:

±15 VDC input is protected against reversed polarity.

Power Supply Option:

Units with 115VAC or 220VAC 50/400Hz power supply inputs can be supplied. The required DC voltages will then be generated internally.

Weight: (Unpotted)

Series K678: Approx. 6 oz.
Series L678: Approx. 5 oz.
Series 1637: Approx. 4 oz.

Operating Temperature:

Model C: 0°C to +70°C Model M: −55°C to +85°C

Storage Temperature:

−65°C to +125°C

Potting:

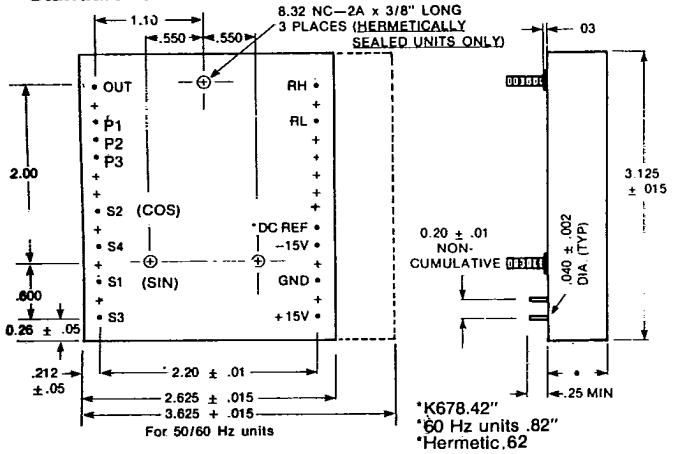
For high shock or vibration applications units should be potted. See part number designation.

PART NUMBER DESIGNATION:

Series K678 — ☆☆☆☆☆☆☆☆☆☆
K6678
L678

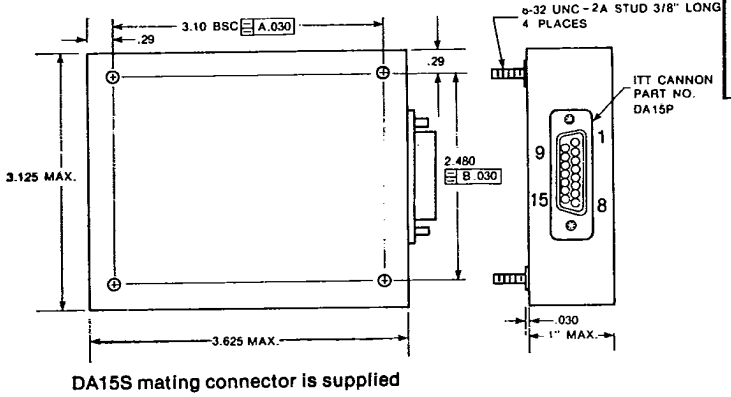
- Add 883 for HI-REL
- Add P for potted unit
- Add C for connector
- Add H for hermetic seal
- Add R for DC Ref
- Add O for Offset feature
- Output code
- Temperature range (C or M)
- Input code (1-9)

Series K678 and L678 Standard Unit:



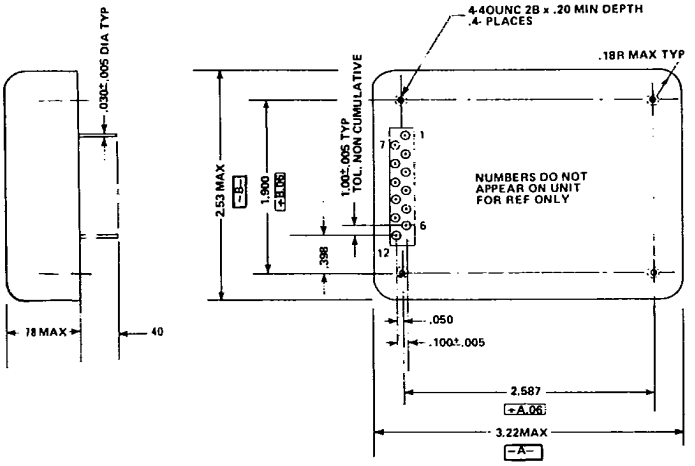
OFFSET: Connect 10K pot between P1 and P3. Wiper to P2.

Connector Option "C" Package



DA15S mating connector is supplied

Series 1637:



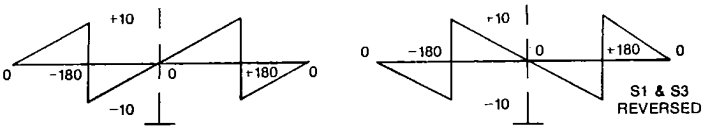
Pin Connections:

1 S3	4 Output Lo	7 Output Hi	10 S4
2 +15 VDC	5 −15 VDC	8 NC	11 NC
3 Common	6 NC	9 S2	12 S1

Pin Connections for Connector Option:

1 R HI	6 Gnd.	11 - 15 VDC
2 E Out	7 S1	12 R LO
3 Gnd.	8 S3	13 P2*
4 S4	9 P1*	14 DC Ref. *
5 S2	10 +15	15 P3*

* Optional Offset Feature. Supplied only when specified.



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Printed in USA