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THE G-2001 FIBER OPTIC PARALLEL-TO-SERIAL TRANSMITTER

FIBER OPTICS

- 1300 nm E-LED
- SINGLEMODE(OR MULTIMODE OPTION)
- ST CONNECTORS
- REPEATER AVAILABLE AT 19.2 Kb/s.
- OPTICAL POWER BUDGET OF 10 db MIN.
- MANCHESTER ENCODING OF SIGNALS.

ENCODER

- 16 DIGITAL STATUS INPUTS
- OPERATES AT 15.36 Kb/s OR 19.2 Kb/s
- FIBER OPTIC TRANSMITTER AND ENCODER IN ONE MODULE
- PARITY BIT GENERATION
- UPDATE TIME, PARITY, SINGLE SCAN 4.4 M.S. (15.36 Kb/s)
- UPDATE TIME, PARITY, DOUBLE SCAN, 8.8 M.S. (15.36 Kb/s)
- LED INDICATORS, ONE FOR EACH INPUT, SYNC AND DATA.

GENERAL DESCRIPTION

The G-2001 is a fiber optic version of the Da-tel 16-bit status telemeter, G-7801 Parallel-to-Serial, FS Transmitter. The 16 inputs are typically from a relay contact or a transistor driver, keyed either high or low.

The G-2001 circuitry sequentially scans each of the 16 digital inputs. Using manchester encoding a digital word is generated. This includes the synchronizing sequence (8 clocking pulses and command sync), followed by the 16 data bits and 1 parity bit. The word is generated and sent repeatedly every 4.4 milliseconds, re-synchronizing the transmitter and



receiver.

Manchester encoding is incorporated for two reasons in the G-2001 design. Primarily the coding insures that the fiber optic receiving circuitry operates optimally, resulting in the maximum optical power budget. Secondly, the encoding transfers both the data and clock signal over one fiber optic circuit. The state of each data bit is indicated by the direction of the clock transition within a data "cell" as shown in figure 1.

FIBER OPTICS

The G-2001 Uses one Hewlett-Packard HFBR-1315TM singlemode fiber optic transmitter, driven by four sections of a 74ACT11000 NAND. The message is encoded with a Harris HD-6409 CMOS Manchester Encoder-Decoder before transmission. No additional encoding is needed.

SECURITY

To insure the validity of the transmitted data, the fiber optic link is re-synchronized for each word sent as opposed to a free running link after an initial link synchronization. Additionally an odd parity bit is generated for each word. This parity bit is used by the receiver module in validating the received word along with an optional double scan security check.

POWER SUPPLY

+12 VDC AT 60 mA
+5 VDC AT 200 mA

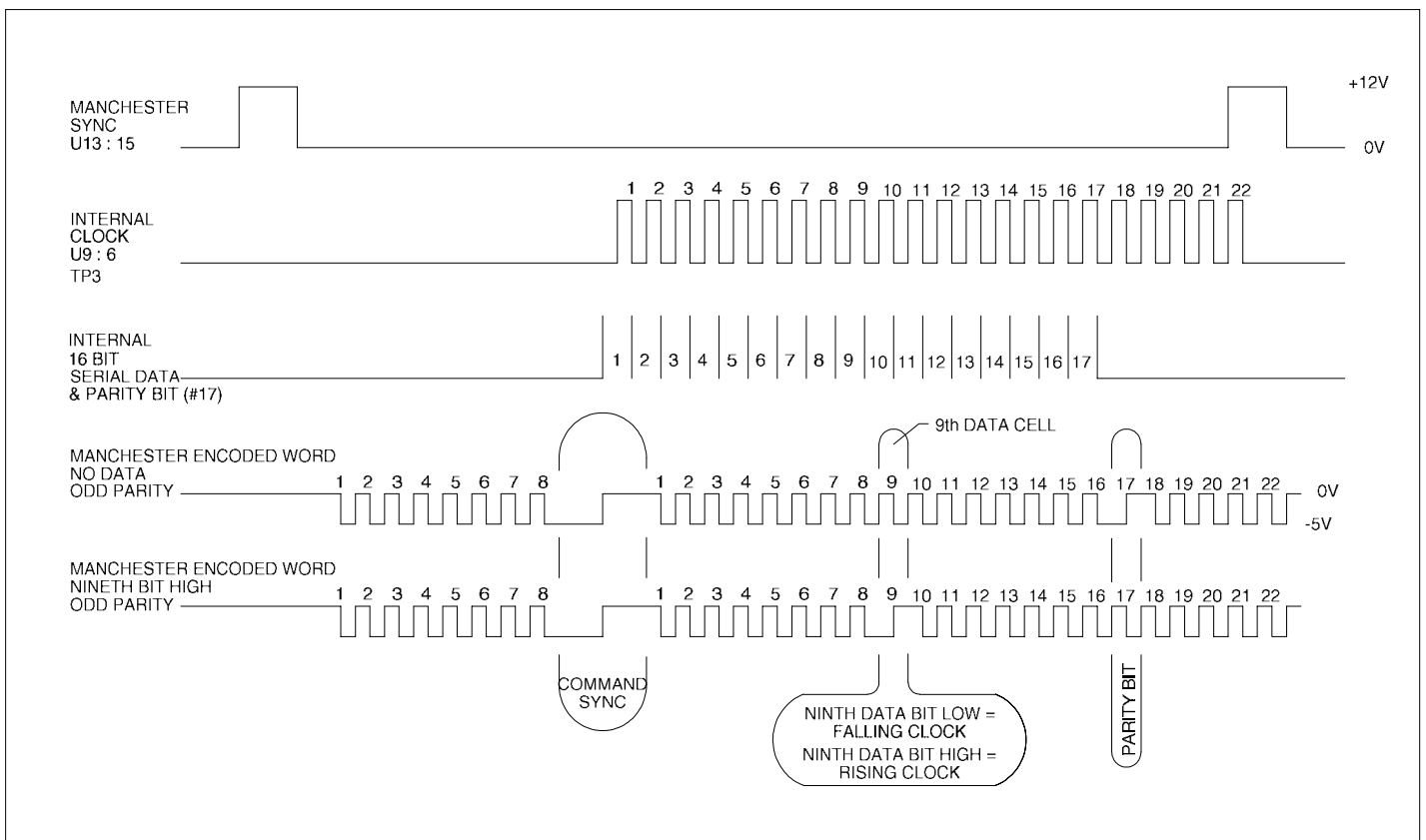


FIGURE 1.

NOTICE

As of the date of this printing, the specifications for the G-2001 in this Instruction Information sheet apply to all G-2001s, except as indicated. Because all Da-Tel products are continually being refined and improved, these specifications are subject to change without notice.