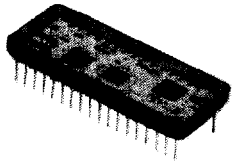
DDC
ILC DATA DEVICE CORPORATION®

HSDC-8915® MONOBRID® SERIES*

14-BIT MONOLITHIC HYBRID S/D AND R/D TRACKING CONVERTERS



DESCRIPTION

The HSDC-8915 Monobrid® Series is a complete 14-bit synchro-to-digital or resolver-to-digital converter contained in a single hybrid module. Most of its circuitry has been incorporated into a custom designed monolithic chip, which greatly reduces the parts count inside the hybrid. The Monobrid combination of monolithic and hybrid technologies allows a more sophisticated design with better performance and additional features to fit inside a standard 36-pin DDIP hybrid package. Power consumption is reduced, reliability is increased, and costs are lower.

The HSDC-8915 Series has 3-state outputs in two byte format, and a transparent latch which allows the converter to keep tracking even while the converter is being Inhibited. Features include an analog velocity signal, error voltage outputs, solid-state signal and reference isolation, broadband input, and accommodation to non-standard line-to-line voltage levels. A ±2.6 minute high accuracy option is also available.

APPLICATIONS

With three-state output and an Inhibit that does not stop the tracking process, HSDC-8915 Series converters are especially suited for bus multiplexing and interfacing with microprocessors. These converters are ideal for remotely located and hard to access equipment where low power requirements, small size, and high MTBF are critical. Units are available to MIL-PRF-38534. They are well suited to the most stringent and severe industrial or military and avionics applications. In conjunction with other devices, they are easily adapted for closed loop control.

FEATURES

- ***10 RPS Tracking***
- ***Low Power:***
  150 mW, Typical
- ***Accuracy:***
  ±4 Minutes ±0.9 LSB Standard
  ±2.6 Minutes High Accuracy Option
- ***3-State Latched Outputs for Microprocessor Data Bus***
- ***Usable as Control Transformer (CT)***
- ***Inhibit Does Not Interrupt Tracking***
- ***Logic:***
  - ***TTL and CMOS Compatible***
  - ***14-Bit Parallel Binary Angle***
  - ***Converter Busy and Inhibit***
  - ***Enable lines for 3-State Output***

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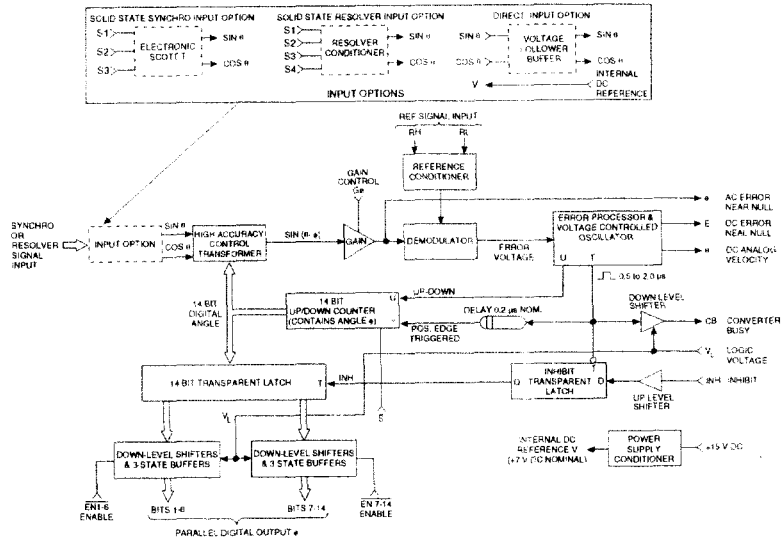
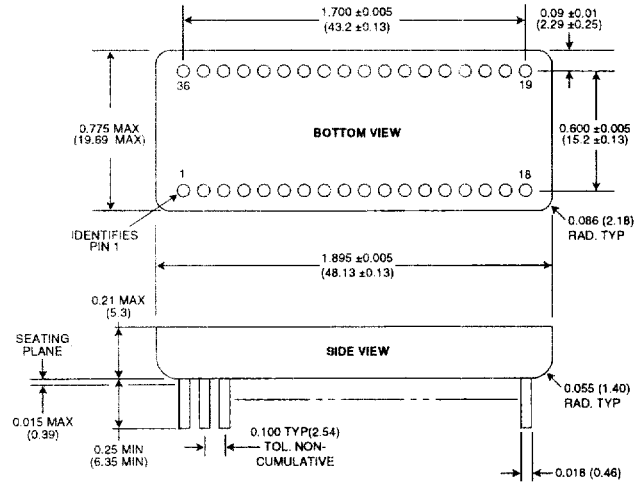


