

Bentley promise for Rail and Signalling Electrical Schematics

Business Issues

1. Deliver projects and designs quicker
2. Manage late changes
3. Provide accurate information for construction
4. Commissioning
5. Work with many different stakeholders
6. Create high quality records for long term maintenance

What is promis●e

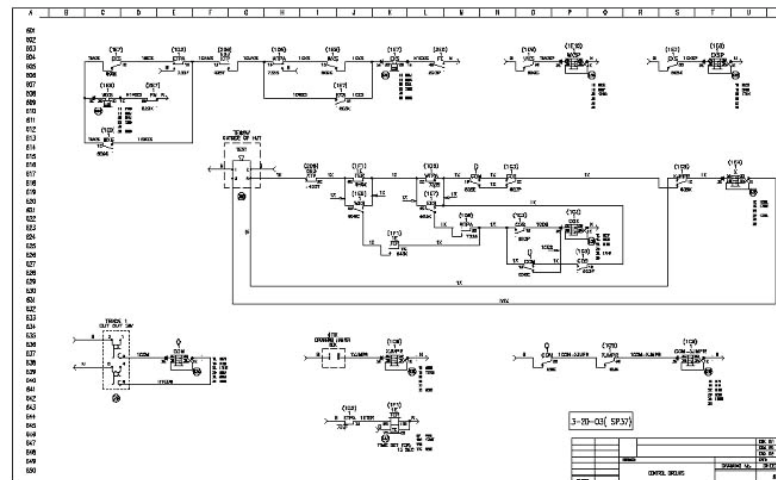
- promis●e is a MicroStation or AutoCAD based program that enables you to create “intelligent” electrical signal drawings and all supporting documentation and rack layouts

The screenshot displays the promis●e software interface. The main window shows a schematic drawing of an electrical system with various components and connections. A catalog window is open, listing components such as TRANSFORMERS, ANSHREE, DS, DS3T, DSFI, and QLMSP. The catalog includes columns for Name, Description, Type, and Category. The interface also shows a command line at the bottom with the text: "Command: Current settings: Auto = Off, Control = None, Combine = Yes. Enter an UNDO control option [All/None/One/Combine] <All>." The status bar at the bottom indicates "Slide 6 of 8" and "1_Default Design".

Name	Description	Type	Category
CI	CIRCUIT INTERRUPTER 3 PHASE	std	Disconnects
DS	DISCONNECT SWITCH	std	Disconnects
DS3T	DISCONNECT SWITCH 3 PHASE TH.	std	Disconnects
DSFI	FUSED DISCONNECT	std	Disconnects
QLMSP	DISCONNECT SWITCH 3 PHASE TH.	std	Disconnects
	Layout		Layout

What is it used for?

- Promis•e
 - General electrical design
 - Simple to use
 - CAD independent
 - Global usage in infrastructure, plant, building
- More than 50,000 users worldwide...



