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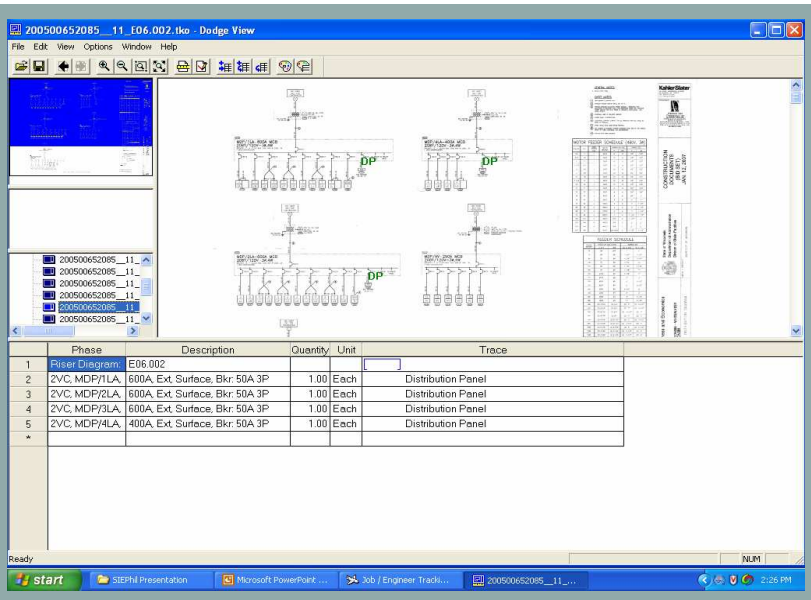
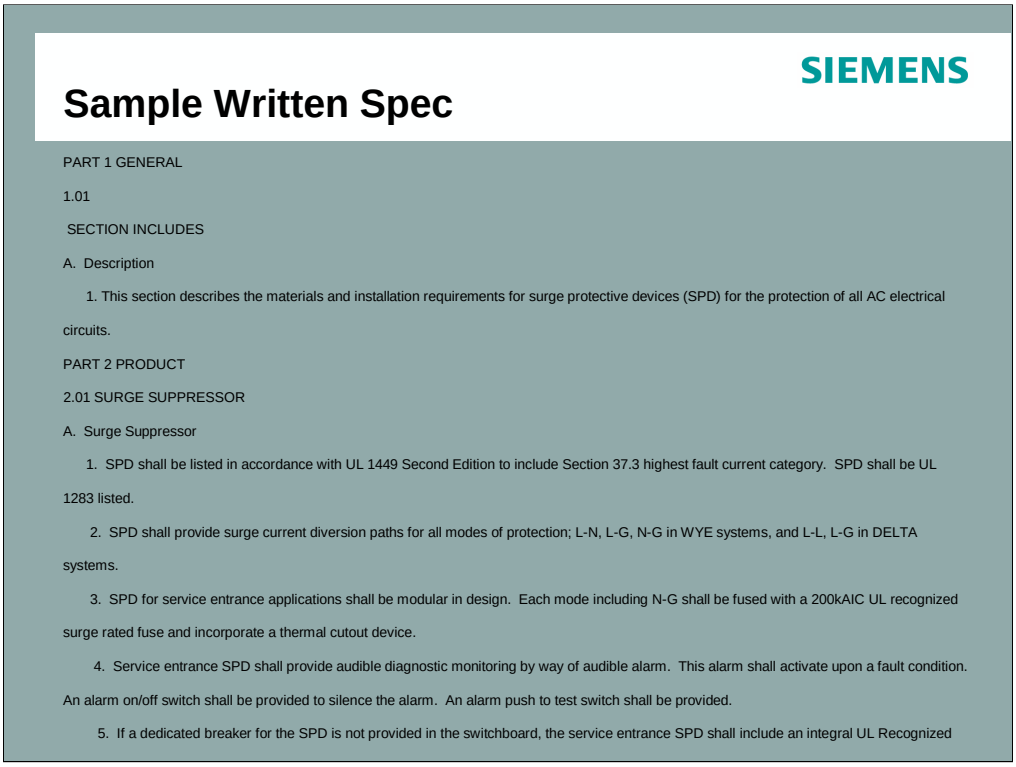
Spec Interpretation



The purpose of this PowerPoint is to highlight the areas of the written spec and electrical drawings which contain the information required to determine a TPS part number for quoting purposes. One of the functions of the Siemens TPS Support Team is to provide you with a TPS quote for projects listed on Dodge Scope. The TPS Support Team is available 8:30 AM to 5:00 PM ET at 888-333-3545.



A well written specification has the following sections:

General Section - List all standards associated with the SPD or any product specific statements such as replaceable modules, dry contacts etc.

