

SYNCHRO TO LINEAR DC CONVERTERS SLD SERIES

DESCRIPTION

The SLD Series are low cost, high accuracy, miniature synchro or resolver to linear DC angle converters designed for military and industrial control applications. They will accept any three wire synchro or four wire resolver input and convert it into linear DC voltage proportional to the input shaft angle. Virtually any scale factor can be provided. Units that can track input rates smoothly up to 1440°/sec. are available. Both full ($\pm 180^\circ$) or limited angle ($\pm 90^\circ$) models are standard. This series of converters is insensitive to signal and reference amplitude variation. Standard accuracies are $\pm 6'$, $\pm 15'$ or $\pm 30'$ of arc. Extremely high accuracy units that maintain $\pm 6'$ of arc error, even over the full temperature range, with no input velocity errors can also be provided. These features make the SLD Series the smallest, easiest to use and most accurate units available in their price range.

FEATURES

- Infinite Resolution
- Limited Angle Units require no reference.
- Insensitive to input amplitude variations
- Accepts bi-directional input data
- Hi Accuracy
- Multiplexed units available.
- Synchro & Reference Inputs Transformer Isolated.
- Sampling / Tracking units available.
- No adjustments required
- Repairable or hermetically sealed units are available.
- Output short circuit protected.

SPECIFICATIONS

at 25° C.

MODELS	Full Angle	Limited Angle	Full Angle (Hi-Accuracy Tracking)
400 Hz.	SLD214	SLD214L	SLD214T
60 Hz.	SLD216	SLD216L	SLD216T
ACCURACY (1)	± 6 minutes of arc	± 15 minutes of arc	± 6 minutes of arc
RESOLUTION	Infinite	Infinite	5.27 minutes
TEMP. DRIFT:	.2°/°C	.4°/°C	.04°/°C
OUTPUTS: (4)	(A) ± 10 VDC representing $\pm 180^\circ$ of input angle (standard) (B) 0 to +10VDC representing 0 to 360° of input angle (special)	(A) ± 10 VDC representing $\pm 90^\circ$ of input angle. (B) 0 to +10VDC representing 0 to 180° of input angle	(A) * (B) *
RIPPLE:	5mv	10mv	5mv
SYNCHRO INPUT (2) OR RESOLVER INPUT (RLD)	11.8V RMS L-L 400 Hz into 15K ohm min. L-L balanced (SLD214-L) 90V RMS L-L 400 Hz into 750K ohm min. L-L balanced (SLD214-H) 90V RMS L-L 60 Hz into 200K ohm min. L-L balanced (SLD216-H)	*	*
(TRANSFORMER) ISOLATED	26V RMS L-L 400 Hz into 20K ohms min. L-L balanced (RLD214)	*	*
SYNCHRO/RESOLVER	0 to 720°/sec (400 Hz)	*	0 to 360°/sec. or 0 to 1440°/sec. (400 Hz)
INPUT RATES	0 to 100°/sec. (60 Hz)	*	0 to 180°/sec. (60 Hz)
LAG ERROR	.0025° per°/sec. (400 Hz) .0167° per°/sec. (60 Hz)	.01° per°/sec. (400 Hz) .07° per°/sec. (60 Hz)	None None
REFERENCE INPUT (2)	26V @ .2 ma RMS 400 Hz (SLD214-L) 115V @ .6ma RMS 400 Hz (SLD214-H)	None None	26V @ 5 ma RMS 400 Hz (SLD214-L) 115V @ 1.2 ma RMS 400 Hz (SLD214-H)
(TRANSFORMER) ISOLATED	115V @ 1.5 ma RMS 60 Hz (SLD216-H)	None	115V @ 3.2 ma RMS 60 Hz (SLD216-H)
POWER SUPPLIES (3)	+15V @ 60 ma max. -15V @ 90 ma max.	± 15 V @ 60 ma ea.	+15V @ 90 ma -15V @ 65 ma +5V @ 415 ma
TEMPERATURE RANGE OPERATING:	0°C to 70°C (SLD214L or H-1) -55°C to +85°C (SLD214L or H-2)	*	*
STORAGE:	-55°C to +125°C	*	*
SIZE:	(A) 2.6 x 3.1 x .82" H (A) (B) 60 Hz units have external transformer	*	(A) 3.06" x 2.6" x 3.18" H. HB Can (B) 4½" x 6¾" x 1" H P.C. card with 22 pin edge conn. (C) 60 Hz units have external transformer. (D) 2.6" x 3.1" x 1" module
Loading:	2K ohms min.	*	*
* Same as full angle unit			
NOTES			
(1) Accuracy applies at 25°C over $\pm 10\%$ amplitude and frequency and $\pm 5\%$ power supply variations. Lower accuracy units available.			
(2) Different input voltages and frequencies available.			
(3) Available for ± 12 V operation.			
(4) Other scale factors available (i.e.: ± 5 V, 0 to 5V, etc.)			
ORDERING GUIDE:			
(1) Specify basic model desired.			
(2) Add operating temperature range.			
(3) To order a full angle ($\pm 180^\circ$ scale factor), 11.8V L-L 400 Hz synchro input to ± 10 V DC output unit, operating from 0 to 70°C use Pt. No. SLD214-L-1.			
(4) To order a limited angle ($\pm 90^\circ$), 90V L-L, 60 Hz synchro input to ± 10 V DC output unit, operating from -55°C to +85°C, use Pt. No. SLD216L-H-2.			