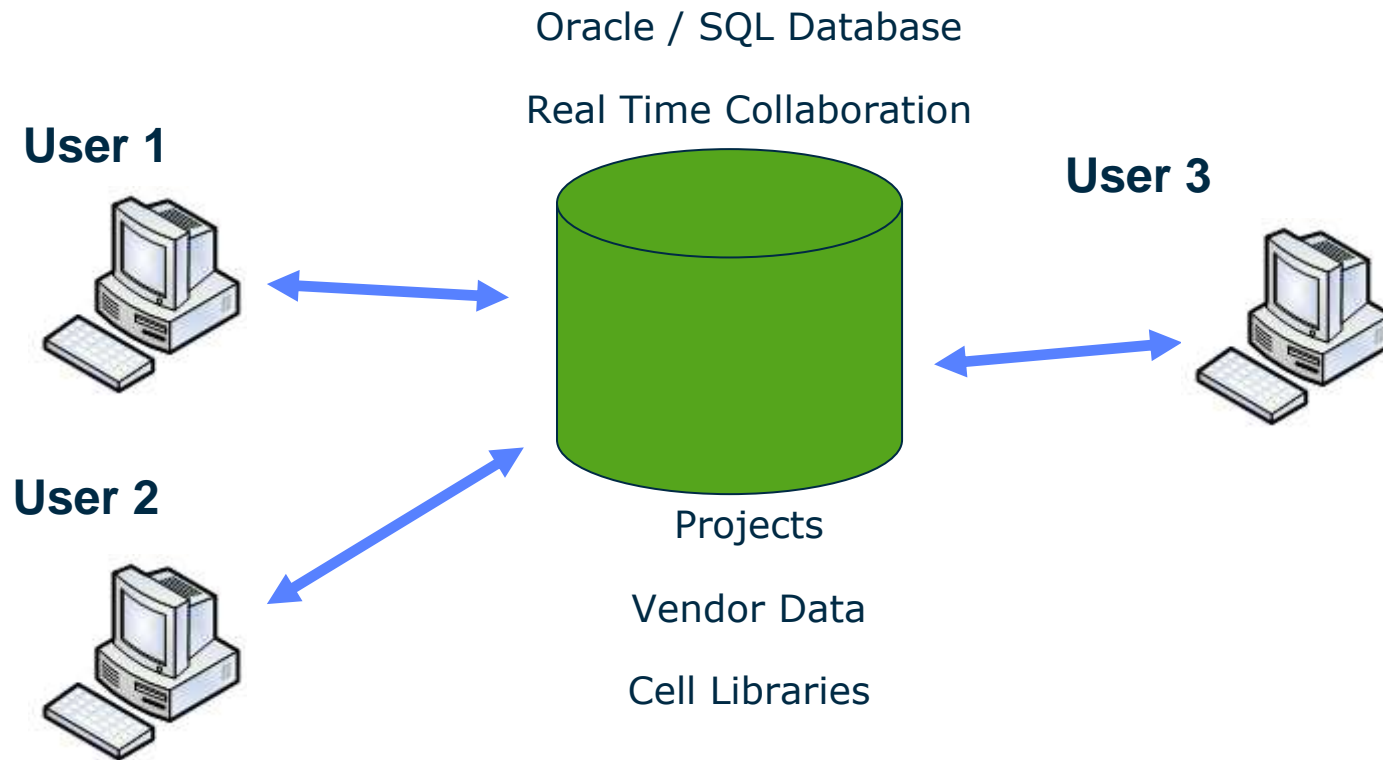
SQL Server or Oracle Database

- The project database supports the following database management systems:



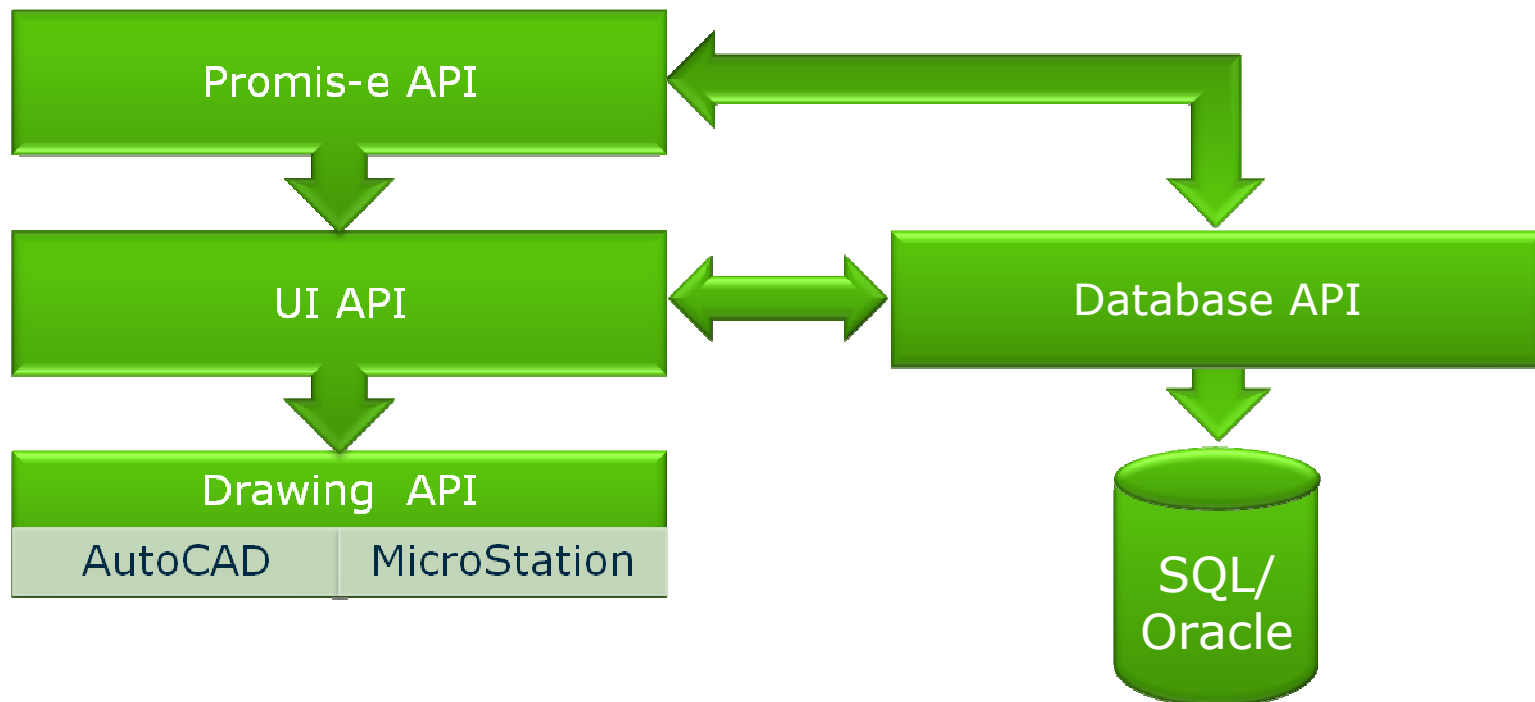
- SQL Server 2000
 - SQL Server 2005 Express
 - Oracle 9i / 10g
- By default the software installs SQL Server 2005 Express. You can use SQL Server Management Studio Express to perform administrative tasks.
 - All projects are stored in one SQL / Oracle Database so users do not need administrative rights to create new projects.

Multi-User Environment



Design and Architecture

- The software is designed using 4 related APIs which communicate with one another and with the databases and CAD engines.



