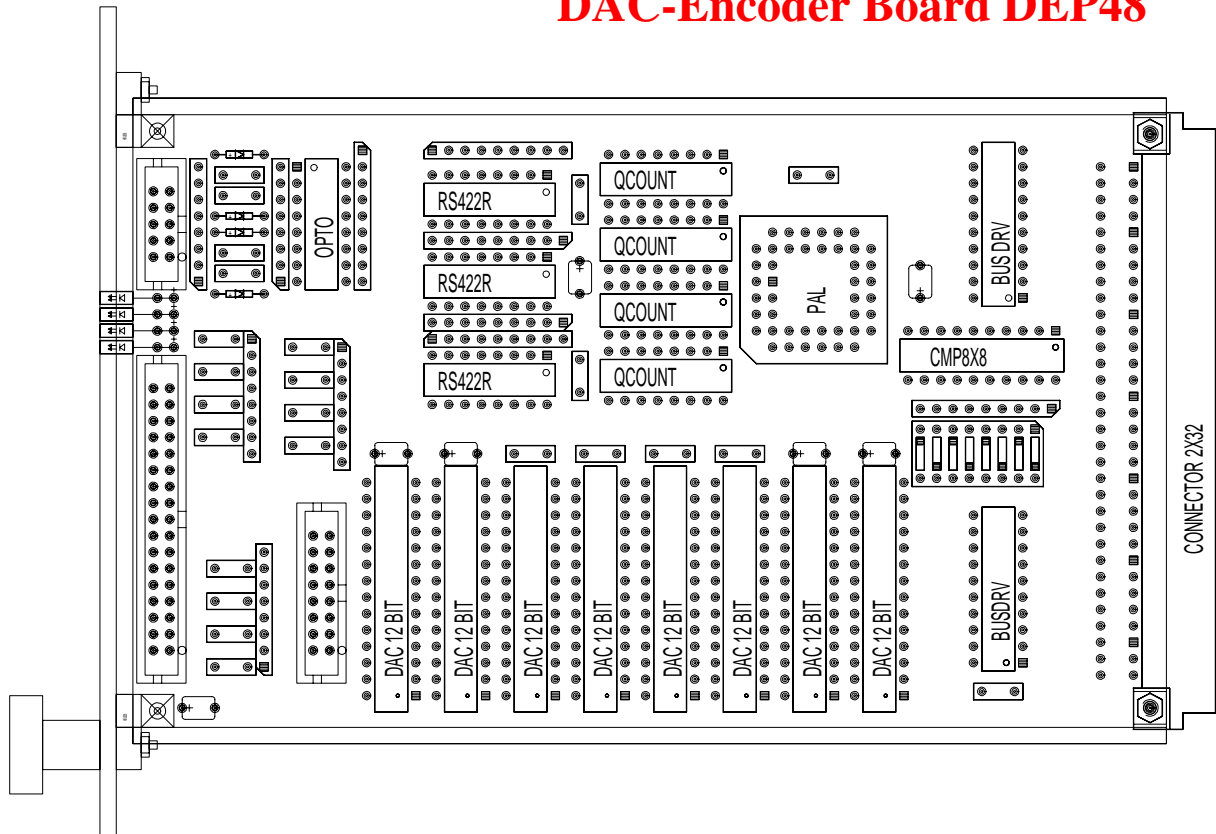


NEW

ROOKH LTD

DAC-Encoder Board DEP48



Features for DAC-Encoder Board DEP48

- Euro-board 160 x 100 mm, Eurobus connection with 64 pin connector
- Complete control up to 4 axis (Portal X1,X2,Y,Z)
- 4 inputs RS422 for 4 encoders
- 8 outputs analog 12 Bit 10V bipolar for demand currents
- 4 galvanic decoupled inputs 24V for reference switches
- Variable mounting possible
- Base address settings per DIP-Switch, multiple boards at the same bus possible

Pin assignment for DAC-Encoder Board DEP48

XT2 34 pin Encoders Male Connector, Front view

Digital ground	<i>GND</i>	01	⊙	⊙	02	<i>AXP</i>	Positive pulse A axis X
Negative pulse A axis X	<i>AXM</i>	03	⊙	⊙	04	<i>BXP</i>	Positive pulse B axis X
Negative pulse B axis X	<i>BXM</i>	05	⊙	⊙	06	<i>IXP</i>	Positive pulse I axis X
Negative pulse I axis X	<i>IXM</i>	07	⊙	⊙	08	<i>+5V</i>	+5V supply voltage
Digital ground	<i>GND</i>	09	⊙	⊙	10	<i>AYP</i>	Positive pulse A axis Y
Negative pulse A axis Y	<i>AYM</i>	11	⊙	⊙	12	<i>BYP</i>	Positive pulse B axis Y
Negative pulse B axis Y	<i>BYM</i>	13	⊙	⊙	14	<i>IYP</i>	Positive pulse I axis Y
Negative pulse I axis Y	<i>IYM</i>	15	⊙	⊙	16	<i>+5V</i>	+5V supply voltage
Digital ground	<i>GND</i>	17	⊙	⊙	18	<i>AZP</i>	Positive pulse A axis Z
Negative pulse A axis Z	<i>AZM</i>	19	⊙	⊙	20	<i>BZP</i>	Positive pulse B axis Z
Negative pulse B axis Z	<i>BZM</i>	21	⊙	⊙	22	<i>IZP</i>	Positive pulse I axis Z
Negative pulse I axis Z	<i>IZM</i>	23	⊙	⊙	24	<i>+5V</i>	+5V supply voltage
Digital ground	<i>GND</i>	25	⊙	⊙	26	<i>AWP</i>	Positive pulse A axis W
Negative pulse A axis W	<i>AWM</i>	27	⊙	⊙	28	<i>BWP</i>	Positive pulse B axis W
Negative pulse B axis W	<i>BWM</i>	29	⊙	⊙	30	<i>IWP</i>	Positive pulse I axis W
Negative pulse I axis W	<i>IWM</i>	31	⊙	⊙	32	<i>+5V</i>	+5V supply voltage
Not connected	<i>NC</i>	33	⊙	⊙	34	<i>NC</i>	Not connected

Pulses A,B are quadrature (90 degree phase shifted) encoder signals, RS422 standard specification. Pulse I is reference pulse from encoder, RS422 specification. +5V voltage from connector XT2 can be used as supply voltage for encoders.