SOLID STATE

TRANSFORMER ISOLATED

FREQUENCY: (400Hz)	TSLD/TRLD214ST	TSLD/TRLD214XT
(60Hz)	TSLD/TRLD216ST	TSLD/TRLD216XT
ACCURACY:	_____ +11 MINUTES OF ARC	("HA" OPT. = +6 MIN.)
RESOLUTION:	_____ 5.27 MINUTES OF ARC	("HA" OPT. = 1.31 MIN.)
TEMP. DRIFT:	_____ .04/°C	_____
RIPPLE:	_____ 5 MV	_____
OUTPUT:	(BLANK or A UNITS) +10V D.C. REPRESENTING +180°	
(5ma OUTPUT DRIVE)	(-B UNITS) 0 to +10V D.C. REPRESENTING 0-360°	
	(-C UNITS) 0 to +5V D.C. REPRESENTING 0-360°	
	(B5 or D UNITS) +5V D.C. REPRESENTING +180°	
SYNCHRO INPUT:	11.8V RMS L-L 400Hz	11.8V RMS L-L 400Hz - 1KHz
(TSLD)	1 KHZ INTO 100k Ohms	INTO 26K Ohms MIN. L-L
	MIN. L-L BALANCED	BALANCED (TSLD214XT-L)
	(TSLD214ST-L)	
	90V RMS L-L 400Hz-1 KHZ	90V RMS L-L 400Hz-1 KHZ
	INTO 200K Ohms MIN. L-L	INTO 200K Ohms MIN. L-L
	BALANCED (TSLD214ST-H)	BALANCED (TSLD214XT-H)
	90V RMS L-L 60-500Hz	90V RMS L-L 60Hz-500Hz INTO
	200K Ohms MIN. L-L	200K Ohms MIN. L-L BALANCED
	BALANCED (TSLD216ST-H)	(TSLD216XT-H)
RESOLVER INPUT:	26V RMS L-L 400Hz-1 KHz	26V RMS L-L 400Hz-1 KHz into
(TRLD)	100K Ohms MIN. L-L	500K Ohms MIN. L-L BALANCED
	BALANCED (TRLD214ST)	(TRLD214XT)
SYNCHRO/RESOLVER:	_____ 0 - 3600°/SEC FULL ACCURACY _____	
INPUT RATE		
SETTLING TIME:	_____ 110 mSEC @ 400Hz/360 mSEC @ 60Hz _____	
REFERENCE INPUT:	26V INTO 100K Ohms (-L)	26V INTO 90K Ohms (-L)
	115V INTO 400K Ohms (-H)	115V INTO 360K Ohms (-H)
D.C. SUPPLIES:	STD UNITS - +15V @ 110ma & -15V @ 50ma	
	"T" & "LP" SUFFIX - +15V @ 50ma & -15V @ 50ma	
OPERATING TEMP:	-1 SUFFIX = COMMERCIAL 0°C TO +70°C	
	-2 SUFFIX = MILITARY -55°C TO +105°C	
	-3 SUFFIX = INDUSTRIAL -40°C TO +85°C	
VELOCITY: (V OPTION)	_____ +10V D.C. @ MAX. TRACKING RATE _____	
MECHANICAL: (STD)	2.625 x 3.125 x .80 w/P.C. PINS, BLK DAP (SEE A2438)	
	"HB" SUFFIX 2.625 x 3.062 x 3.198 w/CONNECTOR, HERMETIC (SEE B739)	
	"T" SUFFIX 2.625 x 3.125 x .42 w/P.C. PINS, BLK DAP (SEE A2438-3)	