Catalogue Manager

Insert Symbol(s)

By Name By Part Number By Device ID

Name: 1

Description: Search

Display project catalog

Database:

Catalog	Name	Type	Description
ANSI-IEEE	10_CABLE	cablexref	CABLE CROSS REFERENCE: 10 COND
ANSI-IEEE	10_CABLESH	cablexref	CABLE CROSS REFERENCE: 10 CONI
ANSI-IEEE	11_CABLE	cablexref	CABLE CROSS REFERENCE: 11 CO
ANSI-IEEE	11_CABLESH	cablexref	CABLE CROSS REFERENCE: 11 C
ANSI-IEEE	12_CABLE	cablexref	CABLE CROSS REFERENCE: 12 CO
ANSI-IEEE	12_CABLESH	cablexref	CABLE CROSS REFERENCE: 12 C
ANSI-IEEE	14_CABLE	cablexref	CABLE CROSS REFERENCE: 14 CO
ANSI-IEEE	14_CABLESH	cablexref	CABLE CROSS REFERENCE: 14 C
ANSI-IEEE	15_CABLE	cablexref	CABLE CROSS REFERENCE: 15 CO
ANSI-IEEE	15_CABLESH	cablexref	CABLE CROSS REFERENCE: 15 C
ANSI-IEEE	15PINCONN	plug	15 PIN-PLUG CONNECTOR
ANSI-IEEE	16_CABLE	cablexref	CABLE CROSS REFERENCE: 16 CO
ANSI-IEEE	16_CABLESH	cablexref	CABLE CROSS REFERENCE: 16 C
ANSI-IEEE	16INPUT	plc	16 POINT INPUT PLC "REFEREN
ANSI-IEEE	16OUTPUT	plc	16 POINT OUTPUT PLC "REFEREN
ANSI-IEEE	18_CABLE	cablexref	CABLE CROSS REFERENCE: 18 CO
ANSI-IEEE	18_CABLESH	cablexref	CABLE CROSS REFERENCE: 18 C
ANSI-IEEE	120VPOWER	std	GENERIC 120V POWER CONNECTI
ANSI-IEEE	127	std	Dual Sol. Op. Valve Vert. 4/3 Way
ANSI-IEEE	1746-IA16	plc	AC INPUT MODULE (16) INPUT - 100
ANSI-IEEE	1746-IB0	plc	DC INPUT MODULE (8) INPUT - SIM

[Symbol Settings...](#) [Group Settings...](#)

Catalogs:

- Catalogs
 - JIC-3
 - Symbols
 - Macros
 - TitleBlocks
 - Families
 - Disconnects
 - Sensors
 - Photo-Eye
 - Prox

Thumbnail :

PE3-NPN.Dwg PE3-PNP.Dwg

PE3-R-NPN.Dwg PE3-R-PNP.Dwg

PE3P-NPN.Dwg PE3P-PNP.Dwg

-- ANSIMEEE - BS-617 - Hydraulic - ISA - Pneumatic - Switchgear --



SENDING ALL THE RIGHT SIGNALS



Catalog	Size	Date	Download
Schneider Electric Inch	7.29 MB	6/13/2007	Download Now
Schneider Electric PLC Inch	6.0 MB	9/14/2007	Download Now
Schneider Electric Metric	11.3 MB	8/8/2007	Download Now
Schneider Electric PLC Metric	713 KB	8/8/2007	Download Now
Schneider Electric Medium Voltage Metric	9.64 KB	8/8/2007	Download Now

Database	Size	Date	Download
Schneider Electric Inch	376 KB	6/20/2007	Download Now
Schneider Electric Metric	436 KB	6/20/2007	Download Now



Bentley®

Emergency Stop button example:

Physical Device

Panel Layout Mode

Schematic Mode

Wiring Diagram Mode

Terminal Block example:

Physical Device

Schematic Mode

Panel Layout / Graphical Plan Mode

Hydraulic (Fluid Power) Example:

Physical Device

Schematic Mode

Hydraulic Mode

Relay Example:

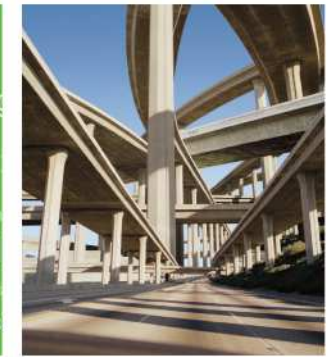
Physical Device

Panel Layout Mode

Wire Diagram (Chart View) Mode

Number	Control Relay
01	01 - TB1 - RL30
02	02 - TB2 - RL30
03	03 - PB10
04	04 - TB10
05	05 - TB10
06	06 - TB10 - RL30

