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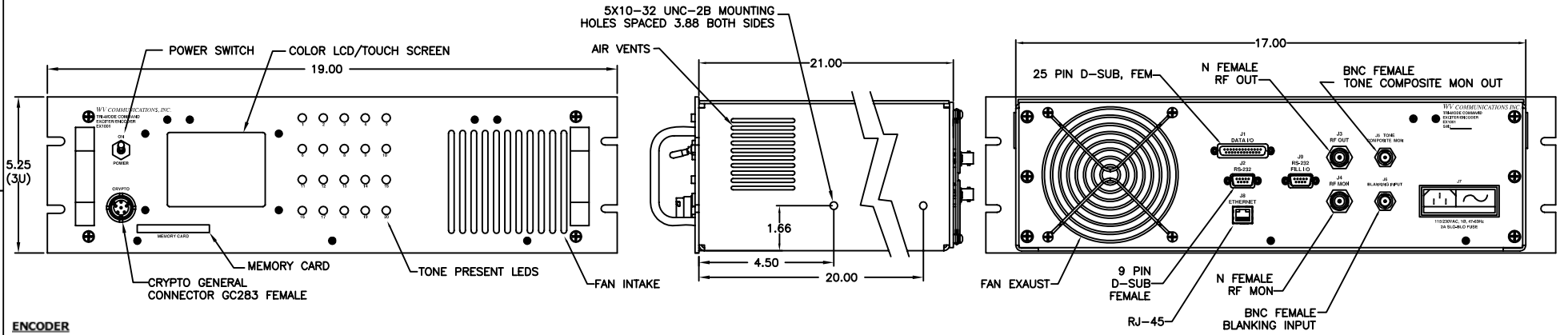
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	RELEASED	20SEP05	TT



ENCODER

NUMBER OF TONES	IRIG-20 Tones Secure-8 Tones
TONE FREQUENCY STABILITY:	±0.1% Maximum
TONE ACTIVATION INPUT:	Front Panel LCD Touchscreen, Ethernet & RS-232
OUTPUT AMPLITUDE VARIATION:	15% Maximum
OUTPUT DISTORTION:	1% Maximum with any Tone Enabled
TONE OUTPUT IMPEDANCE:	50Ω Nominal
TONE OUTPUT SIGNAL DELAY:	10mSec Maximum (5 mSec Typical) from Application of Tone Command to Stable Output within 0.1%
TURN ON STABILITY:	Frequency Stable within 0.1% after 1 second
TONE FREQUENCIES:	See Table
LED TONE MONITOR:	Front Panel LEDs indicate active Tone
LOCAL ACTIVATION:	Via Front Panel LCD Touchscreen
REMOTE ACTIVATION:	Via rear Panel Ethernet Interface

EXCITER

CARRIER FREQUENCY:	370.0 to 450.0 MHz in 100.0 KHz Steps
FREQUENCY SELECTION:	Via Front Panel LCD Touchscreen, Ethernet & RS-232
CARRIER STABILITY:	Within ±0.001% maximum
OUTPUT POWER RANGE:	+0dBm to -15.5dBm in 0.5dB Steps
OUTPUT POWER SELECTION:	Via Front Panel LCD Touchscreen / Remote Ethernet
FM MODULATION RESPONSE:	±0.5dB Maximum over 5-75KHz
DEVIATION LEVEL:	±30KHz per Tone Nominal
DEVIATION LEVEL ADJUST:	Set for Deviation of ±30KHz per Tone Via Front Panel LCD Touchscreen / Remote Ethernet

EFTS:

INPUT CHARACTERISTICS:

FREQUENCY RANGE:	370-450MHz
OPERATING BW:	±50kHz
FREQUENCY REFERENCE:	Crystal Oscillator provides Stable reference to Low Phase Noise PLL
FM DEMODULATION:	CP-FSK, Bi-Phase Encoded With Deviation of 60kHz Peak-to-Peak
DATA FORMATS:	Manchester
DATA RATE:	50Hz Message Rate 7200 symbols per sec
FAILSAFE MODE:	Arm and Terminate Outputs are turned on With Loss-Of-Command Link

OUTPUT CHARACTERISTICS:

CMD OUTPUTS:	Monitor, Arm & Terminate
TLM:	Bi-Level (single-ended)
SIGNAL LEVEL:	Analog (Linear 0 – 5 Vdc)
CONFIG/SYS:	Ethernet / Serial (RS-232)
USER DEFINED:	Ethernet / Serial (RS-232)

TONE/FREQUENCY TABLE

TONE	IRIG FREQUENCY (KHz)	SECURE FREQUENCY (KHz)	TONE	IRIG FREQUENCY (KHz)
1	7.50	7.35	11	25.01
2	8.46	8.40	12	28.21
3	9.54	9.45	13	31.83
4	10.76	10.50	14	35.90
5	12.14	11.55	15	40.49
6	13.70	12.60	16	45.68
7	15.45	13.65	17	51.52
8	17.43	15.45	18	58.12
9	19.66	--	19	65.56
10	22.17	--	20	73.95

Secure Tone

J2 & J9 RS-232C

PIN NO.	PIN NAME
1	N/C
2	RX
3	TX
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C

J8 ETHERNET

PIN NO.	PIN NAME
1	TX+
2	TX-
3	RX+
4	N/C
5	N/C
6	RX-
7	N/C
8	N/C

CRYPTO

PIN LTR.	PIN NAME
A	REF/RTN
B	N/U
C	REQUEST
D	DATA
E	CLOCK
F	N/U

ENVIRONMENTAL:

OPERATING TEMPERATURE RANGE:	0 to +50°C
OPERATING RELATIVE HUMIDITY:	0-95%
OPERATING ALTITUDE:	0-10,000 Feet
MTBF:	20,000 Hours Minimum
MTTR (MEAN TIME TO REPAIR):	1 Hour Maximum Down to Card Level
AC INPUT:	115/230VAC Auto-Switch at 5 Amp Max Single Phase 47-63Hz
FRONT PANEL COLOR:	Black per MIL-STD-27038

NEXT ASSEMBLY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES. TOLERANCES ARE:
FRACTIONS ± 1/64 DECIMALS .XX±.01 .XXX±.005 ANGLES ±0°30' HOLES .XX±.005 .XXX±.001
MACHINED FINISH: 32 RMS REMOVE BURRS .005 MAX
MATERIAL
FINISH
DO NOT SCALE DRAWING

APPROVALS		DATE
DRAWN	G. GODDARD	20SEP05
CHECKED	TONY T.	20SEP05
MECH ENGR	GUY G.	20SEP05
ELEC ENGR	J.T.	20SEP05
PRODUCTION	U.Y.	20SEP05
Q.A.	D.B.	20SEP05

WV Communications 1176 Tourmaline Dr. Newbury Park, Ca.

TRI-MODE COMMAND EXCITER/ENCODER (TMCEE)
W/ CRYPTO I/F IRIG/SECURE/EFTS 20/8 TONE
370-450MHz P/N: EX1001

SIZE	CAGE CODE	DWG. NO.	REV
C	1GFQ7	040-50026	A

SCALE NONE SHEET 1 OF 1

DWG NO. 040-50026 REV A

DO-DWG-040-50026-A, REF C, 06/06