Products - Specifies performance criteria found at Service Entrance, Distribution and Branch panel locations. Most information for the quote is found here.

Execution – Usually lists installation requirements for different SPD locations. i.e. Does a breaker need to be provided or an internal disconnect?

Here is what we're finding—

Spec's aren't exactly well written – some projects have no specifications but will list manufacturer's model numbers on the drawings. Sometimes we find specific information in drawing riser notes.

Where to start: Division 16000 of the written spec.

Look for-

Competitor model numbers to cross over to Siemens part numbers (use Siemens part numbering cross tool)

Peak Current (or surge current) rating - LEA confuses issue by publishing:

Maximum Single Impulse Current (Highest peak current unit can handle)

Maximum Repetitive Impulse Current (rating of components as provided by manufacturer)

Ways to indicate Peak Current Rating:

Per Phase, Total (add all modes for all phases) or Per Mode

Add L-N & L-G mode ratings for Wye systems

Add L-L & L-G modes on Delta Systems

Clamp Voltage (120/208 and 277/480, L-N generic specification) Actual voltage is found on the drawing (one-line diagram, riser diagram or panel schedules) Typical UL Clamping Voltage levels– 330 & 400 standard values for 120/208 volt and 600 & 700 are standard for 277/480 volt.

Protection Modes – L-N, L-L, L-G, N-G - Paired conductors where surges can travel. MOVs or SADs are applied across conductors.

Options Required – dry contacts, surge counter (L-N most common, may say Event Counter), audible alarm (may indicate silencer switch), NEMA enclosure (Siemens TPS NEMA 12 std w/ 3,4 and 4x options on external TPS), disconnect switch (may specify fused or unfused), integral disconnect or circuit interrupter), remote monitor (separate device signaled by dry contacts), spare modules, integral test point (off-line test device, specific to Current Tech – sole spec issue),

Warranty –. 5 year standard. Longer warranties are available. Check with the TPS Support Team regarding extended warranty periods.

Modules per phase (redundant protection)

Internal or External mounting

Technology (MOV, SAD)

Series or Parallel Installation - We manufacture only parallel devices which cover 99% of the cases

Other Unique Features:

Copper bus bars

Internal, user replaceable fuses

Each MOV independently fused and 200K AIC fusing

Drawing Interpretation
One-Line Drawing

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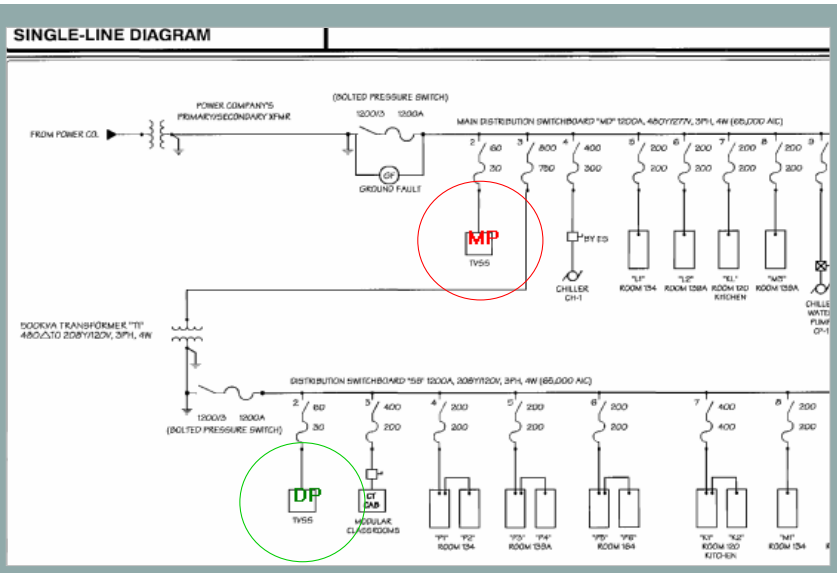

One-Line Drawing: This section will show a simple visual interpretation of the electrical system drawn as a single line drawing. The one-line will allow you to determine where the TVSS (if any) is located in the electrical distribution system.

