



Quick Install Guide

This Quick Install Guide is applicable for models: QuadraTherm® 640i & 780i

A copy of this Quick Install Guide, the QuadraTherm 640i & 780i Modbus instruction manual, and the QuadraTherm 640i & 780i product instruction manual are included on the digital communication information CD included in your shipment. This information is also available for [download](#).

Connecting to a Modbus Network

You will need the following to connect Modbus to your device:

1. A Modbus equipped 640i or 780i mass flow meter.
2. A PC equipped with a 2-wire RS-485 interface card or USB to RS-485 adapter.
3. A 2-wire RS-485 network with an end-of-line terminator with pull up and pull down resistors. This becomes more critical when you have more slaves and longer/higher baud rates. See [QuadraTherm 640i & 780i Modbus Manual](#), Chapter 2.
4. A HyperTerminal or another terminal program to access the boot loader to set the ID#, baud rate, parity, and Tx delay. Note: HyperTerminal has been removed from Windows 7. You can either use another terminal program or copy hypertrm.exe and hypertrm.dll from a Windows XP system.
5. Power supply to power the flow meter, 24 VDC +/-10%, Amperage: 1.1A.

Installation Steps

1. Connect the flow meter to the A and B RS-485 network connections (see Figure 1).
2. Start the HyperTerminal (Baud 9600, bits 8, Parity None, Stop Bits 1, Flow Control None).
3. Power-up the meter. Pin 1 +24 VDC and Pin 2 Power Rtn (see Figure 1).
4. Press Enter on your PC within 2 seconds of powering up the flow meter to start the boot loader.
5. Setup meter ID (1 to 247) and the other COM settings. See Set Up instructions in the [QuadraTherm 640i & 780i Modbus Manual](#), Chapter 4 Bootloader for more info.
6. Quit the boot loader and exit HyperTerminal. Start your Modbus application.
7. All the available registers are listed in Table 1.

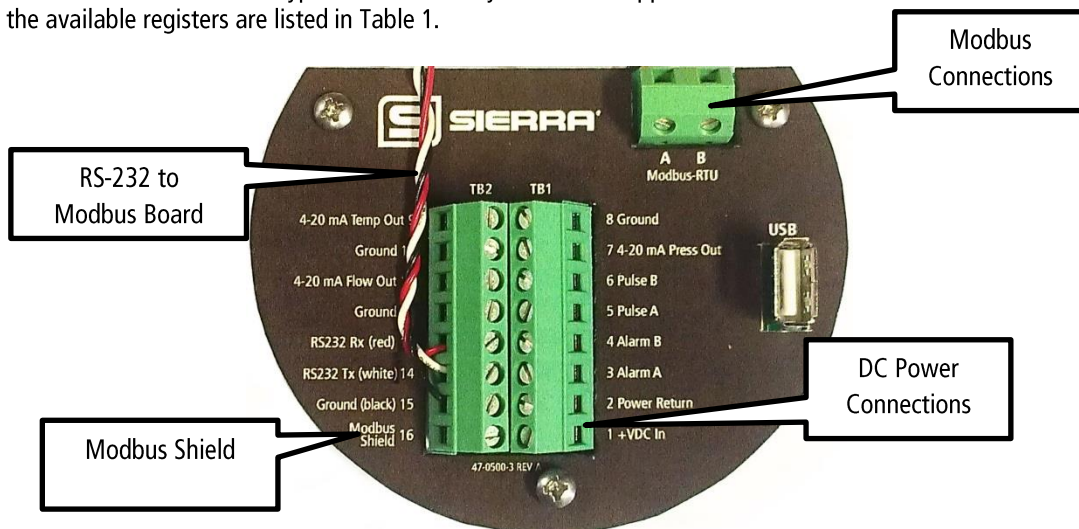


Figure 1: 640i/780i Terminal Board for Modbus Connection

Holding Registers

PDU Address	Register	Description	Read/Write	Type	No. registers*
\$00	40001	Actual flow - low word	R	32 bits real	2
\$01	40002	Actual flow - high word	R		
\$02	40003	Actual temp - low word	R	32 bits real	2
\$03	40004	Actual temp - high word	R		
\$04	40005	Actual pressure - low word	R	32 bits real	2
\$05	40006	Actual pressure - high word	R		
\$06	40007	Actual total - low word	R	32 bits real	2
\$07	40008	Actual total - high word	R		
\$08	40009	Alarm status	R	integer	1
\$09	40010	Gas name	R	16 bits ASCII	8
~					
\$10	40017				
\$11	40018	Gas index	R/W	integer	1
\$12	40019	Flow units	R	16 bits ASCII	4
~					
\$15	40022				
\$16	40023	Flow unit - index	R/W	integer	1
\$17	40024	User full scale – low word	R/W	32 bits real	2
\$18	40025	User full scale – high word	R/W		
\$19	40026	Totalizer units	R	16 bits ASCII	2
\$1A	40027				
\$1B	40028	Totalizer unit - index	R	integer	1
\$1C	40029	Temperature units	R	16 bits ASCII	1
\$1D	40030	Temperature unit - index	R/W	integer	1
\$1E	40031	Pressure units	R	16 bits ASCII	4
~					
\$21	40034				
\$22	40035	Pressure unit - index	R/W	integer	1
\$23	40036	Standard temperature - low word	R/W	32 bits real	2
\$24	40037	Standard temperature - high word	R/W		
\$25	40038	Standard temperature - index	R/W	integer	1
\$26	40039	Standard pressure - low word	R/W	32 bits real	2
\$27	40040	Standard pressure - high word	R/W		
\$28	40041	Standard pressure - index	R/W	integer	1
\$29	40042	Normal temperature - low word	R/W	32 bits real	2
\$2A	40043	Normal temperature - high word	R/W		
\$2B	40044	Normal temperature - index	R/W	integer	1
\$2C	40045	Normal pressure - low word	R/W	32 bits real	2
\$2D	40046	Normal pressure - high word	R/W		
\$2E	40047	Normal pressure - index	R/W	integer	1
\$2F	40048	Adjust DAC for flow – 4mA	R/W	integer	1
\$30	40049	Adjust DAC for flow – 20mA	R/W	integer	1
\$31	40050	Adjust DAC for temperature – 4mA	R/W	integer	1
\$32	40051	Adjust DAC for temperature – 20mA	R/W	integer	1

