

**Bulk & Terminal Products Div.**  
**Precision Tank Gauges**  
**Mass Measurement**  
**LP gases and NH3**



**Founded July 1, 2000**

**Bulk & Terminal Products Div.**  
**Precision Tank Gauges**  
**Mass Measurement**  
**Refined fuels, oils, and**  
**petro-chemicals**

## FTI Tank Gauging Management Information:

FTI's Master Control Unit (MCU) is the cornerstone for developing raw technical data into meaningful and highly accurate inventory management data. The MCU receives the RF signals from the Tank Send Unit, and stores the most recent 128 records per tank. It is a roll-over memory. The newest record replaces the oldest record for the applicable tank. The MCU is capable of managing data for 33 Tank Send Units. Shown below is a typical report for a LPG tank, and for a AST refined products Tank. The LPG reports include the vapor content, which is significant in LPG inventory.

### LPG TANK

Level	Pressure	Gross Fluid Vol	Net Fluid Vol	Vapor Vol	Net Vapor Vol	Total Gross Vol	Total Net Vol	Percent Full	Total Mass	Amb Temp	Load Cell Temp	Battery Voltage	Error Flags	Date	Time
Tank #04	(SG = 0.5050)														
38.515	86	9518	9891	444	426	9962	10317	31.70%	43479	34	34	2.7		18-Jan	1:51
38.564	87	9534	9893	449	432	9983	10325	31.80%	43513	34	34	2.71		18-Jan	0:36
38.532	87	9524	9883	456	439	9980	10322	31.70%	43501	36	36	2.72		17-Jan	23:20
38.577	87	9539	9899	456	439	9995	10338	31.80%	43568	36	35	2.72		17-Jan	22:04
38.573	88	9538	9898	456	439	9994	10337	31.80%	43564	35	35	2.71		17-Jan	20:49
38.601	88	9547	9892	462	446	10009	10338	31.80%	43568	34	35	2.71		17-Jan	19:33
38.642	89	9561	9907	462	446	10023	10353	31.90%	43631	37	37	2.73		17-Jan	18:18

### AST TANK

Direct COM9

Level	Gross Fluid Vol	Net Fluid Vol	Total Gross Vol	Total Net Vol	Percent Full	Total Mass	Ambient Temp	Fluid Temp	Battery	Error Flags	Date	Time
Tank Number #10 (01	SG = 0.8524)											
30.882	47839	47706	47839	47706	4.60%	339366	81	66	2.83		18-Jun	12:41
30.999	48021	47888	48021	47888	4.60%	340658	79	66	2.83		18-Jun	12:27
30.882	47839	47706	47839	47706	4.60%	339366	83	66	2.83		18-Jun	11:58
31.411	48659	48524	48659	48524	4.70%	345180	77	66	2.82		18-Jun	11:43
31.205	48340	48206	48340	48206	4.60%	342919	79	66	2.83		18-Jun	11:29
31.146	48249	48115	48249	48115	4.60%	342273	80	66	2.83		18-Jun	11:14
30.999	48021	47888	48021	47888	4.60%	340658	79	66	2.82		18-Jun	11:00

**13450 NE 177th Place**  
**Tel: 425-487-3464**

**888-487-6454**  
[www.fuelingtechnologies.com](http://www.fuelingtechnologies.com)

**Woodinville, WA 98072**  
**Fax: 425-487-6644**

Bulk & Terminal Products Div.  
Precision Tank Gauges  
Mass Measurement  
LP gases and NH3



Founded July 1, 2000

Bulk & Terminal Products Div.  
Precision Tank Gauges  
Mass Measurement  
Refined fuels, oils, and  
petro-chemicals

## FTI Tank Gauging Master Control Unit

The MCU (Master Control Unit) Includes:

1. a plug in power supply, plugs into any 120 vac or 220 vac wall receptacle.
2. a LCD display for viewing data at the console.
3. a sealed membrane touch key pad for personal interaction with the unit.
4. a 56K internal modem for land line telephone access
5. a db9 serial port for direct serial communications to:
  - A. A local area network module (LAN)
  - B. PC interface via a serial cable
  - C. Internet / Cellular communications



Please see the following page for more enhancements through implementation of FTI's MultiBus module.

## Internet - Cellular Communications Module

Internet - Cellular communications is one of the key innovations from FTI for 2011. Shown to the left is the module installed in an indoor box where there is an existing building within range of the RF tank send units (typically 400' or less, line of sight). The indoor module links to the MCU via it's serial port.



The outdoor pedestal mounted unit is secured by a key-lock. Optionally it can be insulated and heated for harsh climates. If you have AC power on site you can have a highly accurate gauging system.

More commonly the Internet - Cellular module will be on remote sites where there is no building nor existing land line telephone service. The cellular service is a third of the cost of a typical business land line. It can be accessed from any PC on the internet, addressed by an IP address. Access can be from all of your office PCs, your laptop at home, in a hotel room, or even at your favorite WiFi coffee shop.



**Bulk & Terminal Products Div.**  
**Precision Tank Gauges**  
**Mass Measurement**  
**LP gases and NH3**



**Founded July 1, 2000**

**Bulk & Terminal Products Div.**  
**Precision Tank Gauges**  
**Mass Measurement**  
**Refined fuels, oils, and**  
**petro-chemicals**

## MultiBus - Interface Module to FTI's MCU

MultiBus is FTI's advanced interface platform. MultiBus runs off the serial port of the MCU. It receives its power from the MCU. MultiBus gives the MCU many added functions,

Included in MultiBus is the "ModBus" software module, commonly used for commercial / industrial area for interface with PLC (programmable logic controllers). With ModBus MultiBus can supply:

- 4-10 ma output
- 0-10 vdc output

MultiBus includes four (4) communications ports, programmable as:

- RS-232
- RS-485
- Ethernet TCP/IP

Imbedded in the MultiBus is the Veeder Root TLS 350 protocol. While it limits the power of FTI's provided data - VR TLS 350 allows marketers to integrate the two data streams.



				Baud
				8 7
Com 4	Com 2	Stat 2	Power	
				6 5 4 3 2 1
Com 3	Com 1	Stat 1	Sat	Address