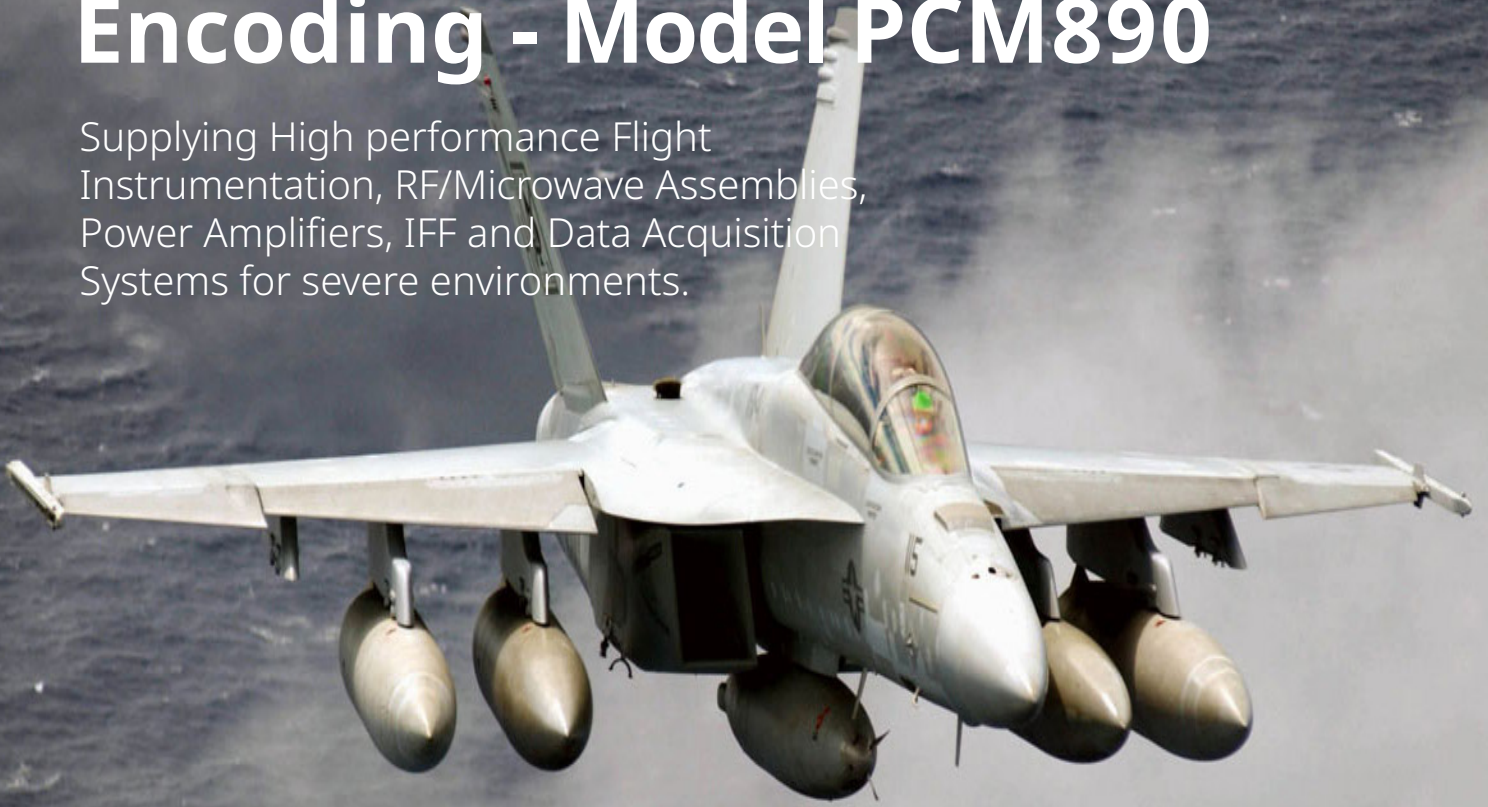# ULTRA

Data Acquisition & PCM Encoding - Model PCM890

Supplying High performance Flight Instrumentation, RF/Microwave Assemblies, Power Amplifiers, IFF and Data Acquisition Systems for severe environments.

