



LOAD MANAGER CHANGE

OVERVIEW

In an effort to improve the quality of our apparatus and reduce warranty costs through the use of newer technology, Sutphen will be implementing the change to a different Load Manager on all Sutphen custom chassis. Currently, the Total System Manager (TSM) from Class 1 is being utilized for load management. The TSM is dated technology with significant limitations.

Sutphen will now be utilizing the Class 1 Super Node II for load management. The Super Node II provides a more robust and reliable means of load shedding, load sequencing, managing scene and response modes, etc.

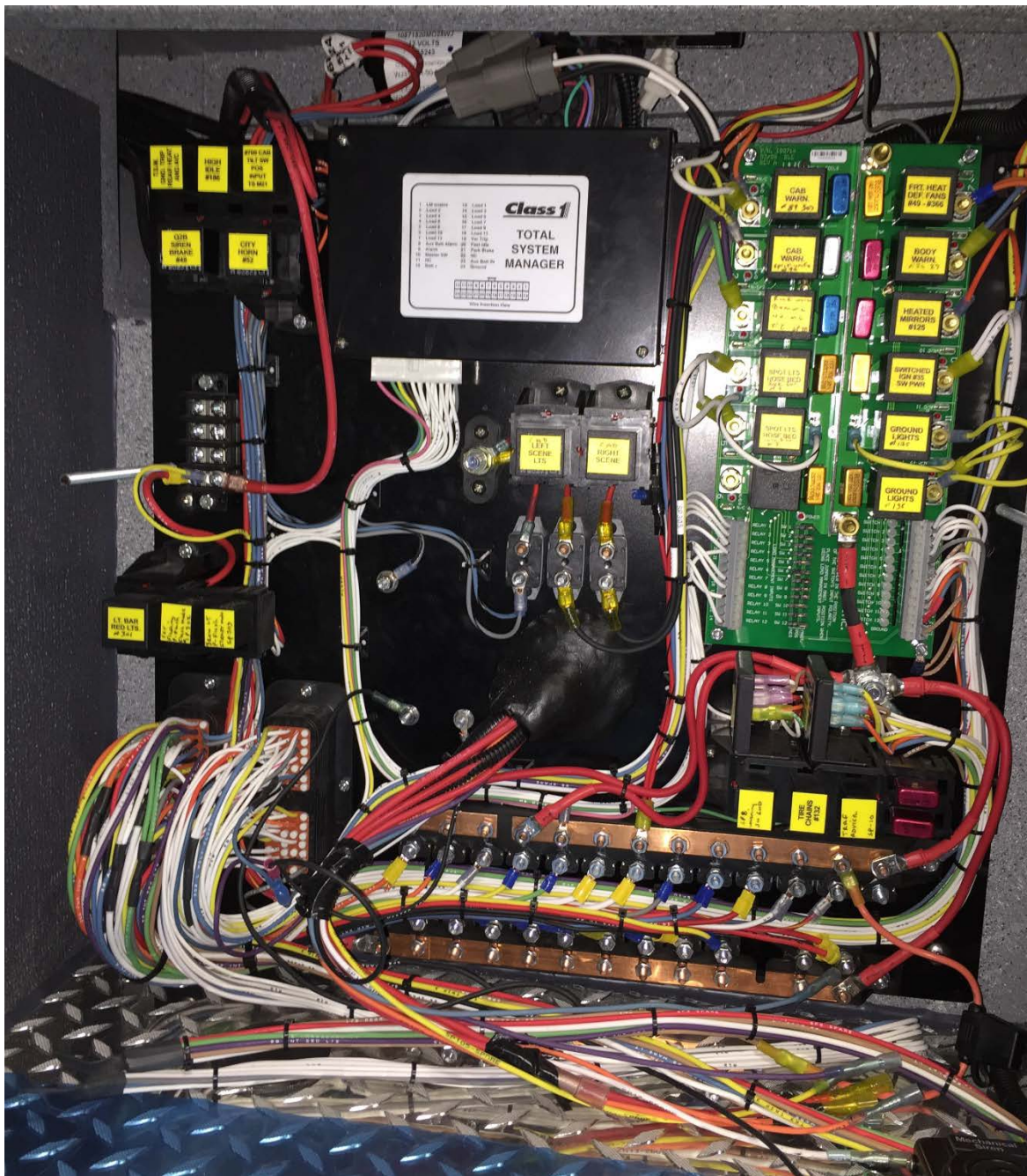
The following pages of this bulletin will outline the current challenges and limitations with the current Class 1 Total System Manager, the benefits of using the Class 1 Super Node II for load management, the process for servicing the Super Node II (including program file management), and a list of upcoming units that are scheduled to receive the Super Node II Load Manager.

