

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	REV	DESCRIPTION	DATE	APPROVED

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CONTRACT NO.		QUAD TRON, INC.			
APPROVALS	DATE	MICRO MODULE PCM ENCODER, MODEL MI_BILVL 16 PROGRAMMABLE CHANNELS, 4 FIXED CHANNELS			
DRAWN MJC	04/11/07				
CHECKED RHM	04/11/07				
ISSUE JWM	04/11/07				
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MICRO PCM ENCODER SERIES

MODEL MI_BILVL

BI-LEVEL MODULE WITH 16 PROGRAMMABLE CHANNELS AND 4 FIXED CHANNELS

The MI_BILVL Module provides 16 programmable threshold Bi-Level inputs and 4 fixed threshold Bi-Level inputs. The 16 programmable thresholds can be independently programmed for threshold levels from -38 volts to +38 volts with fine resolution. Hysteresis of ± 0.175 volts is also provided on the 16 programmable threshold Bi-Level inputs. The 4 fixed threshold Bi-Level inputs are set for 3.3 volt CMOS/TTL. All modules in a standalone or distributed PCM system are programmed via one PCM Base unit (MI_Base3 Module) connected to a PC with Windows based software -- (Single Point Programming.)

Electrical Specifications:

Bi-Level Inputs:

16 Programmable Threshold BI-Level Inputs:

Threshold: independently programmed for threshold levels from -38 volts to +38 volts with fine resolution.

Threshold Accuracy: ± 0.1 Volt Maximum.

Threshold Temperature Drift: ± 0.1 Volt Maximum.

Hysteresis: ± 0.175 Volts.

Maximum Input Level: - 60 Volts to + 60 Volts

4 Fixed Threshold BI-Level Inputs:

Threshold: 3.3 Volts CMOS/TTL

Maximum Input Level - 5 Volts to + 10 Volts.

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Connecting Module Straps:

The module address is programmed via three straps at the connector. They are STP0 (pin 29), STP1 (pin 30) and STP2 (pin 31). Valid module addresses are 1 through 7. The base unit defaults to module address 0. All three straps are pulled high. To obtain a binary 1, leave unconnected. Connect to DGND (pin 28) to obtain a binary 0. STP0 is the least significant bit. Avoid module address conflicts by assigning a unique module address to each module attached to a base unit.

MI_BILVL Programming:

For bi-level bits 20 down to 1:

Programming Address	Bi-level Bits (MSB transmitted first)	
	MSB	LSB
0	16:15:14:13:12:11:10:9:8:7:6:5:4:3:2:1	
1	12:11:10:9:8:7:6:5:4:3:2:1:16:15:14:13	
2	8:7:6:5:4:3:2:1:16:15:14:13:12:11:10:9	
3	4:3:2:1:16:15:14:13:12:11:10:9:8:7:6:5	
4	20:19:18:17:16:15:14:13:12:11:10:9:8:7:6:5	

The encoder truncates the LSB's for bits/word less than 16.
Bi-Level bits 17, 18, 19, 20, are fixed threshold.
Bi-Level bits 1 to 16 are programmable threshold.

Environmental:

Operating Temperature:	-40°C to +85°C
Storage Temperature:	-55°C to +125°C
Humidity:	Relative humidity of 85% for two hours at 65°C.
Altitude:	Unlimited
Vibration:	20g's RMS from 5 to 2000Hz in each major axis.
Acceleration:	Constant acceleration of 100g's in each axis.
Shock:	100g's for 10m second in each major axis.

Mechanical:

Size:
Length: 3.50 inches; Width: 1.25 inches; Height: 0.310 inches.

ENGRAVING:

MI_BILVL

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J1 pin connections

Connector P.N.: Nanonics # STMO37M6HN; TYCO # 4-1589487-0

Mate P.N.: P.N.: Nanonics # STMO37PC2DC024N; TYCO # 3-1589474-9

1	IN1	19	IN19
2	IN2	20	IN20
3	IN3	21	DGND
4	IN4	22	RESET_ATMEL_N
5	IN5	23	TCK_ATMEL
6	IN6	24	TMS_ATMEL
7	IN7	25	TDO_ATMEL
8	IN8	26	TDI_ATMEL
9	IN9	27	DGND
10	IN10	28	DGND
11	IN11	29	STP0
12	IN12	30	STP1
13	IN13	31	STP2
14	IN14	32	DGND
15	IN15	33	DGND
16	IN16	34	TMS_CPLD
17	IN17	35	TDO_CPLD
18	IN18	36	TCK_CPLD
		37	TDI_CPLD

<u>PIN</u>	<u>SIGNAL</u>	<u>FUNCTION</u>
1	IN1	Bi-Level input channel 1, Programmable
2	IN2	Bi-Level input channel 2, Programmable
3	IN3	Bi-Level input channel 3, Programmable
4	IN4	Bi-Level input channel 4, Programmable
5	IN5	Bi-Level input channel 5, Programmable
6	IN6	Bi-Level input channel 6, Programmable
7	IN7	Bi-Level input channel 7, Programmable
8	IN8	Bi-Level input channel 8, Programmable
9	IN9	Bi-Level input channel 9, Programmable
10	IN10	Bi-Level input channel 10, Programmable
11	IN11	Bi-Level input channel 11, Programmable
12	IN12	Bi-Level input channel 12, Programmable
13	IN13	Bi-Level input channel 13, Programmable
14	IN14	Bi-Level input channel 14, Programmable
15	IN15	Bi-Level input channel 15, Programmable
16	IN16	Bi-Level input channel 16, Programmable
17	IN17	Bi-Level input channel 17, Fixed
18	IN18	Bi-Level input channel 18, Fixed
19	IN19	Bi-Level input channel 19, Fixed
20	IN20	Bi-Level input channel 20, Fixed

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35	TDO_CPLD	CPLD JTAG
37	TDI_CPLD	CPLD JTAG
36	TCK_CPLD	CPLD JTAG
34	TMS_CPLD	CPLD JTAG
26	TDI_ATMEL	Micro Controller JTAG & Reset
25	TDO_ATMEL	Micro Controller JTAG & Reset
24	TMS_ATMEL	Micro Controller JTAG & Reset
23	TCK_ATMEL	Micro Controller JTAG & Reset
22	RESET_ATMEL_N	Micro Controller JTAG & Reset
21	DGND	Digital Ground
27	DGND	Digital Ground
28	DGND	Digital Ground
32	DGND	Digital Ground
33	DGND	Digital Ground
29	STP0	Strapping pins for card address, pulled high. Connect to DGND for Binary 0.
30	STP1	Strapping pins for card address, pulled high. Connect to DGND for Binary 0.
31	STP2	Strapping pins for card address, pulled high. Connect to DGND for Binary 0.

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