Key features

- Fully Programmable Master/Slave Operation to 40Mbps

- Variable word lengths of 4 to 16 BPW

- Tracking Pre-Modulation Filtered and Selected Word Output

- 8 Selectable Stored Formats

- Embedded Encryption optional

- Real-Time Data Monitor

- Fully Programmable Signal Conditioning of Analog, Digital and Avionics Bus Data
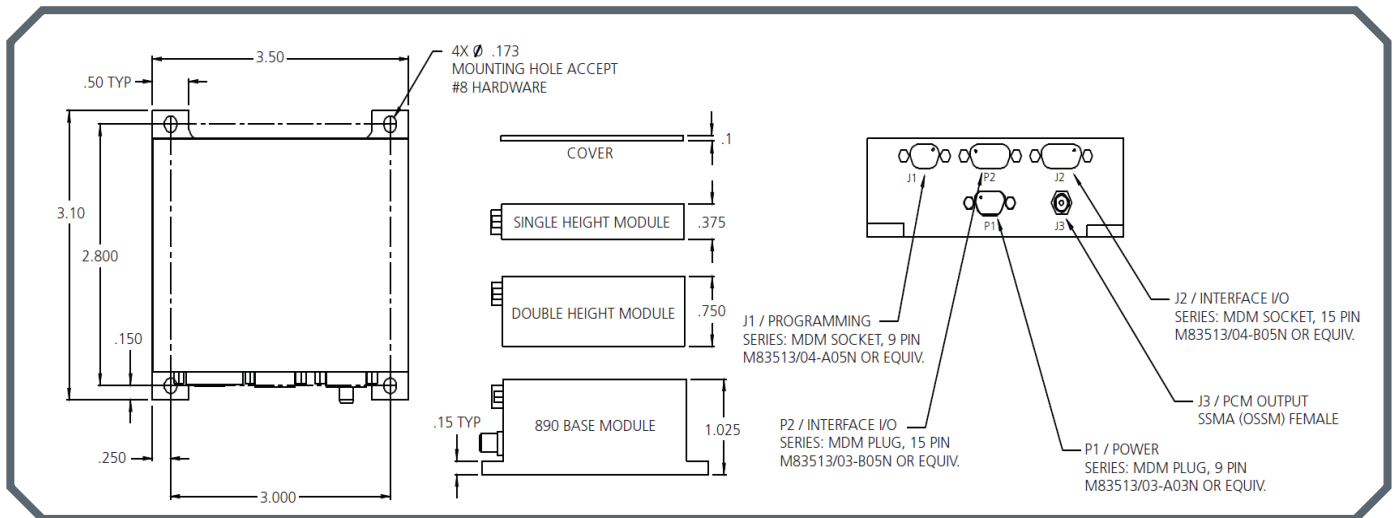
- Standard +/- 1.0% Accuracy

Overview

The Ultra PCM890 System is the next generation of the highly successful PCM880 series of data acquisition systems. The PCM890 is used for instrumenting missiles, airborne vehicles, and other platforms requiring a small volume ruggedized PCM encoder. The PCM890 is the premier system for acquiring, signal conditioning, and encoding all types of signals. Versatility, flexibility, and ease-of-use are paramount in this system's hardware and software design.

The PCM890 System microprocessor scans the installed hardware, compares it to the user format, and reports discrepancies through the system software. The PCM890 System housings are designed to provide maximum accuracy of test results in the most severe environments. All housings are environmentally sealed with EMI/RFI shielding and gasketing and meet MIL-STD-810E requirements. The PCM890 System is designed to work as a stand-alone encoder or in a Master/Slave configuration.
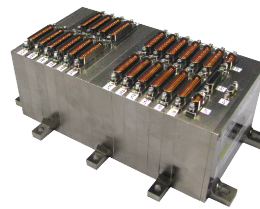
Due to U.S. Export Control Reform Ultra's Radar Transponders have transitioned from ITAR to Department of Commerce Export Administration Regulations (EAR) making them ITAR-free

ultra.group

ULTRA

4X ⌀ .173
MOUNTING HOLE ACCEPT
#8 HARDWARE

3.50
.50 TYP

COVER — .1

SINGLE HEIGHT MODULE — .375

DOUBLE HEIGHT MODULE — .750

890 BASE MODULE — 1.025

3.10
2.800
.150
.250
3.000
.15 TYP

J1
P2
J2
P1
J3

J1 / PROGRAMMING
SERIES: MDM SOCKET, 9 PIN
M83513/04-A05N OR EQUIV.