If you have any questions, comments or concerns, please let us know.



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CLASS 1 TOTAL SYSTEM MANAGER (CURRENT):



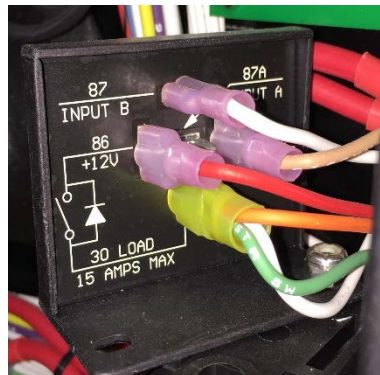
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CLASS 1 TSM LOAD MANAGER LIMITATIONS AND CHALLENGES:

- The TSM is limited to four (4) inputs and twelve (12) load outputs.
- Outputs are limited to 0.25 AMPS each.
- Requires programming so it will respond to certain inputs (load shedding, Master Emergency, etc). It is limited in how the inputs and actions can be utilized.
- Requires use of VCM Latching Solid-State Relays (shown below) for 3-way switching.
 - Relays can be more difficult to source (only available through select distributors).
 - Relays can be more challenging to troubleshoot since they are not widely used and are not as familiar to most technicians.
 - Each relay is 1.75"H x 2.3"W x 1.25"D. This size makes them challenging locate on the electrical panel. They are extremely difficult to locate when there are multiple 3-way switches on the apparatus (each 3-way switch requires a separate VCM relay).





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CLASS 1 TSM LOAD MANAGER LIMITATIONS AND CHALLENGES (cont.):

- When an apparatus has multiple 3-way switches w/VCM relays and other accessories that require space in the electrical panel (SKF/Vogel Lube System, Daytime Running Lights, etc), some items may need to be stacked on top of each other (requiring additional challenges for service & troubleshooting).
- Have had numerous reported in-field failures of TSM.