Schematic Mode



Signalling Specific Requirements

Signalling Specific Requirements

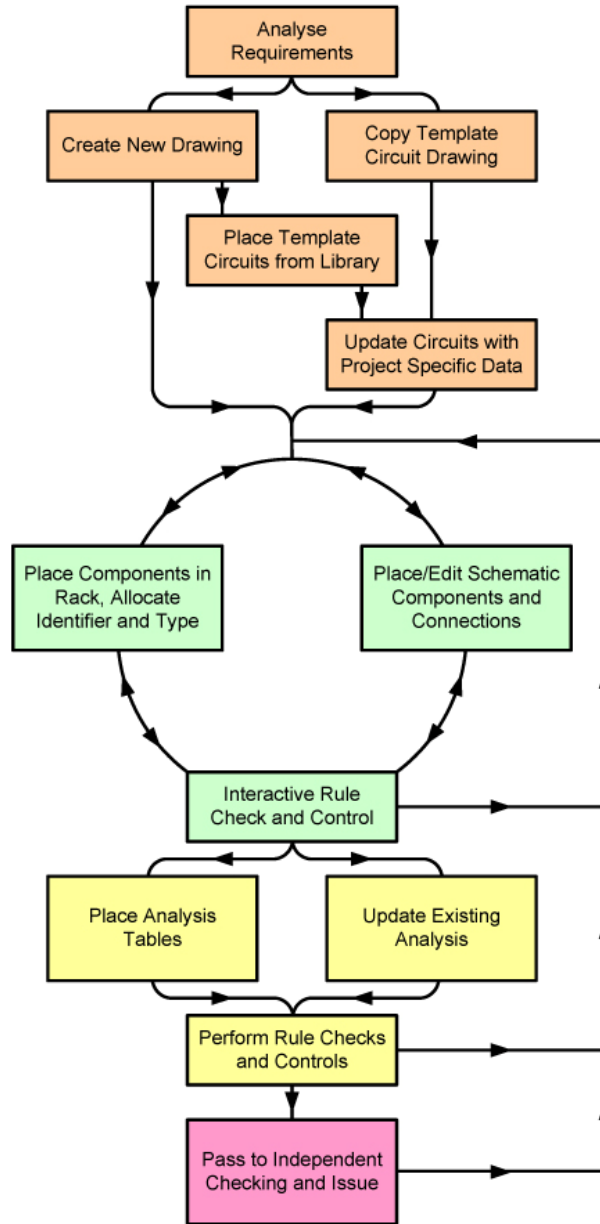
- Create new or modify existing interlockings
- Multi-user editing of interlockings
- Rapid creation of wiring schematics
- Auto generation of wiring schedules and tables
- Intelligent rules based connections
- Schedules and tables linked to schematics
- Creation of rack layouts linked to schematics
- Auto-Generation of plans and documentation

Typical Signalling Components

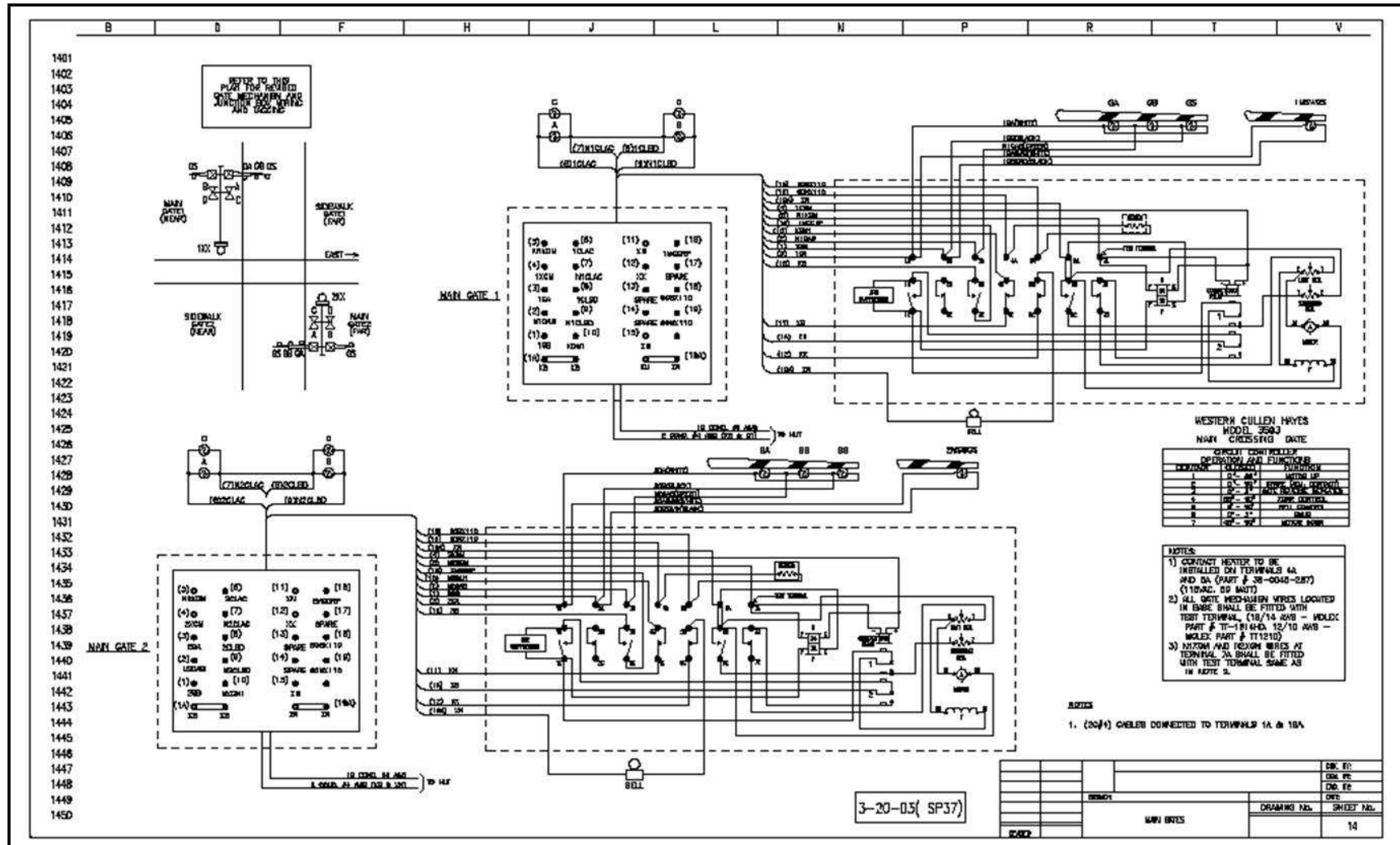
- Components
 - Relays and SSI
 - Terminals and Fuses
 - Power supplies
 - Event recorders
- Connections
 - Internal wires
 - Shielded
 - Twisted pair
 - External Cables
 - Multi-core
- User Definable