Use twisted pair screened or ribbon cable, screen connection to connectors case

XT3 16 pin DAC Output Male Connector, Front view

DAC output phase B axis W	<i>VWB</i>	01	⊙	⊙	02	<i>GNA</i>	Ground analog
DAC output phase A axis W	<i>VWA</i>	03	⊙	⊙	04	<i>GNA</i>	Ground analog
DAC output phase B axis Z	<i>VZB</i>	05	⊙	⊙	06	<i>GNA</i>	Ground analog
DAC output phase A axis Z	<i>VZA</i>	07	⊙	⊙	08	<i>GNA</i>	Ground analog
DAC output phase B axis Y	<i>VYB</i>	09	⊙	⊙	10	<i>GNA</i>	Ground analog
DAC output phase A axis Y	<i>VYA</i>	11	⊙	⊙	12	<i>GNA</i>	Ground analog
DAC output phase B axis X	<i>VXB</i>	13	⊙	⊙	14	<i>GNA</i>	Ground analog
DAC output phase A axis X	<i>VXA</i>	15	⊙	⊙	16	<i>GNA</i>	Ground analog

All DACs outputs are 10V bipolar voltages with resolution 12 bits with return GNA.

Ground analog is internal connected to ground digital.

Connector is optimized for ribbon cable montage

XT4 10 pin End Switch Input Male Connector, Front view

End switch axis X	<i>RSX</i>	01	⊙	⊙	02	<i>RSY</i>	End switch axis Y
End switch axis Z	<i>RSZ</i>	03	⊙	⊙	04	<i>RSW</i>	End switch axis W
Ground for +24V	<i>G24</i>	05	⊙	⊙	06	<i>G24</i>	Ground for +24V
Not connected	<i>NC</i>	07	⊙	⊙	08	<i>NC</i>	Not connected
Not connected	<i>NC</i>	09	⊙	⊙	10	<i>NC</i>	Not connected

End switch voltages are +24V opto-coupled voltages with return G24.

Connector is optimized for ribbon cable montage

Memory Map for DAC-Encoder Board DEP48

Legend: R/W = Read/Write, A = Address offset, 15-00 = data bits.

All numbers are hexadecimal

R/W	A	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
W	0	DIGITAL TO ANALOG CONVERTER N 1												Not used			
W	1	DIGITAL TO ANALOG CONVERTER N 2												Not used			
W	2	DIGITAL TO ANALOG CONVERTER N 3												Not used			
W	3	DIGITAL TO ANALOG CONVERTER N 4												Not used			
W	4	DIGITAL TO ANALOG CONVERTER N 5												Not used			
W	5	DIGITAL TO ANALOG CONVERTER N 6												Not used			
W	6	DIGITAL TO ANALOG CONVERTER N 7												Not used			
W	7	DIGITAL TO ANALOG CONVERTER N 8												Not used			

DAC codes are offset binary (0000 = -10V, 8000 = 0V, FFFF= +10V)

R/W	A	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
W	8	Not used						M1	Not used								
W	9	Not used						M2	Not used								
W	A	Not used						M3	Not used								
W	B	Not used						M4	Not used								

M1-M4 are enable (1) or disable (0) bits for reset quadrature counters by reference marks for encoders 1-4

R/W	A	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
W	C	Not used						R1	Not used								
W	D	Not used						R2	Not used								
W	E	Not used						R3	Not used								
W	F	Not used						R4	Not used								

R1-R4 are reset (1) bits for reset quadrature counters for encoders 1-4

R/W	A	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
R	0	Low byte quadrature counter 1						Not used			I4	I3	I2	I1			
R	1	High byte quadrature counter 1						Not used			I4	I3	I2	I1			
R	2	Low byte quadrature counter 2						Not used			Not used						
R	3	High byte quadrature counter 2						Not used			Not used						
R	4	Low byte quadrature counter 3						Not used			Not used						
R	5	High byte quadrature counter 3						Not used			Not used						
R	6	Low byte quadrature counter 4						Not used			Not used						
R	7	High byte quadrature counter 4						Not used			Not used						

Reading order of quadrature counters is critical! Read first high byte (latch 16-bit counter to 16-bit register and read high byte), and then low byte (from latched), reset inhibit)

I1-I4 are digital inputs bits from limit switches 1-4 (optically isolated, I=0 for input active)

R/W	A	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	
R	8	Not used						M1	F1	Not used								
R	9	Not used						M2	F2	Not used								
R	A	Not used						M3	F3	Not used								
R	B	Not used						M4	F4	Not used								

F1-F4 are reference mark flags for encoders 1-4, F=1 -> ref mark

Address base AB settings with on-board DIL Switch S8-S1:

AB = 900000+S8*800+S7*400+S6*200+S5*100+S4*80+S3*40+S2*20+S1*10+A

Switch S8-S1 = 1 is OFF state, S8-S1 = 0 is ON state

Default setting is S8-S1 OFF, AB=900FF0