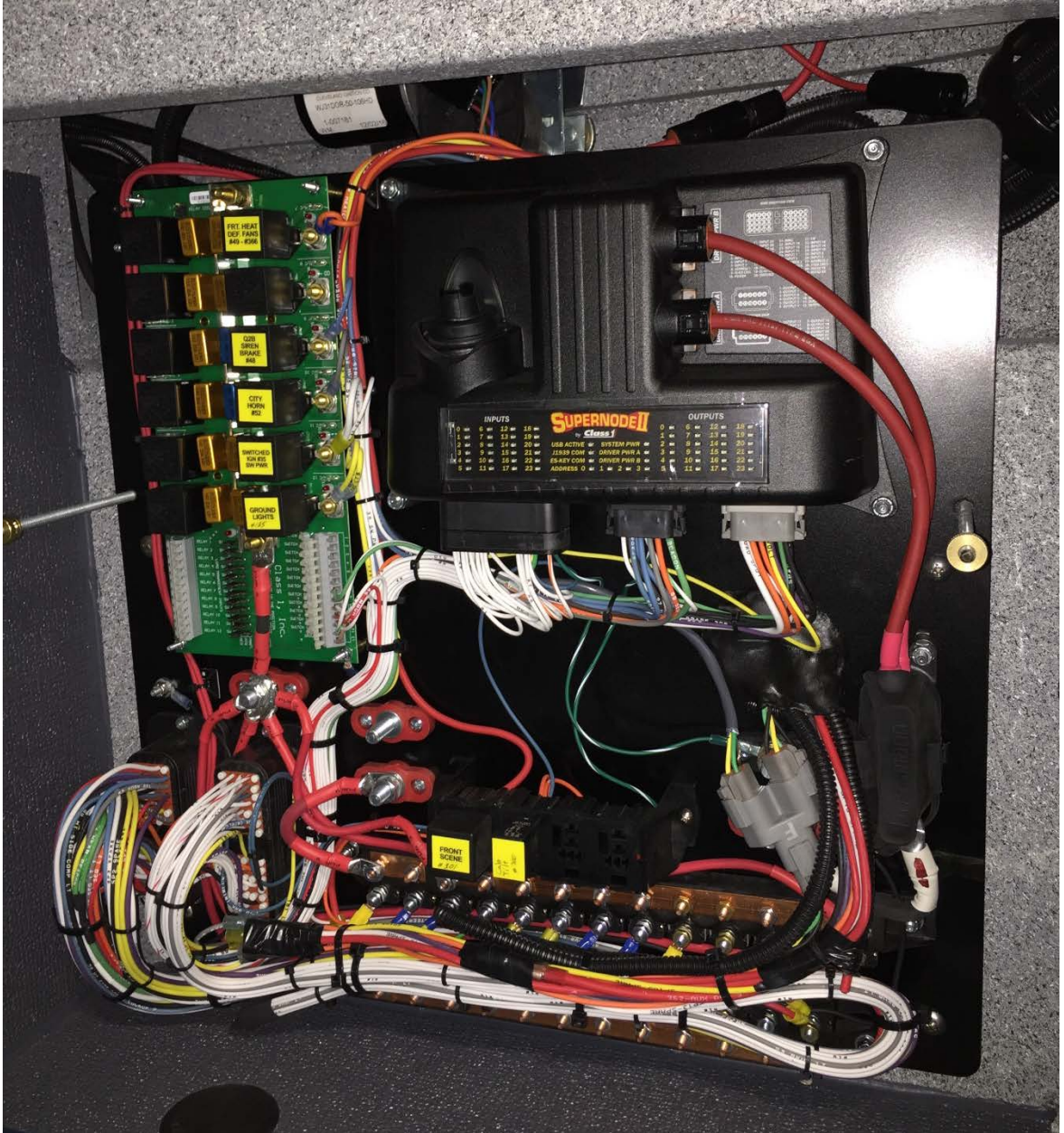


Example of Electrical Panel on Heavily Optioned Apparatus Requiring Options to be Stacked on Top of Each Other



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CLASS 1 SUPER NODE II (NEW):



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NEW CLASS 1 SUPER NODE II LOAD MANAGER:

- The Super Node II has twenty-four (24) inputs and twenty-four (24) outputs. Eighteen (18) are positive polarity outputs and six (6) are ground polarity outputs.
- Outputs are capable of 13 AMPS each (positive polarity) and 2 AMPS each (ground polarity).
- The Super Node II has the ability to provide additional functions such as time delay, bi-stable function, sequencing, etc.
- Eliminates the need for the separate VCM relays for 3-way switching reducing installation labor time and cleaning up the electrical panel.
- Has integrated Vehicle Data Recorder and Seat Belt Warning System (only requires addition of seat belt visual display). This gives us the future option of removing the Weldon VDR and Seat Belt Warning modules, thereby reducing additional material and labor costs. These options are currently being investigated.
- Unit has (58) LEDs located on its front panel for diagnostics. There are (6) LEDs for power and communication status, (4) LEDs for address indication, and (48) LEDs for output and input indications.
- The Load Manager program is resident on the Super Node II. If the node needs to be replaced, the program can be pulled from the faulty node and loaded into a new node (unless there is a complete power failure of the node).
- Problems/malfunctions are quicker and easier to diagnose through the Super Node II with laptop and ES-Key Pro Service software.
- The Super Node II has a proven track record in the industry and on Sutphen apparatus. This same node is used in the multiplexed wiring system for the SPH100 aerial device.
- For more information and a downloadable brochure for the Super Node II, visit: <http://haleproducts.com/product/21?title=Supernode+II&page=3&category=4>



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USING THE CLASS 1 SUPER NODE II AS A LOAD MANAGER



Q: Where will the “MASTER” program for each truck’s load manager reside and how will it be managed?

A: Springfield Chassis will program the Super Node II Load Manager based upon the information in the Shop Order for each truck. They will store the original program file using an internal file sharing program. If changes are required to be made by the finishing facility (Dublin, Hilliard, East, SVI, etc), they will modify the original file and save it.

Q: Who is responsible for making any changes to the original program file at the finishing facilities?

A: Springfield Chassis/Pumper (including chassis going to SVI, Precision, Custom Fire, etc): Chassis Electrical Engineering (Dan Rahn)

Dublin: Dublin Electrical Engineering (Tim Lett, Rob Pancoast)

Hilliard: Hilliard Electrical Engineering (Jordan Campbell)

East: East Technical Support (George Misner)

NOTE: Dealers will **NOT** be able to make changes to the program file in order to maintain version control and history. They will need to contact one of the above individuals to receive a revised program that can be uploaded into the Super Node II Load Manager.