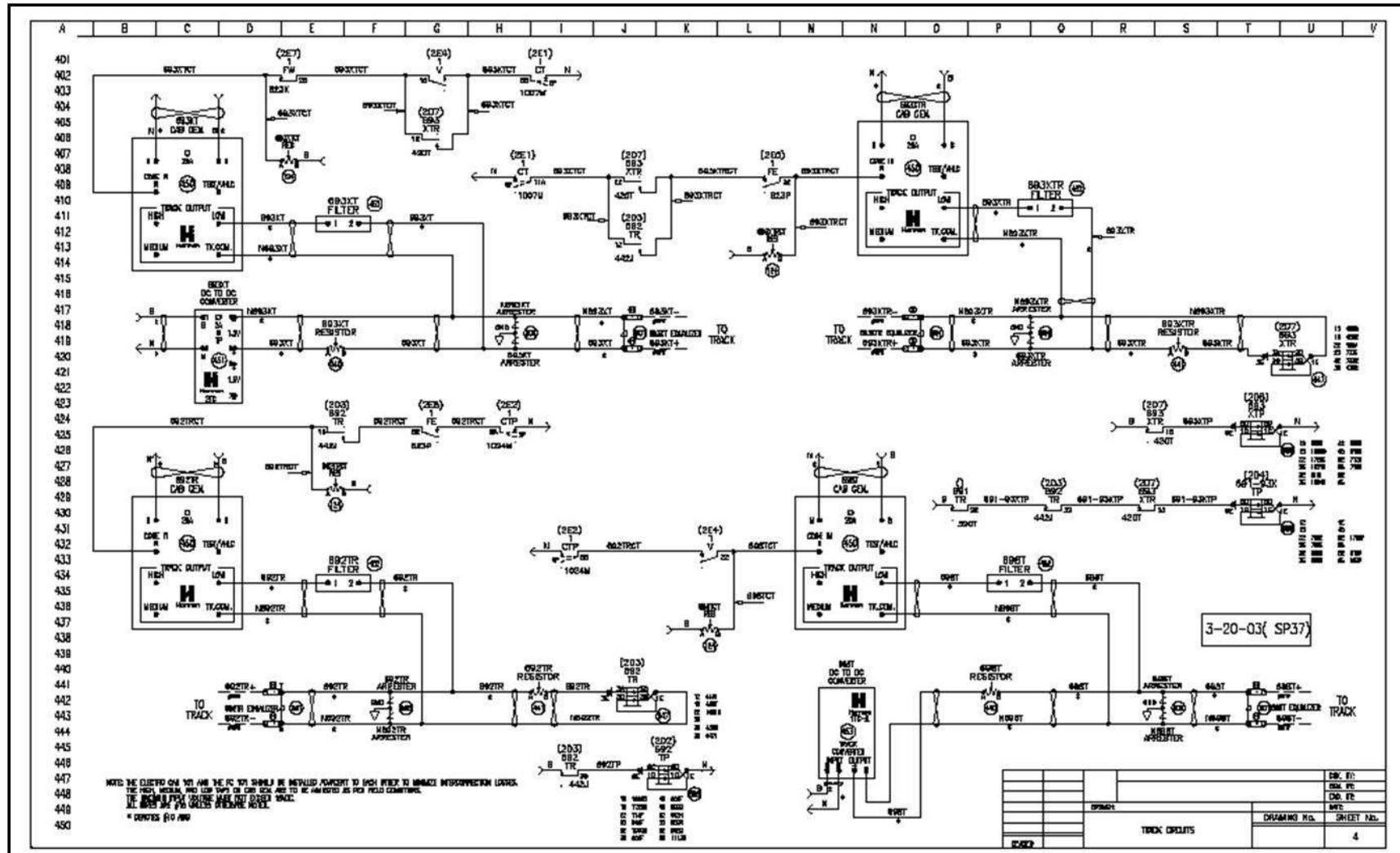
Workflow



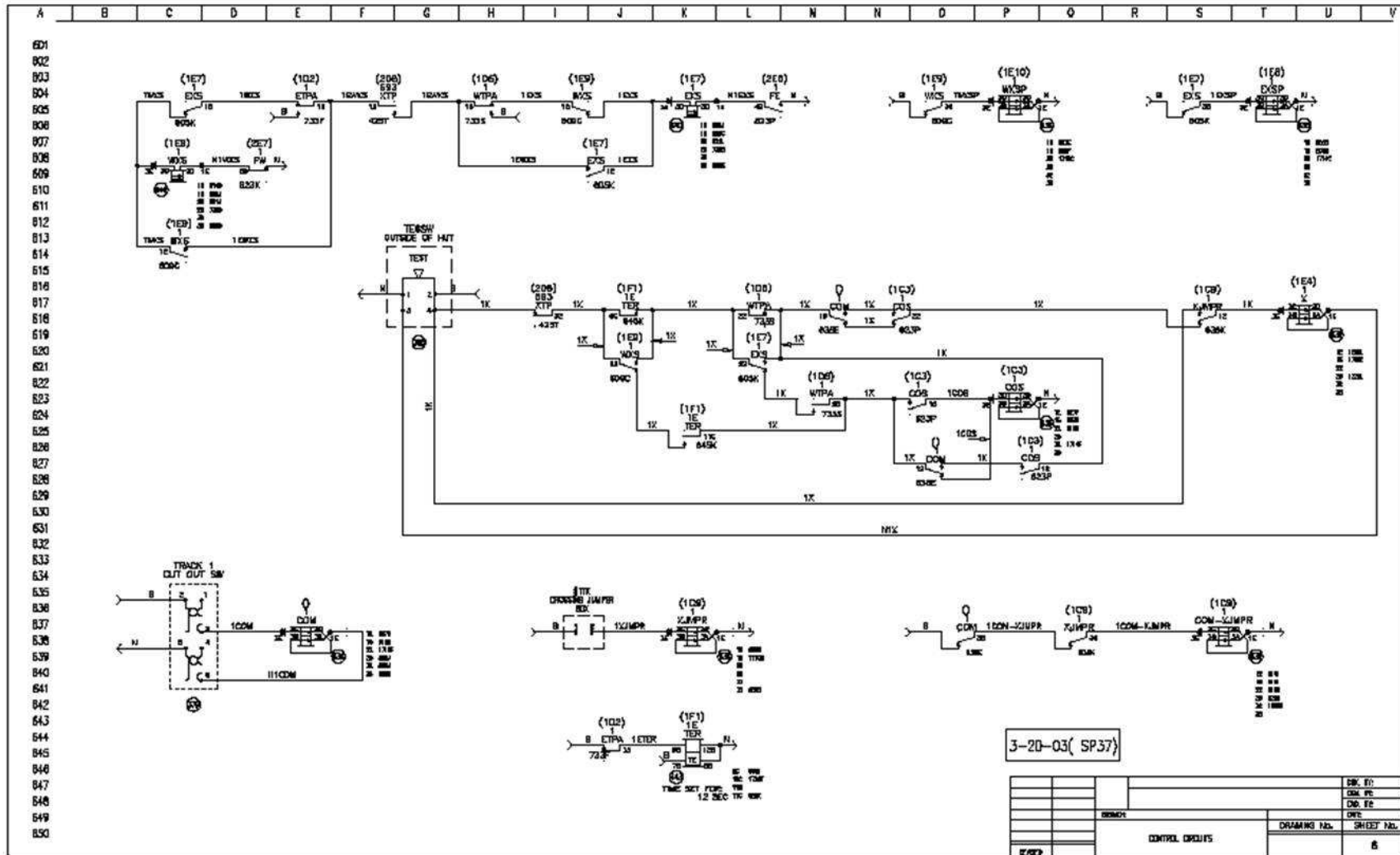
Crossing Gate Control Circuits



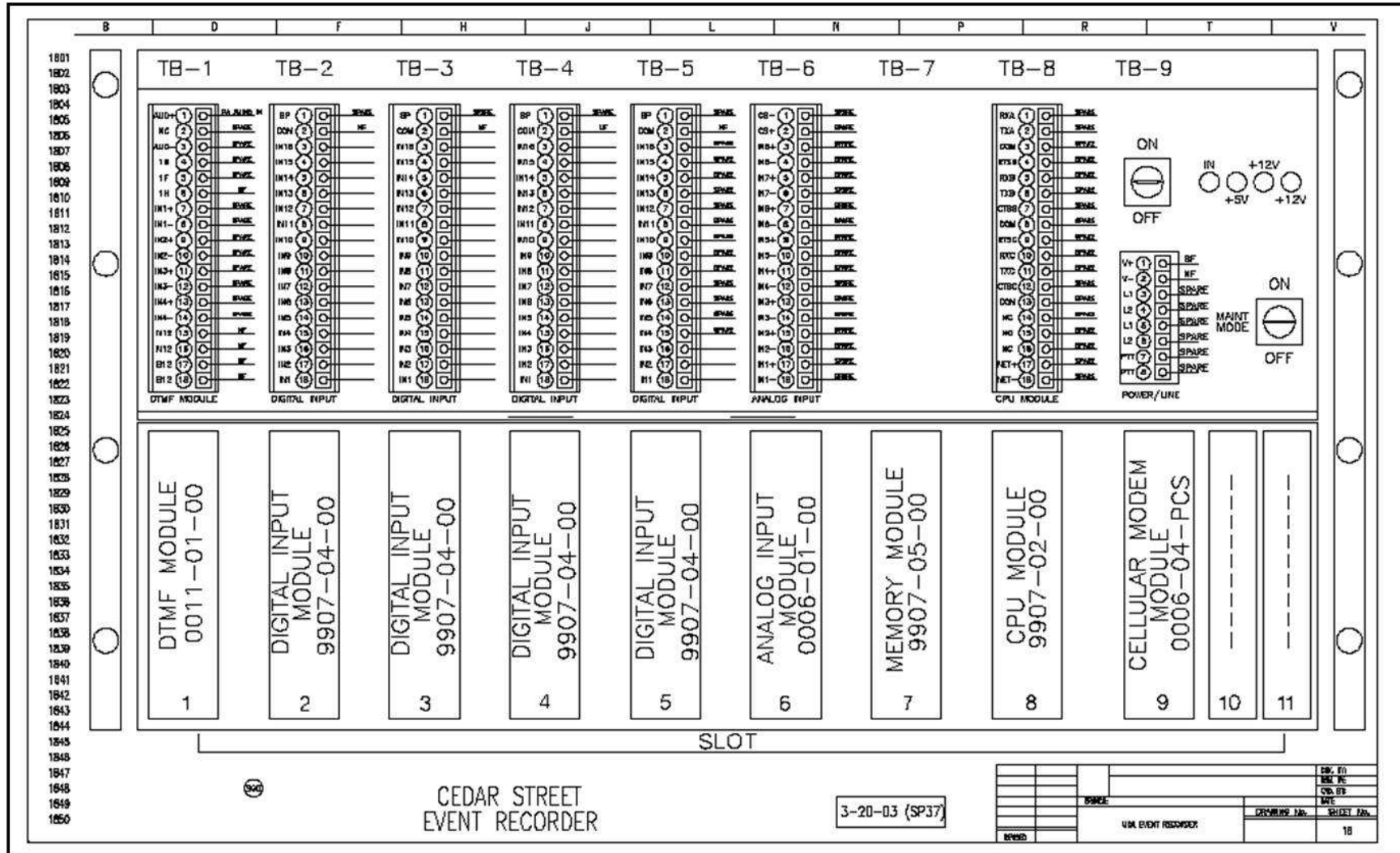
Track Circuit



Control Circuit



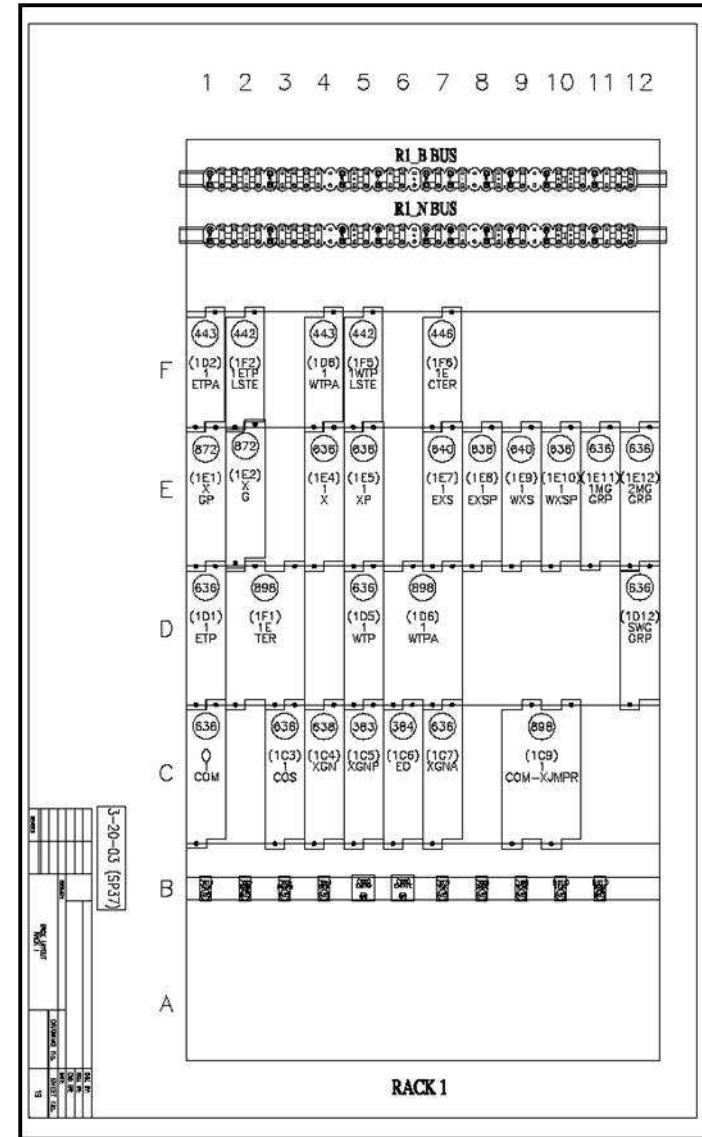
