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Tech TALK

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IQplus™ 310 Communications Interfaces

In this issue, we'll discuss the 310's serial communication system. We've included a helpful chart of the 310's unique Berg jumper system. You will also find a handy chart for your toolbox with common pin hook-ups using RS-232 and 20mA CL formats.

THE J4 SERIAL COMMUNICATION TERMINAL STRIP OF THE 310 HAS ONLY 5 PINS DEVOTED TO SERIAL WIRING. WHAT ARE THE OTHER TWO PINS FOR?

The 310 serial communications cable connects to the 7-pin terminal J4 on the Main Board, shown in Figure 1.

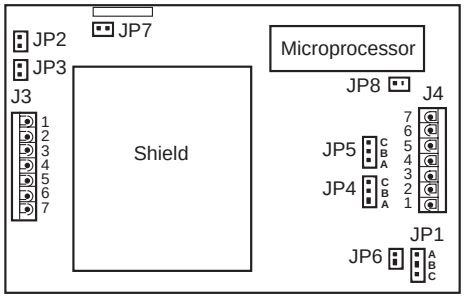

FIGURE 1 -- MAIN CIRCUIT BOARD

Only pins #1-#5 are for connecting communications cables. The top two pins, #6 and #7, are for connecting digital inputs.

J4	Communications Cable Signal
7	Digital Input 1 (Active Low)
6	Digital Input 2 (Active Low)
5	Printer TXD (transmit) RS232, 20 mA
4	EDP RXD 20 mA CL +
3	EDP RXD RS232, 20 mA CL -
2	Signal Ground, 20mA CL-
1	EDP TXD (transmit) RS232, 20 mA CL+

FIGURE 2 -- J4 TERMINAL ASSIGNMENTS

To extend the range of communications options, Berg-type jumpers can be added to any of four plug-in fittings, JP1, JP4, JP5, or JP6. These jumpers change the internal wiring configuration. Extra Berg-type jumpers are included in the 310 accessory kit sent with the unit.

WHAT JUMPER POSITIONS DO I USE FOR THE FORMAT I NEED?

Positioning these jumpers in various ways changes the wiring configuration. Three of the fittings have either an AB jumper position for RS-232, or a BC position for 20mA Current Loop. The fourth fitting (JP6) has only an IN or OUT position for Active or Passive Current Loop.

Jumper	Function	Position/Selection
JP1	EDP RXD	AB-RS232, BC-20 mA
JP4	EDP TXD	AB-RS232, BC-20 mA
JP5	Print TXD	AB-RS232, BC-20 mA
JP6	EDP RXD 20 mA	In-Active, Out-Passive

FIGURE 3-- JUMPER POSITIONS

DO I ONLY ADD THE SINGLE JUMPER FOR THE FORMAT I AM USING AND LEAVE THE OTHER JUMPER SOCKETS EMPTY?

Only one or two jumpers are actually needed, but in practice it is often simpler to add all three of the 2-position jumpers. If using RS232 format, set all three jumpers to the AB position; if using 20mA Current Loop, set all three to the BC position. If required, add JP6 for Active 20mA Current Loop.

HOW CAN THE 310 BE CONNECTED TO A COMPUTER?

The 310's EDP port can be wired directly to a PC using the pin connections for RS-232 communication. Connect the 310's pin for EDP Transmit by RS232 to the PC's Receive pin, and vice versa. Connect signal ground to signal ground. On the chart on the following page, these connections are shown for standard 9-pin and 25-pin connectors.

DO I NEED TO TAKE ANY SPECIAL PRECAUTIONS WITH CONNECTIONS IF THE 310 IS USED IN A WASHDOWN APPLICATION?

Use only one shielded cable for all signal connections, including any digital inputs used. Tighten the cord grip fitting around this cable to a torque of 19 lb-in after all connections are final. If you have the NEMA 4 model designed for washdown use, these precautions are especially important to maintain the watertightness of the enclosure.

(See other side for additional information)

WHERE CAN I FIND EASY-TO-READ CHARTS SHOWING WIRING INTERFACES TO COMMON PERIPHERALS?

Following are charts for RS-232 format, and 20mA CL Active format for a variety of printers, displays, keyboards, and computers. If 20 mA CL Passive format is required, remove jumper JP6 and use the same pin connections as listed for 20mA CL Active.

To save time on installation jobs, you may wish to photocopy these charts and keep them in your toolbox.

RS-232: SET JUMPERS JP1, JP4, & JP5 IN A-B POSITION, SET JP6 OUT

		Printers		Remote Displays		Keyboard	Computers	
J4 PIN	FUNCTION	SP2000	OKIDATA	EL233, 1.5"	EL233, 4-9"	DT210	9-PIN	25-PIN
1	Transmit (EDP)	#3 (CJ5)[1,2,3]	#3[1]	RX DATA[1]	RXD[1]	#3 (J1)[1]	#2[1]	#3[1]
2	Ground	#7 (CJ5)	#7	GROUND	GND	#7 (J1)	#5	#7
3	Receive (EDP)					#2 (J1)	#3	#2
4	Receive (EDP)	(This pin is used for 20mA CL connections only)						
5	Transmit (Print)	#3 (CJ5)[4]	#3[4]				#2[4]	#3[4]
6	Digital Input							
7	Digital Input							

20 MA CL ACTIVE: SET JUMPERS JP1, JP4, & JP5 IN B-C POSITION, SET JP6 IN

J4 PIN	FUNCTION	SP2000	1.5" DISPLAY	4"-9" DISPLAY	DT210
1	(EDP) (+20mA)	#9[1,2]	+RECEIVE CL[1]	RXD CL+[1]	#8[1]
2	Ground (-20mA)	#10	-RECEIVE CL	RXD CL-	#22
3	Receive (EDP)				
4	Receive (EDP)				
5	Transmit (Print)	#9[4]			
6	Digital Input				
7	Digital Input				

[1] IQplus 310 must be set for CONTINUOUS mode on this serial port.
[2] SP2000 must be in WEIGHT EXTRACTION Mode for CONTINUOUS operation.
[3] Pins #4 and #5 on terminal CJ5 must be jumpered.
[4] Alternately, the IQplus 310 can be set for Demand Print on the printer port. See the IQplus 310 manual, rev. 3.1, Section 3.3.5, Figure 20 for information on that format.

This “Tech Talk” bulletin hopefully addresses the majority of questions related to the IQ plus™ 310’s serial communication interfaces. If we have overlooked any area of particular interest to your application, please let us know. Any questions or suggestions regarding our products are always welcomed.

RICE LAKE WEIGHING SYSTEMS
DIVISION OF RICE LAKE BEARING, INC.
Service Department
Rice Lake Weighing Systems
715-234-2003