NOTE:

1. OTHER INPUT VOLTAGES AND FREQUENCIES OPT.
2. HI-REL UNITS OPT ADD "83" or "83ER" TO PART NUMBER.
3. LIMITED ANGLE (OPT. (L UNITS))

COMPUTER CONVERSIONS CORP		
6 DUNTON COURT - EAST NORTHPORT, N.Y. 11731 - 516 261-3300		
SCALE <i>1/8"</i>	APPROVED BY:	DRAWN BY <i>V. VARRONE</i>
DATE 11-5-90		REVISED
TRACKING SYNCHRO (RESOLVER) TO LINEAR CONVERTER TSLD & TRLD SERIES (2 SUPPLY)		
SPECIFICATIONS		DRAWING NUMBER A 2443



COMPUTER
CONVERSIONS
CORPORATION

FSCM : 51086

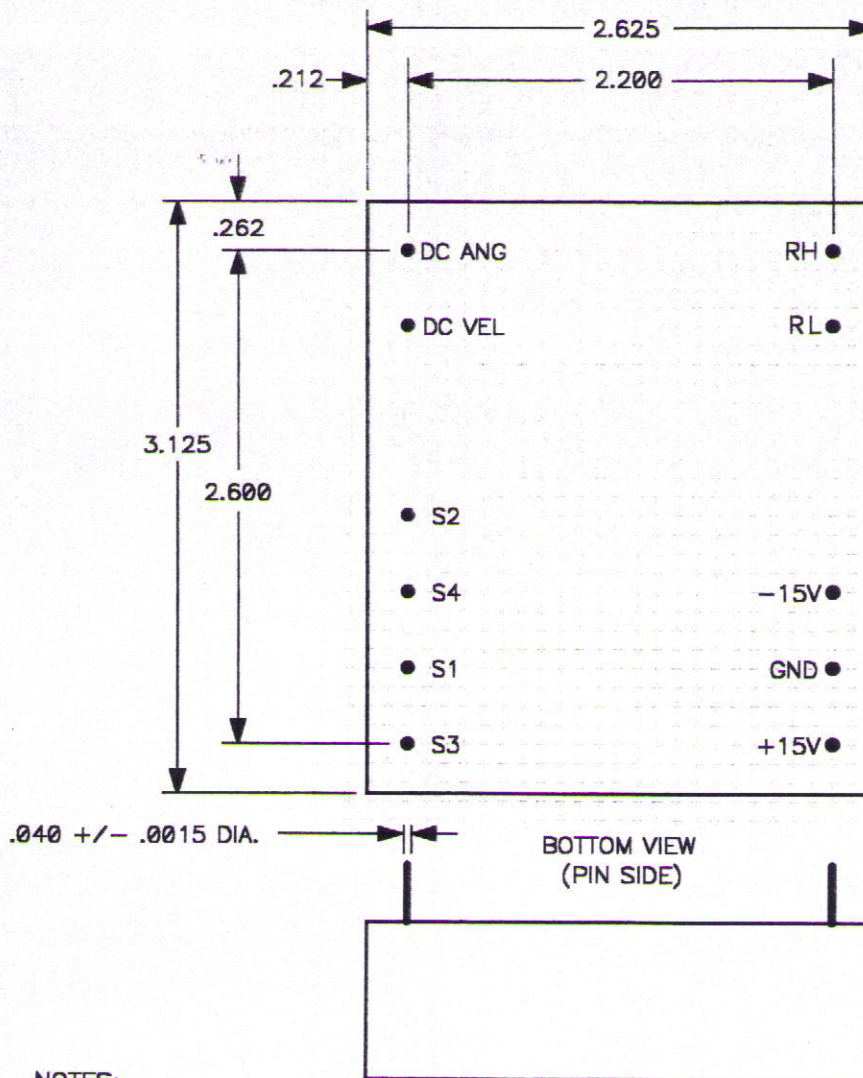
SYNCHRO-RESOLVER
TO LINEAR DC CONVERTER
"TSLD" and "TRLD" SERIES