Q: What is the process if a Super Node II fails and needs to be replaced?

A: Customers/dealers will contact the Sutphen Service Department. The Service Department will have access to all of the final program files for each truck. They will be stocking replacement Super Node II units that can be programmed and shipped out the same day in most cases. Replacement is simply plug-and-play.



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CLASS 1 SUPER NODE II LOAD MANAGER Q&A (continued):

Q: How can servicing dealers and fleet customers obtain the Class 1 ES-Key Pro Service troubleshooting software?

A. Please contact Service Tech Support (Jim Salmons). If you cannot get in touch with Jim, Dublin Electrical Engineering (Tim Lett) will be an alternate.

Jim Salmons (Project Engineer/Tech Support):
614-923-2836
jim.salmons@sutphencorp.com

Tim Lett (Electrical Engineer):
614-923-2459
tim.lett@sutphencorp.com

Q: Is there training available for servicing dealers and fleet customers to troubleshoot the Super Node II Load Manager?

A. Yes. A manual for troubleshooting is currently being created and will be shared when completed.



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CLASS 1 SUPER NODE II LOAD MANAGER Q&A (continued):

Q: Will there be any additional cost (or savings) that will be passed on to our customers?

A: The Super Node II itself costs more than the Total System Manager, but utilizing the Super Node II for the Load Manager will offset that cost in labor savings. Sutphen will be analyzing these costs more in depth over the next several months to determine if a cost savings can be passed along. Using the Super Node II for the Load Manager is also part of the Class 1 ES-Key multiplexing system so we will be reviewing those multiplexed options as well.

Q: What do we do about the current Configurator options for the Load Manager being incorrect?

A: Our current verbiage only calls out the brand of the Load Manager as Class 1, not specifically the TSM. For our next Configurator update, we will have a new default standard for the Class 1 Super Node II. Some of the verbiage will be adjusted to cover different load shed voltages and other minor differences. We will also create an option for those customers that require the Class 1 TSM. However, this will come at a higher cost due to it being a special non-standard item requiring a higher labor content.



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IMPLEMENTATION PLAN:

- The Super Node II Load Manager has been installed on some demo units and evaluated to ensure no Engineering or Production issues. We have also installed the Super Node II in numerous customer's trucks, including some larger fleet customers.
- Sutphen Chassis has created a list of units to receive the new Super Node II Load Manager and those that will receive the Total System Manager. Careful considering has been given to multi-unit orders as well as those customers who have a current fleet of Sutphen apparatus with the Class 1 Total System Manager. That list is included on the next (3) pages.

Please notify your Project Coordinator or Project Engineer assigned to any of the apparatus on this list that you may be concerned about.



LOAD MANAGER CHANGE

IMPLEMENTATION:

HS #	Customer	Load Manager
5931	Demo 429	Class 1 Total System Manager (TSM)
5849	Roswell, GA	Class 1 Total System Manager (TSM)
5901	Demo 428	Class 1 Total System Manager (TSM)
5867	Hyde Park, NY	Class 1 Total System Manager (TSM)
5838	Middlebury, IN	Class 1 Total System Manager (TSM)
5922	Birmingham, AL	Class 1 Super Node II
5942	Franklin, NH	Class 1 Total System Manager (TSM)
5897	Gwinnett County, Lawrenceville, GA	Class 1 Super Node II
5878	Nantong, China	Class 1 Total System Manager (TSM)
5851	Calcutta VFD, OH	Class 1 Total System Manager (TSM)
5947	Demo 432	Class 1 Super Node II
5898	Gwinnett County, Lawrenceville, GA	Class 1 Super Node II
5923	Birmingham, AL	Class 1 Super Node II
5959	Lexington, SC	Class 1 Total System Manager (TSM)
5965	Demo 433	Class 1 Super Node II
5899	Gwinnett County, Lawrenceville, GA	Class 1 Super Node II
5817	Demo 425 (2017 Emission)	Class 1 Super Node II
5905	Thornwood, NY	Class 1 Super Node II
5858	Dearborn, MI	Class 1 Super Node II
5900	Gwinnett County, Lawrenceville, GA	Class 1 Super Node II
5859	Universal City, TX	Class 1 Super Node II
5889	Copper Mountain, CO	Class 1 Total System Manager (TSM)
D-HS2	Dublin Place Holder	Class 1 Super Node II
5924	Birmingham, AL	Class 1 Super Node II
5949	Recope, Costa Rica	Class 1 Super Node II
5908	Brevard County, FL	Class 1 Total System Manager (TSM)
5902	Redford, MI	Class 1 Super Node II
5948	Village, TX	Class 1 Super Node II
5903	Strongsville, OH	Class 1 Super Node II
5884	Pinch, WV	Class 1 Super Node II
5940	Mabscott, WV	Class 1 Super Node II
5967	New Smyrna Beach, FL	Class 1 Super Node II
5904	Springfield Twp. IN	Class 1 Super Node II
5934	Ashford N. Cove FD, NC	Class 1 Super Node II
5962	Bridgeport, WV	Class 1 Super Node II
5909	Brevard County, FL	Class 1 Total System Manager (TSM)
5890	Avilla, IN	Class 1 Super Node II
5912	Palm Beach County, FL	Class 1 Total System Manager (TSM)



