7I34 MANUAL

8 channel RS-422/RS-485 Interface

V1.0

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GENERAL

DESCRIPTION

The 7I34 is a 8 channel RS-422 interface for Mesa's Anything I/O series of FPGA interface cards. The 7I34 has 8 independent receive and transmit channels. Each transmit channel has a independent drive enable for bus or 2 wire half duplex systems.

The controller connection is a 50 pin header that matches the pinout or the 4I34M, 4I65, 5I20 and 7I60 Anything I/O cards. Another 50 pin header is used for RS-422 connections.

The 7I34 has an assembly option for receive only applications. This model (7I34-R) has 16 RS-422 inputs but no outputs .Another assembly option (7I34-485) replaces the drivers with RS-485 compatible chips.

The 7I34 can be used with an Anything I/O card for multiple channel RS-422 serial interfaces, encoder interfaces, any many other industrial applications.

HARDWARE CONFIGURATION

GENERAL

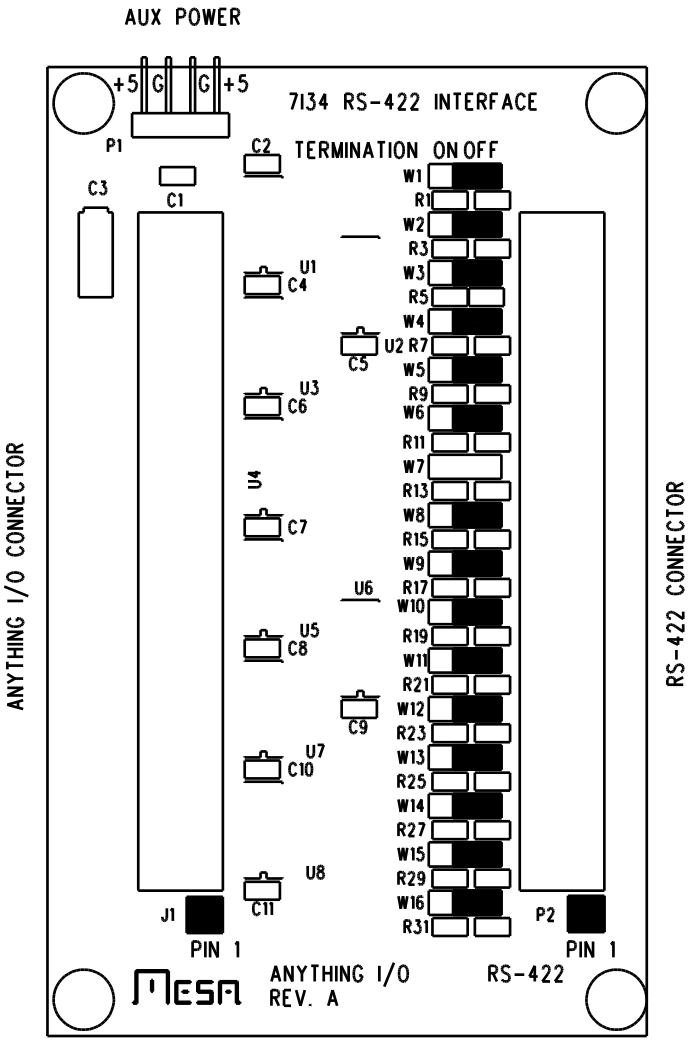
Hardware setup jumper positions assume that the 7I34 card is oriented in an upright position, that is, with the 50 pin controller connector is on the left hand side. The only user settable option on the 7I34 is RS-422 termination.

DEFAULT CONFIGURATION

JUMPER	FUNCTION	DEFAULT SETTING
W1	RX0 TERM	RIGHT = NO TERM
W2	RX1 TERM	RIGHT = NO TERM
W3	RX2 TERM	RIGHT = NO TERM
W4	RX3 TERM	RIGHT = NO TERM
W5	RX4 TERM	RIGHT = NO TERM
W6	RX5 TERM	RIGHT = NO TERM
W7	RX6 TERM	RIGHT = NO TERM
W8	RX7 TERM	RIGHT = NO TERM
W9	RX8 TERM	RIGHT = NO TERM (-R only)
W10	RX9 TERM	RIGHT = NO TERM (-R only)
W11	RX10 TERM	RIGHT = NO TERM (-R only)
W12	RX11 TERM	RIGHT = NO TERM (-R only)
W13	RX12 TERM	RIGHT = NO TERM (-R only)
W14	RX13 TERM	RIGHT = NO TERM (-R only)
W15	RX14 TERM	RIGHT = NO TERM (-R only)
W16	RX15 TERM	RIGHT = NO TERM (-R only)

CONNECTORS

CONNECTOR LOCATIONS AND DEFAULT JUMPER POSITIONS



CONNECTORS

CONTROLLER CONNECTOR

50 pin header connector J1 connects to the anything I/O card/motion controller. This can be a male 50 pin header on the top of the 7I34 card or a female 50 conductor header on the bottom side of the 7I34 depending on 7I34model.