6 DUNTON COURT EAST NORTHPORT NY 11731

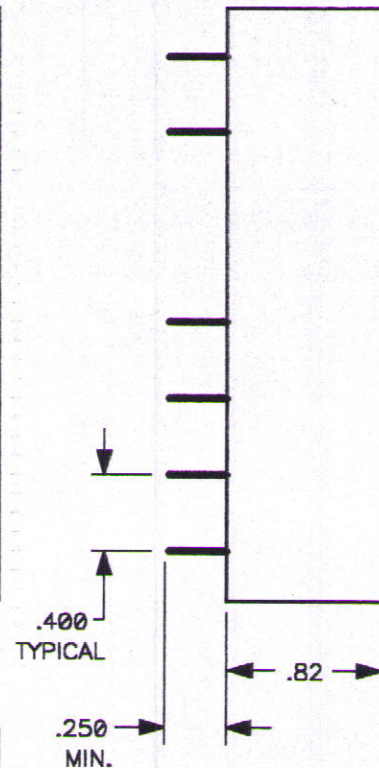
TEL (631)261-3300 FAX (631)261-3308

MECHANICAL OUTLINE

DWG# A2438 REV-E
SHEET 1 OF 1

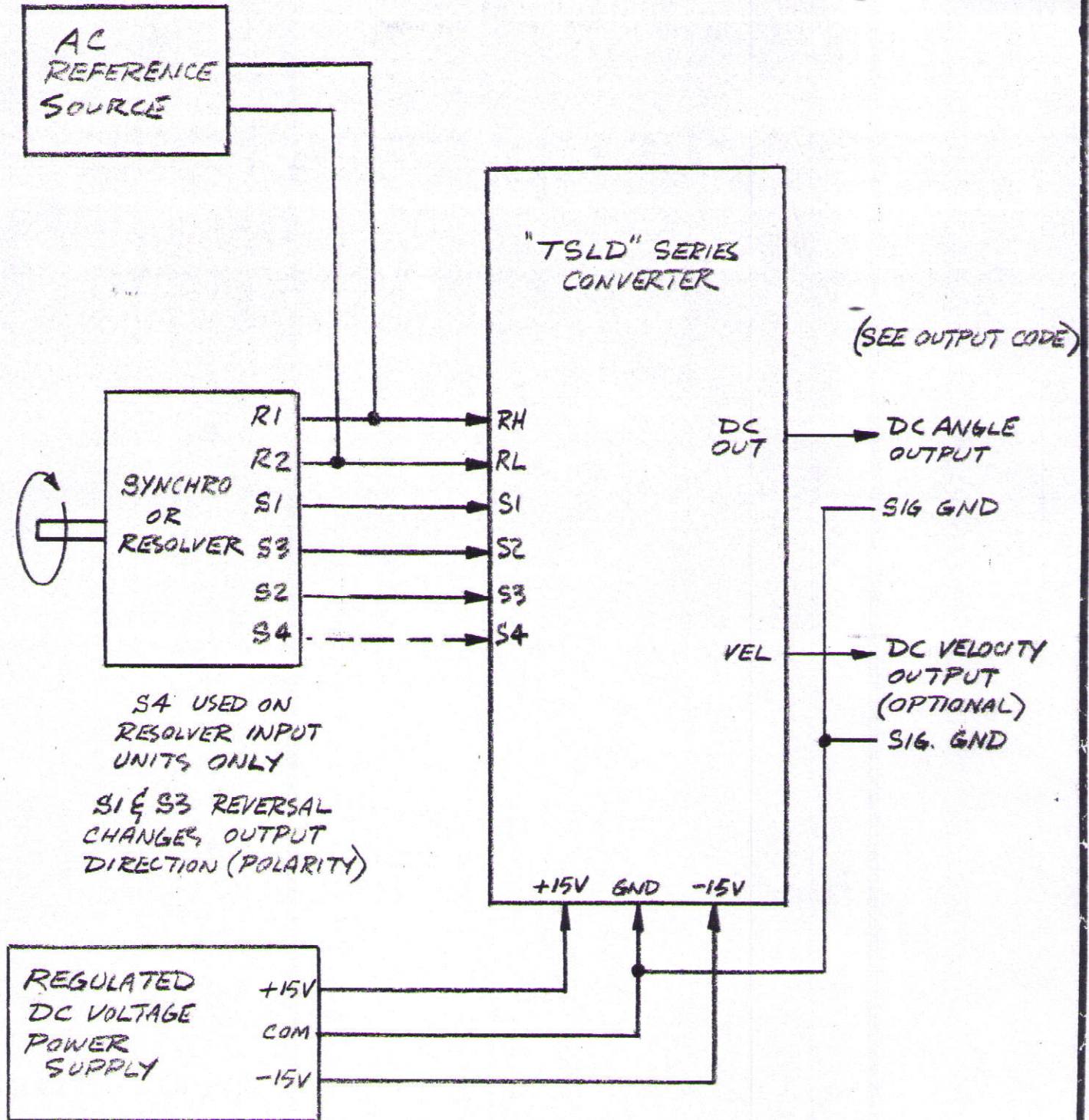


PART IDENTIFICATION
THIS SURFACE



NOTES:

1. CASE: DIALLYI PHTHALATE , BLACK , FLAME RESISTANT, CONFORMING TO MIL-M-14 , TYPE SDG-F .
2. PINS : BRASS , QQ-B-626 , ALLOY 360 , 1/2 HARD , TIN PLATED PER MIL-T-10727 , TYPE 1 .
3. TOLERANCES : +/- .010
4. SEE SEPARATE ELECTRICAL SPECIFICATIONS DRAWING: A2443 .
5. "TSLD" = SYNCHRO INPUT ; "TRLD" = RESOLVER INPUT.
"L"= 26VRMS REF/11.8VL-L SIG ; "H"=115VRMS REF/90VL-L SIG.
6. PIN "S4" USED ON RESOLVER UNITS ONLY "TRLD" SERIES.
7. 15V DC INPUT STD ; 12V DC INPUT ON UNITS WITH -12 SUFFIX OPTION
8. SEE SEPARATE OUTPUT SCALING DRAWING A2443-4 .
9. DC VELOCITY OUTPUT OPTIONAL (V P/N SUFFIX).
10. SEE SEPARATE PART NUMBER EXPLANATION DRAWING A2444 .



