

**Integration Estimating Form**  
 FOR: CMT SCADA Batch Wt PLC System 3 systems

By: CTJ  
 DATE: 2/4/04

See Sheet 2 for abbreviations and help *Fill in grayed cells only*

QTY	Task	AI	AO	DI	DO	PID	DH	E1	ALA	OIS	Unit \$	P&Ids
<b>Enter I/O here, automatic cost calc&gt;&gt;</b>		9	3	6	3				6	3	See Below	1 << Enter

*Fill in grayed cells only*

**PLC Development (Hours)**

*Fill in grayed cells only*

	AI	AO	DI	DO	PID	DH	E1	ALA	OIS	Unit \$	P&Ids	Hours
~ RLL development Dwgs	0.3	0.3	0.3	0.3	0.5			0.2				7.5
~ PLC Database development	0.2	0.2	0.2	0.2	0.4				2			10.2
~ PLC Programming using PC software	0.3	0.3	0.1	0.1	0.1				4			16.5
~ Troubleshooting programming	0.2	0.2	0.2	0.2	0.3			0.2				5.4
~ Troubleshooting Hardware	0.2	0.2	0.1	0.1	0.2	2	1		2			9.3
~ RLL Documentation	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2				4.5
~ Procurement, Documentation	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	4			15.3
<b>subtotal hours for PLC</b>											<b>68.7</b>	

**SCADA development (Hours)**

*Fill in grayed cells only*

	AI	AO	DI	DO	PID	DH	E1	ALA	OIS	Unit \$	P&Ids	Hours
~ HMI Loading and System Configuration									4			12.0
2 Screen development based on P&ID s											3	6.0
~ Screen Development for alarms								0.5				3.0
~ Trend Screens (4 per screen)											1.5	0.0
2 Real Time Report Screens											1.5	3.0
2 Historical Report Screens											3	6.0
~ Control Station Screens (8/screen)												0.0
~ Database development	0.1	0.1	0.1	0.1	0.3			0.1				2.7
~ I/O Driver configuration	0.1	0.1	0.1	0.1	0.2				4			14.1
~ Test & Troubleshoot Driver	0.1	0.1	0.1	0.1	0.1							2.1
~ Client Review and update all screens												4.5
~ Setup Data and Communication Hwy						4	4		2			6.0
~ Comm Highway Troubleshooting						4	2		2			6.0
~ Load & Configure PC Anywhere									4			12.0
~ Procurement, Documentation	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	4			15.3
<b>subtotal hours for SCADA</b>											<b>92.7</b>	

<b>Total specialist hours</b>	<b>161.4</b>
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<b>Summary from page 1 &amp; 2</b>	<b>*Total labor cost \$ 6,456</b>
	<b>Total ODC cost \$ -</b>
<b>*Labor cost is with NO markup</b>	<b>Total equipment cost \$ 59,218</b>

Date: \_\_\_\_\_ Approved By \_\_\_\_\_

**Panel Fab, Assembly & Wire (calc in dollars)**

*Fill in grayed cells only*

						Dollars
3	Fabrication (NEMA 4 36"X36"12")					\$ 4,500
~	Assemble and wire	\$15	\$15	\$12	\$12	\$ 288
~	terminals	\$6	\$6	\$5	\$5	\$ 117
~	Continuity check	\$1	\$1	\$1	\$1	\$ 25
~	Transmitter Power Supplies	\$13				\$ 113

**Total cost of panels (does not include PLC or SCADA equipment) \$5,042.70**

**PLC equipment cost (calc in dollars)**

*Fill in grayed cells only*

~	Racks, Cable and Hardware	\$15	\$15	\$10	\$10	\$ 270.00
	Remote Racks					\$ 1,200
3	Processors					\$ 4,500.00
~	I/O cards	\$475	\$550	\$120	\$120	\$ 7,005.00
	PLC to Host Interface Card					\$ 1,701
	Rack to host interface card					\$ 1,200
1	Programming software					\$ 800.00
	Redundancy kit					\$ 5,000
1	Power Supplies					\$ 500.00

Prices Based on Modicon Quantum

**PLC equipment & Software cost \$13,075.00**

**SCADA Equipment cost (calc in dollars)**

*Fill in grayed cells only*

~	Industrial Personal Computer(IPC)	\$3,750				\$ 11,250.00
~	Data Highway Interface					\$ -
~	Ethernet Highway					\$ -
~	SCADA Software & Drivers BATCH	9,000				\$ 27,000.00
~	Operating Software	\$450				\$ 1,350.00
~	Computer cable and hardware	\$500				\$ 1,500.00
	Microsoft Office 2000					\$ -

**SCADA equipment & Software cost \$41,100.00**

**Overhead Direct Costs (calc in dollars)**

*Fill in grayed cells only*

	Trips to site for Installation & Checkout	\$800				\$ -
	Auto Rental per day	\$55				\$ -
0	Auto Private	\$0				\$ -
	Motel & Meal cost (enter Days)	\$115				\$ -
0	Telephone / postage (based on total hours)	\$5				\$ -
0	CADD Cost (per dwg)	\$12				\$ -
0	Reproduction	\$500				\$ -
0	Mobile PC Cost based on weeks in field	\$125				\$ -
0	Desktop PC Cost based on weeks	\$75				\$ -

**ODC cost \$0.00**