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IMPLEMENTATION:

HS #	Customer	Load Manager
5937	Novi, MI	Class 1 Super Node II
5913	Palm Beach County, FL	Class 1 Total System Manager (TSM)
5906	Winston-Salem	Class 1 Super Node II
D-HS4	Dublin Place Holder	Class 1 Super Node II
5915	Ashland, KY	Class 1 Super Node II
5939	Pax, WV	Class 1 Super Node II
5964	Pinellas Park, FL	Class 1 Total System Manager (TSM)
5963	Roswell, GA	Class 1 Total System Manager (TSM)
5865	Demo 427	Class 1 Super Node II
5918	Huber Heights, OH	Class 1 Super Node II
5907	Brunswick Fire Troy, NY	Class 1 Super Node II
5938	New Creek, WV	Class 1 Super Node II
5933	Falmouth, ME	Class 1 Super Node II
5926	Lower Providence, Eagleville, PA	Class 1 Super Node II
5914	Mishawaka, IN	Class 1 Super Node II
5945	Demo 430	Class 1 Super Node II
5951	Carroll County, GA	Class 1 Super Node II
5943	Ellwood FD. NY	Class 1 Super Node II
D-HS5	Dublin Place Holder	Class 1 Super Node II
5917	Milan Twp, OH	Class 1 Super Node II
5952	Carroll County, GA	Class 1 Super Node II
5955	Danbury Twp, OH	Class 1 Super Node II
5956	Mebane, NC	Class 1 Super Node II
5928	Kennedy Twp. PA	Class 1 Super Node II
5953	Carroll County, GA	Class 1 Super Node II
5927	Ashland, OH	Class 1 Super Node II
5957	Lexington, SC	Class 1 Super Node II
5958	Lexington, SC	Class 1 Super Node II
D-HS6	Dublin Place Holder	Class 1 Super Node II
5954	Carroll County, GA	Class 1 Super Node II
5961	Buckeye, AZ	Class 1 Total System Manager (TSM)
5946	Demo 431	Class 1 Super Node II
D-HS8	Dublin Place Holder	Class 1 Super Node II
5968	New Smyrna Beach, FL	Class 1 Super Node II
5929	Rocky Hill, CT	Class 1 Total System Manager (TSM)
D-HS9	Dublin Place Holder	Class 1 Super Node II
5969	New Smyrna Beach, FL	Class 1 Super Node II



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IMPLEMENTATION:

HS #	Customer	Load Manager
D-HS7	Dublin Place Holder	Class 1 Super Node II
5941	Orange Twp. OH	Class 1 Super Node II
D-HS10	Dublin Place Holder	Class 1 Super Node II
5882	Lake Ariel, PA	Class 1 Super Node II
5930	Rocky Hill, CT	Class 1 Total System Manager (TSM)
5932	Falmouth, ME	Class 1 Super Node II
5944	Southington, CT	Class 1 Super Node II
5950	Jackson Twp. OH	Class 1 Super Node II
5970	So. Trails FD. Ft. Myers, FL	Class 1 Super Node II
5972	Winston-Salem	Class 1 Super Node II
5748	Demo 422	Class 1 Super Node II
5811	Weirton, WV	Class 1 Super Node II
5960	Custom Fire (Stuarts Draft VA)	Class 1 Super Node II
5966	Vaughn, MT	Class 1 Super Node II
5971	Green Lane, PA	Class 1 Super Node II
5973	Lebanon, TN	Class 1 Super Node II

*****Any new units after those on this list will have the Super Node II unless otherwise specified in the Shop Order.*****