REF. DWGS:

A2444

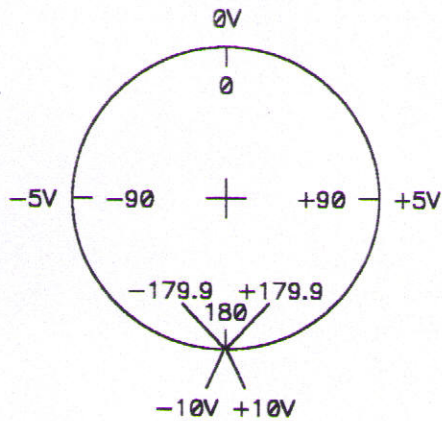
A2438

A2443 OR A3481-1

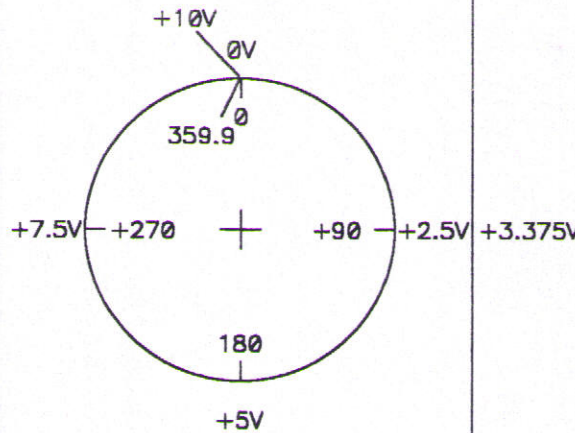
A2443-4

COMPUTER CONVERSIONS CORP		
6 DUNTON COURT · EAST NORTHPORT, N.Y. 11731 · 516 261-3300		
SCALE: <i>H</i>	DRAWN BY: <i>D. VARRONE</i>	
DATE: 10-6-95		
SYNCHRO/RESOLVER TO LINEAR DC CONVERTER "TSLD" SERIES		
INTERCONNECTION DIAGRAM		DRAWING NUMBER A2443-5

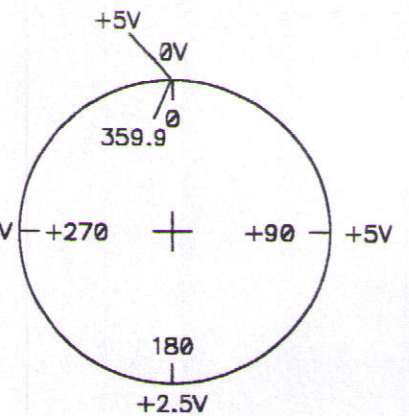
BI-POLAR
"A" CODE
-179.9° to +179.9° =
-10VDC to +10VDC



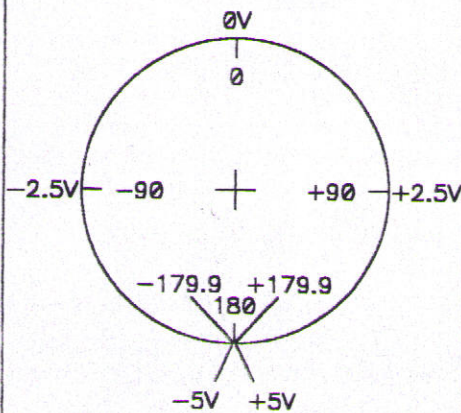
UNI-POLAR
"B" CODE
000.0° to +359.9° =
0VDC to +10VDC



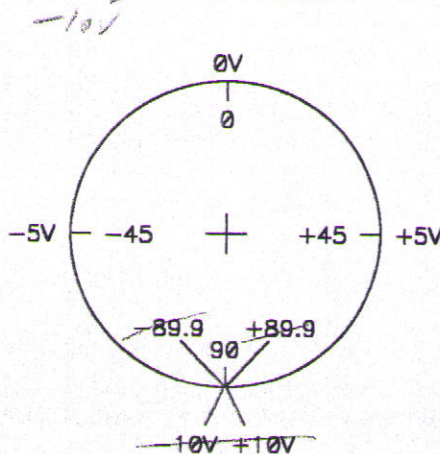
UNI-POLAR
"C" CODE
000.0° to +359.9° =
0VDC to +5VDC