PIN	FUNCTION	DIRECTION	PIN	FUNCTION	DIRECTION
1	RX0	FROM 7I34	25	RX4	FROM 7I34
3	RX1	FROM 7I34	27	RX5	FROM 7I34
5	RX2	FROM 7I34	29	RX6	FROM 7I34
7	RX3	FROM 7I34	31	RX7	FROM 7I34
9	TX0	TO 7I34	33	TX4	TO 7I34
11	ENA0	TO 7I34	35	ENA4	TO 7I34
13	TX1	TO 7I34	37	TX5	TO 7I34
15	ENA1	TO 7I34	39	ENA5	TO 7I34
17	TX2	TO 7I34	41	TX6	TO 7I34
19	ENA2	TO 7I34	43	ENA6	TO 7I34
21	TX3	TO 7I34	45	TX7	TO 7I34
23	ENA3	TO 7I34	47	ENA7	TO 7I34
			49	+5V PWR	TO 7I34

Note: all even pins are grounded.

AUX 5V POWER

4 pin header P1 can be used to supply 5V power to the 7I34 if the 50 conductor controller cable is too long and voltage drop too high. P1 has the following pinout:

PIN	FUNCTION
1	5V
2	GND
3	GND
4	5V

CONNECTORS

RS-422 CONNECTOR

The RS-422 (P2) is a 50 pin latching header. P2 has the following pinout:

PIN	FUNCTION	DIRECTION	PIN	FUNCTION	DIRECTION
1	GND		25	GND	
2	RXA0	TO 7I34	26	RXA4	TO 7I34
3	RXB0	TO 7I34	27	RXB4	TO 7I34
4	GND		28	GND	
5	TXA0	FROM 7I34	29	TXA4	FROM 7I34
6	TXB0	FROM 7I34	30	TXB4	FROM 7I34
7	GND		31	GND	
8	RXA1	TO 7I34	32	RXA5	TO 7I34
9	RXB1	TO 7I34	33	RXB5	TO 7I34
10	GND		34	GND	
11	TXA1	FROM 7I34	35	TXA5	FROM 7I34
12	TXB1	FROM 7I34	36	TXB5	FROM 7I34
13	GND		37	GND	
14	RXA2	TO 7I34	38	RXA6	TO 7I34
15	RXB2	TO 7I34	39	RXB6	TO 7I34
16	GND		40	GND	
17	TXA2	FROM 7I34	41	TXA6	FROM 7I34
18	TXB2	FROM 7I34	42	TXB6	FROM 7I34
19	GND		43	GND	
20	RXA3	TO 7I34	44	RXA7	TO 7I34
21	RXB3	TO 7I34	45	RXB7	TO 7I34
22	GND		46	GND	
23	TXA3	FROM 7I34	47	TXA7	FROM 7I34
24	TXB3	FROM 7I34	48	TXB7	FROM 7I34
			49	VCC	
			50	GND	

OPERATION

5V POWER

The 7I34 requires ~220 mA of 5V power for operation. Power for the 7I34 is normally supplied from pin 49 of the 50 conductor controller cable, but can also be supplied via P1.

ENABLE INPUT

Each 7I34 transmit channel has an active high TTL level enable input (ENA(N). When this input is high, the corresponding TXA(N) and TXB(N) pair are driven. When the ENA(N) input is low, the corresponding output pair is TRI-STATED.

INPUT/OUTPUT POLARITY

The RS-422 differential I/O signals consists of a inverted and non-inverted signal pair for each unbalanced signal on the Anything I/O side of the interface. The TXA(N) and RXA(N) signals are the inverted signals. The TXB(N) and RXB(N) signals are the non-inverted RS-422 signals.

SPECIFICATIONS

	MIN	MAX	UNITS
5V POWER SUPPLY	4.75	5.25	VDC
5V POWER CONSUMPTION	---	275	mA
TERMINATION RESISTOR	99	101	Ohm
OPERATING TEMP.	0	+70	^{o}C
OPERATING TEMP. (-I version)	-40	+85	^{o}C
OPERATION HUMIDITY	0	95%	NON-COND