P2 / INTERFACE I/O
SERIES: MDM PLUG, 15 PIN
M83513/03-B05N OR EQUIV.

P1 / POWER
SERIES: MDM PLUG, 9 PIN
M83513/03-A03N OR EQUIV.

J2 / INTERFACE I/O
SERIES: MDM SOCKET, 15 PIN
M83513/04-B05N OR EQUIV.

J3 / PCM OUTPUT
SSMA (OSSM) FEMALE

SYSTEM SPECIFICATIONS

- Configuration: Base Module with up to 10 Data Modules per Master or Slave system.

- Set-up and Control: Programmed and controlled via RS-232 serial link to a computer with Windows-based software

- PCM Bit Rate: Programmable selection of internal or external clock. Internal clock is programmable from 1 kbps to 40 Mbps for NRZ-L and RNRZ-L codes.

- PCM Frame Size: Minor frames of up to 4096 words. Major frames with up to 256 minor frames, or up to 65,536 total words.

- PCM Word Size: Individually programmable word lengths from 4 to 16 bits (including optional parity bit)

- PCM Word Order: Programmable for MSB or LSB first

- PCM Word Types: Individually programmable for normal, super, sub, or random commutation

- PCM Word Parity: Programmable as odd, even, or off

- PCM Frame Synchronization: Programmable from 16 to 33 bits

- PCM Minor Frame Synchronization: Programmable for frame code complement or subframe ID using one or two programmable subframe counters

- PCM Conditioned Output: PCM output is pre-modulation conditioned to reduce harmonics and is programmable from 0.3 to 3.0 Vpp into a 50 ohm load, or 0.6 to 6.0 Vpp into load of 1,000 ohms or more. PCM output is 50 ohm driven.

- PCM Output Codes: Conditioned and TTL outputs are independently programmable to the following PCM codes: Non-return to zero - NRZ-L Randomized NRZ - RNRZ-L Bi-phase - BiØ-L, BiØ-M, BiØ-S Differential bi-phase - DBiØ-M, DBiØ-S Delay modulation - DM-M, DM-S

- PCM TTL Output: TTL driven PCM output with Bit Clock for direct input to a decommutator frame synchronizer

ENVIRONMENTAL

- Operating Temperature Range: Standard: -30°C to +70°C Extended: -40°C to +85°C Qualification: -54°C to +85°C

- Vibration: MIL-STD-810E: Method 514.4 Random: 10 to 2000 Hz at 34.4 g's RMS Sine: 5 to 2000 Hz at 10 g's RMS Three orthogonal axes, 20 seconds per axis

- Shock: MIL-STD-810E; Method 516.4, Procedure I - Functional Shock Test for Flight Test Equipment. 1200 g's peak 10 to 5000 Hz Three shocks in each direction of three orthogonal axes both positive and negative for a total of 18 shocks

- Altitude: Unlimited

- Salt Fog: MIL-STD-810E; Method 509.3. Expose 48 hours at 35°C

- Humidity: MIL-STD-810E; Method 507.1. Procedure 1Expose 240 hours at 85% minimum humidity from +30°C to +65°C

- Power: MIL-STD-704E; Paragraph 5.3. (40 V DC max. input)

- Power Requirements: DC to DC converter power supplies are available in two input voltage ranges.Standard Range: 22 to 36 volts DC Optional Wide Range: 12 to 36 volts DC

- EMI/RFI: MIL-STD-461C; Requirements CE03, CE07, CS06, RS02 MIL-STD-461E; Requirements CS101, CS114

- Acceleration: MIL-STD-810D; Method 513.3, Procedure II 225 g's, 5 minutes

PRODUCT NUMBER

- PCM890 - XXXX

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