(1.00) Count – How many

(Main Panel) Description of the device to be protected

(E) Voltage code

(MSG) Designation – engineer's specific designator for the device

(800A) Ampacity of the Switchboard or Panelboard

(Ext) TVSS Internal or External as indicated on the drawing

(Surface) Indicates whether the panel is Surface or Flush

(Bkr:) Status of breaker, will be None/Given or it will show the amps and # of poles

Panel Schedules

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MAIN DIST. SWITCHBOARD "MD"

MAIN BUSSING:	1200A	CONNECTED LOAD:	857.7	KVA
VOLTAGE:	480Y/277V, 3PH, 4W	DEMAND LOAD:	657.1	KVA
FEEDER SIZE:	3 SETS OF (4-#600 AND 1-#3/0 IN 4" CONDUIT) + 1-4"C.(SPARE)		790	A

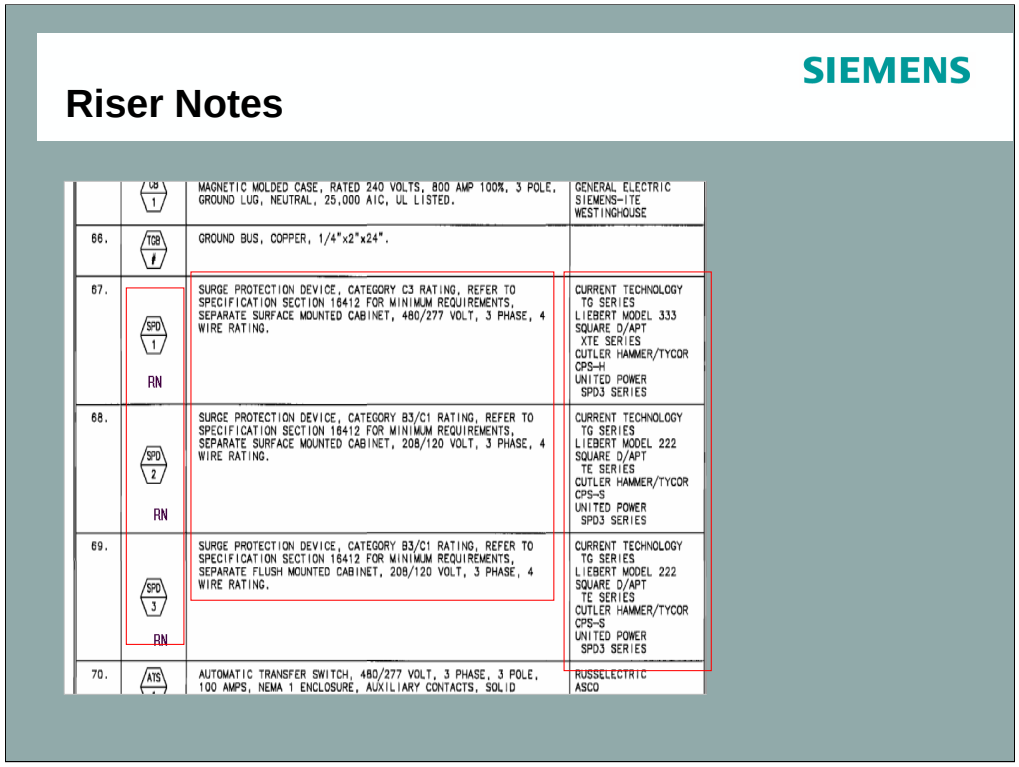
SWITCH NO.	LOADS SERVED	CONN. KVA	SWITCH SIZE	FUSE SIZE AND TYPE	FEEDER SIZE
1	MAIN		1200/3	1200A KRP-C	(MAIN BUSSING)
2	TVSS	30	60/3	30A LPS-RK	(SEE SPECIFICATIONS)
3	XFMR T1	410	800/3	750A KRP-C	2 SETS OF (3-#600 AND 1-#1/0 GRD IN 3"C.)
4	CHILLER CH-1	195.5	400/3	300A LPS-RK	2 SETS OF (4-#800 AND 1-#3 GRD IN 4"C.)
5	PANEL L1	30.7	200/3	200A LPS-RK	4-#3/0 AND 1-#6 GRD IN 2" C.
6	PANEL L2	54.3	200/3	200A LPS-RK	4-#3/0 AND 1-#6 GRD IN 2" C.
7	PANEL KL	21.3	200/3	200A LPS-RK	4-#3/0 AND 1-#6 GRD IN 2" C.
8	PANEL M3	23.9	200/3	200A LPS-RK	4-#3/0 AND 1-#6 GRD IN 2" C.

Panel Schedules: Identifies the main and branch panels by panel designation, voltage and gives a summary of the number of breakers on each panel and what appliances (or TVSS) the breakers feed

Panel Schedules

In most cases the panel schedules will match the information on the one-line and coincide with the written information contained in the specifications.

In some cases the information on the drawing, in the specifications, and on the panel schedule can conflict with each other.



Riser Notes

There may be drawing notes that supplement the drawing information for TVSS, or in certain cases the drawing notes may be the only information on the TVSS.

With all of that, you will still occasionally see errors on the specification or drawing.

Note on the example on the right that the Leviton model # is listed as: 57277-M35.

The correct model number should be listed as 57277-M3S. It is understandable that a clerical person could have miss-read the “S” as a “5”.

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The End