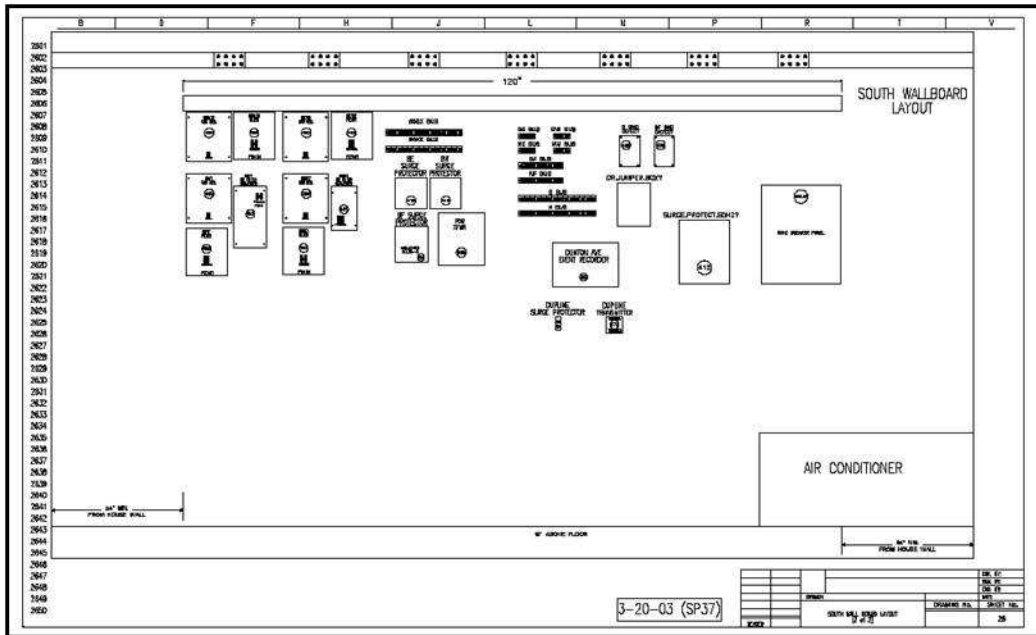
Pin Assignments



Rack and Board Layouts

- Place and edit rack components
- Synchronised to schematic wiring layout
- Multiple component representation
- Allows for multi-rack drawings
- Schematic and rack reconciliation
- Relays placed in rack are available in schematics

Rack and Board Layouts



Report Formats

Run Reports

Configuration: (None) [Delete] Sorting: []

Language: English [Save] Filters: []

Options: []

Output:

Preview... Text On Drawing...