HSDC-8915 BLOCK DIAGRAM

* Patented



Notes:
1. Dimensions are in inches (mm.)
2. Lead identification numbers are for reference only.
3. Lead cluster shall be centered within ±0.10 of outline dimensions. Lead spacing dimensions apply at seating plane.
4. Pin material meets solderability requirements of MIL-STD-202E, Method 208C.
5. Package is Kovar with electroless nickel plating.
6. Case is electrically floating.
7. Flat pack available, consult factory.

HSDC-8915 MECHANICAL OUTLINE (36-PIN DOUBLE DIP)

PIN	FUNCTION			PIN	FUNCTION
	Solid St. Resolver	Solid St. Synchro	Volt. Fol. Buffer		
1	S1	S1	N.C.	19	RH (Ref. High)
2	S2	S2	COS	20	RL (Ref. Low)
3	S3	S3	SIN	21	N.C.
4	S4	N.C.	N.C.	22	E (Filtered DC Error Out)
5	Bit 1			23	θ (Analog Velocity Out)
6	Bit 2			24	CB (converter Busy)
7	Bit 3			25	$\overline{\text{EN 7-14}}$ (Enable, Bits 7 to 14)
8	Bit 4			26	$\overline{\text{EN 1-6}}$ (Enable, Bits 1 to 6)
9	Bit 5			27	e (AC Error Out)
10	Bit 6			28	VL (Logic Voltage Input)
11	Bit 7			29	GND
12	Bit 8			30	$\overline{\text{S}}$
13	Bit 9			31	Ge (Gain Control)
14	Bit 10			32	+15 V (Power Supply In)
15	Bit 11			33	INH (Inhibit)
16	Bit 12			34	V (Internal DC Ref.)
17	Bit 13			35	BC (Buffered COS)
18	Bit 14 LSB			36	BS (Buffered SIN)

Note: BS and BC pins are used in other applications.

ORDERING INFORMATION

HSDC-8915-1-a-883B

Reliability Grade:
883B = Fully compliant to MIL-PRF-38534
B = See note below.
Blank = Standard DDC Processing (See page xiii.)

Accuracy:
Blank = ±4 Minutes ±0.9 LSB (Standard)
a = ±2.6 Minutes max. (High Accuracy)

Operating Temperature Range:
1 = -55°C to +125°C
3 = 0°C to +70°C

Input Type:
Voltage Follower Buffer (requires external conditioner such as an isolation transformer):
8915 = 400 Hz
8916 = 60 Hz
Solid-State Synchro (Direct Input):
8917 = 400 Hz, 11.8 V L-L
8918 = 400 Hz, 90 V L-L
8919 = 60 Hz, 90 V L-L
Solid-State Resolver (Direct Input):
8920 = 400 Hz, 11.8 V L-L
8921 = 400 Hz, 26 V L-L
8922 = 400 Hz, 90 V L-L

Note: Standard DDC Processing with burn-in and full temperature test — see page xiii.

Reference and signal transformers for the voltage follower buffer input converters must be ordered separately as follows:

TYPE	FREQUENCY	REF. VOLTAGE	L-L VOLTAGE	PART NUMBERS	
				REF. XFMR.	SIGNAL XFMR.
Synchro	400 Hz	115 V	90 V	21049	21045*
Synchro	40 0 Hz	26 V	11.8 V	21049	21044*
Resolver	400 Hz	115 V	90 V	21049	21048*
Resolver	400 Hz	26 V	26 V	21049	21047*
Resolver	400 Hz	26 V	11.8 V	21049	21046*
Synchro†	60 Hz	115 V	90 V	24133-1	24126-1
				24133-3	24126-3

* The part number for each 400 Hz synchro or resolver isolation transformers includes two separate modules as shown in the outline drawings.
† 60 Hz synchro transformers are available in two temperature ranges:
1 = -55°C to +105°C
2 = 0°C to +70°C

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