\$33	40052	Adjust DAC for pressure – 4mA	R/W	integer	1
\$34	40053	Adjust DAC for pressure – 20mA	R/W	integer	1
\$35	40054	Temperature 4mA value – low word	R/W	32 bits real	2
\$36	40055	Temperature 4mA value – high word	R/W		
\$37	40056	Temperature 20mA value – low word	R/W	32 bits real	2
\$38	40057	Temperature 20mA value – high word	R/W		
\$39	40058	Pressure 4mA value – low word	R/W	32 bits real	2
\$3A	40059	Pressure 4mA value – high word	R/W		
\$3B	40060	Pressure 20mA value – low word	R/W	32 bits real	2
\$3C	40061	Pressure 20mA value – high word	R/W		
\$3D	40062	Alarm active	R/W	integer	1
\$3E	40063	Alarm mode	R/W	integer	1
\$3F	40064	Low alarm flow trig – low word	R/W	32 bits real	2
\$40	40065	Low alarm flow trig – high word	R/W		
\$41	40066	High alarm flow trig – low word	R/W	32 bits real	2
\$42	40067	High alarm flow trig – high word	R/W		
\$43	40068	Low alarm temp trig – low word	R/W	32 bits real	2
\$44	40069	Low alarm temp trig – high word	R/W		
\$45	40070	High alarm temp trig – low word	R/W	32 bits real	2
\$46	40071	High alarm temp trig – high word	R/W		
\$47	40072	Low alarm pressure trig – low word	R/W	32 bits real	2
\$48	40073	Low alarm pressure trig – high word	R/W		
\$49	40074	High alarm pressure trig – low word	R/W	32 bits real	2
\$4A	40075	High alarm pressure trig – high word	R/W		
\$4B	40076	Low alarm total trig – low word	R/W	32 bits real	2
\$4C	40077	Low alarm total trig – high word	R/W		
\$4D	40078	High alarm total trig – low word	R/W	32 bits real	2
\$4E	40079	High alarm total trig – high word	R/W		
\$4F	40080	Pipe diameter – low word	R/W	32 bits real	2
\$50	40081	Pipe diameter – high word	R/W		
\$51	40082	Pipe roughness	R/W	integer	1
\$52	40083	Pipe diameter units - index	R/W	integer	1
\$53	40084	Flow correction – low word	R/W	32 bits real	2
\$54	40085	Flow correction – high word	R/W		
\$55	40086	Totalizer enable	R/W	integer	1
\$56	40087	Totalizer buck – low word	R/W	32 bits real	2
\$57	40088	Totalizer buck – high word	R/W		
\$58	40089	Totalizer pulse width	R/W	integer	1
\$59	40090	Totalizer reset	R/W	integer	1
\$5A	40091	Password	R/W	integer	1
\$5B	40092	Standard temperature units	R	16 bits ASCII	1
\$5C	40093	Normal temperature units	R	16 bits ASCII	1
\$5D	40094	Standard pressure units	R	16 bits ASCII	4
~					
\$60	40097				
\$61	40098	Normal pressure units	R	16 bits ASCII	4
~					
\$64	40101				
\$65	40102	Pipe diameter units	R	16 bits ASCII	2

\$66	40103				
\$67	40104	Pipe roughness description	R	16 bits ASCII	5
~					
\$6B	40108				
\$6C	40109	Alarm status	R	16 bits ASCII	2
\$6D	40110				
\$6E	40111	Alarm active	R	16 bits ASCII	2
\$6F	40112				
\$70	40113	Alarm mode	R	16 bits ASCII	3
~					
\$72	40115				
\$73	40116	Serial number	R	16 bits ASCII	4
~					
\$76	40119				
\$77	40120	Firmware version	R	16 bits ASCII	4
~					
\$7A	40123				
\$7B	40124	Calibration date	R	16 bits ASCII	5
~					
\$7F	40128				
\$80	40129	PCA version	R	16 bits ASCII	3
~					
\$82	40131				

* Exceeding the numbers of registers will raise an exception code