Print

Output To File

Save As: []

CSV Text Delimiter: []

HTML MHT

TXT RTF

XLS PDF

Description

Wire list

03/03/2008

Wire No.	Gauge	Color	Voltage	From Target			To Target		
				Installation	Location	Device Tag	Installation	Location	Device Tag
1011	14	RED	120 VAC	LOADER	OS1	TB15E	DRY	MCP	TB133J
1011	14	RED	120 VAC	DRY	MCP	TB138E	DRY	MCP	PLC30501
1012	14	RED	120 VAC	LOADER	OS1	PB3094	LOADER	OS1	TB1501
1012	14	RED	120 VAC	LOADER	OS1	TB15E	DRY	MCP	TB134I
1012	14	RED	120 VAC	DRY	MCP	TB134E	DRY	MCP	PLC30502
1013	14	RED	120 VAC	LOADER	OS1	PB3112	LOADER	OS1	TB1511
1013	14	RED	120 VAC	LOADER	OS1	TB17E	DRY	MCP	TB135I
1013	14	RED	120 VAC	DRY	MCP	TB138E	DRY	MCP	PLC30503
1014	14	RED	120 VAC	LOADER	OS1	SS3134	LOADER	OS1	TB181
1014	14	RED	120 VAC	LOADER	OS1	TB18E	DRY	MCP	TB136I
1014	14	RED	120 VAC	DRY	MCP	TB138E	DRY	MCP	PLC30504
1015	14	RED	120 VAC	LOADER	OS1	PB3154	LOADER	OS1	TB1591
1015	14	RED	120 VAC	LOADER	OS1	TB13E	DRY	MCP	TB137I
1015	14	RED	120 VAC	DRY	MCP	TB137E	DRY	MCP	PLC30505
1016	14	RED	120 VAC	LOADER	OS1	PB3172	LOADER	OS1	TB1501
1016	14	RED	120 VAC	LOADER	OS1	TB110E	DRY	MCP	TB138I
1016	14	RED	120 VAC	DRY	MCP	TB138E	DRY	MCP	PLC30506
1017	14	RED	120 VAC	DRY	MCP	M400T4	DRY	MCP	TB139I
1017	14	RED	120 VAC	DRY	MCP	TB139E	DRY	MCP	PLC30507

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PLC I/O

03/03/2008

Project Name: SAMPLE WASHER
 Description: Wash, Rinse, Dry with Loader
 Job Number: 0001
 Drawing Number: PWRD-09-10-2007

Installation:
 Location:
 Device Tag: PLC1

Address	CP	Page / Line #	Function Text	Target		
				Installation	Location	Device Tag
10100	00	33/30	Power Switch A/B			SEN

Bill of Materials

03/03/2008

Project Name: SAMPLE WASHER
 Description:
 Job Number:
 Drawing Number:

Item	Quantity	Part Number	Manufacturer	Category	Detailed Description
1	1	1491-N121	A-B	FUSE BLOCK	FUSE SIZE 0-30A, 250V, 1 POLE, CLASS H
2	8	1491-N120	A-B	FUSE BLOCK	FUSE SIZE 0-30A, 600V, 3 POLES, CLASS J
3	1	1491-P102	A-B	FUSE BLOCK	FUSE SIZE 0-30A, 600V, 3 POLES, CLASS J

Field Cable List

03/03/2008

Project Name: SAMPLE WASHER
 Description: Wash, Rinse, Dry with Loader
 Job Number: 0001
 Drawing Number: PWRD-09-10-2007

Cable ID: DRY MCP CAB110 Cable Types: 3 * 22 Family: 8443 Length:

Part Number: 8443

Manufacturer:	From Target				To Target				
	Installation	Location	Device Tag	CP	Cable Core	Installation	Location	Device Tag	CP
	DRY	MCP	TB12	E	RED	DRY	JB1	JB12	I
	DRY	MCP	TB13	E	GRN	DRY	JB1	JB13	I

Job Cost

Total Selling Price:	\$1307300	Total Assembly Time (min):	1340
Writing Cost:	\$40883	Total Writing Time (min):	1434
Assembly Cost:	\$407502		
Total Job Cost: \$1448675		Total Time (min): 2780	
Total Buying Price:	\$985200		
Profit:	\$463775		

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Promise Key Benefits

- Concurrent users – accelerated delivery
- Rapid design – improved productivity
- Automated scheduling – accuracy
- Project based design – avoids duplication
- Electrical object rules – reduces errors
- Real time error checking – reduces checking cycles
- Fast change – reduces turn round time
- Automation – reduces impact of late changes
- Configure standards – compliance

Solving Business Issues

- ✓ 1. Deliver projects and designs quicker
- ✓ 2. Manage late changes
- ✓ 3. Provide accurate information for construction
- ✓ 4. Commissioning
- ✓ 5. Work with many different stakeholders
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