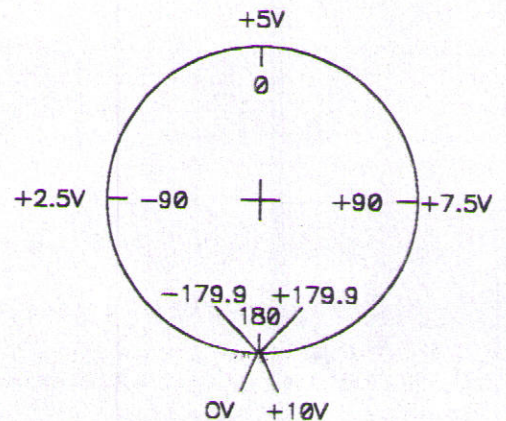
BI-POLAR
"D" or "B5" CODE
-179.9° to +179.9° =
-5VDC to +5VDC



BI-POLAR
"A90" or "A180" CODE
-89.9° to +89.9° =
0VDC to +10VDC



SPECIAL
"BBY" CODE
-179.9° to +179.9° =
0VDC to +10VDC



NOTE :
SEE ORDERING GUIDE DWG # A2444



EEE CORPORATION
COMPUTER
CONVERSIONS

EAST NORTHPORT NY 11731
TEL 631)261-3300 FAX 631)261-3308

TRACKING SYNCHRO-RESOLVER
to LINEAR DC CONVERTER
ORDERING GUIDE AND
PART NUMBER EXPLANATION
"TSLD" and "TRLD" SERIES

DWG # A2444 REV-H
SHEET 1 of 1

T S L D 2 1 4 X T - L - A - 1 -

SERIES

TSLD = SYNCHRO to LINEAR DC CONVERTER
TRLD = RESOLVER to LINEAR DC CONVERTER

FREQUENCY

4 = 400HZ
6 = 60HZ
5 = 50HZ
2 = 2KHZ
3 = 3KHZ

INPUT TYPE

XT = TRANSFORMER ISOLATED
ST = SOLID STATE DIFFERENTIAL

INPUT VOLTAGES

H = 90V L-L SIGNAL / 115V RMS REFERENCE
L = 11.8V L-L SIGNAL / 26V RMS REFERENCE
LH = 11.8V L-L SIGNAL / 115V RMS REFERENCE
26 = 26V L-L SIGNAL / 26V RMS REFERENCE
8/8 = 8V L-L SIGNAL / 8V RMS REFERENCE
3.5/7 = 3.5V L-L SIGNAL / 7V RMS REFERENCE
ANY VOLTAGES AVAILABLE - CONSULT FACTORY

SPECIAL FEATURES & OPTIONS

V = +/-10V DC VELOCITY OUTPUT
HA = HIGH ACCURACY (+/-6 MINUTE)
(BLANK = +/- 11 MINUTE)
5 = EXTERNAL +5V POWER INPUT
LP = LOW POWER CMOS
S = SPECIAL MODIFICATION
I = INFINITE RESOLUTION
R = REVERSE POLARITY PROTECTION

TEMPERATURE RANGE & RELIABILITY LEVEL

1 = 0 TO +70 DEGREES C (COMMERCIAL)
2 = -55 TO +125 DEGREES C (MILITARY)
3 = -40 TO +85 DEGREES C (INDUSTRIAL)
283 = -55 TO +125 DEGREES C
(MILITARY 883 INTEGRATED CIRCUITS)
283ER = -55 TO +125 DEGREES C
(MILITARY 883 INTEGRATED CIRCUITS
AND ESTABLISHED RELIABILITY PARTS
WHERE AVAILABLE)
HIGHER LEVELS AVAILABLE-CONSULT FACTORY

DC ANGLE ANALOG OUTPUT

A = +/-10V DC POSITION
B = 0 TO +10V DC POSITION
C = 0 TO +5V DC POSITION
D or B5 = 0 TO +/-5V DC POSITION
E = 0 TO +/-2.5V DC POSITION

LIMITED ANGLE AND OTHER
SCALE FACTORS AVAILABLE -
CONSULT FACTORY

REFERENCE DRAWINGS :

1. MODULE OUTLINE : A2438 , A2438-1
2. SPECIFICATIONS : A2443 , A2443-1
3. SCALE FACTORS : A2443-4
4. INTERCONNECTIONS : A2443-5