

ORIGINATION FORM

Date: May 17, 2012

Originator: Gene Glotzbach

Contact Information:

Traffic Engineering and Operations, ITS Section
850-410-5600

Specification Title:

Intelligent Transportation Systems – Infrastructure

Specification Section, Article, or Subarticle Number: 785

Why does the existing language need to be changed? The specification must be updated to incorporate standard warranty language, clarify manufacturer warranty requirements, and update multiple functional requirements based upon the results of product evaluations at the Traffic Engineering Research Laboratory.

Summary of the changes: The changes incorporate current standard warranty language for consistency with other specifications. The update uses the term “warranty” vs. “guaranty” to differentiate manufacturer’s warranties from other guarantees and further clarify aspects of the manufacturer’s warranty requirements for equipment. This update also increases allowable let-through voltage on video SPDs and includes minor grammatical edits for consistency within the section.

Are these changes applicable to all Department jobs? If not, what are the restrictions?
Applicable to jobs where infrastructure equipment is required.

Will these changes result in an increase or decrease in project costs? If yes, what is the estimated change in costs? No significant increase or decrease in project costs is expected.

With who have you discussed these changes? Traffic Operations and Specification Office staff.

What other offices will be impacted by these changes? We do not expect these minor updates to have significant impact on other offices.

Are changes needed to the PPM, Design Standards, SDG, CPAM or other manual? No.

Is a Design Bulletin, Construction Memo, or Estimates Bulletin needed? No.

Contact the State Specifications Office for assistance in completing this form.
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M E M O R A N D U M

DATE: June 5, 2012
TO: Specification Review Distribution List
FROM: Trey Tillander, State Specifications Engineer
SUBJECT: Proposed Specification: **7850204 ITS – Infrastructure..**

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

This change was proposed by Gene Glotzbach to incorporate current standard warranty language for consistency with other specifications, to clarify manufacturer's warranty requirements for equipment and to increase allowable let-through voltage on video SPDs.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at SP965TT or trey.tillander@dot.state.fl.us. Comments received after **July 3, 2012**, may not be considered. Your input is encouraged.

TT/cah
Attachment

INTELLIGENT TRANSPORTATION SYSTEMS - INFRASTRUCTURE.

(REV ~~8-5-115-17-12~~) (~~FA 8-9-11~~) (1-12)

SUBARTICLE 785- 2.4 (of the Supplemental Specifications) is deleted and the following substituted:

785-2.4 Surge Protective Devices:

785-2.4.1 General: Provide all ITS field installation sites with both primary and secondary surge protection on the AC power. Connect the primary surge protection at the service entrance or main disconnect. Connect the secondary surge protection on the power distribution to the equipment.

785-2.4.2 SPD at Power Entry Point: Install a SPD at the closest termination/disconnection point where the supply circuit enters the ITS device cabinet. Locate the SPD on the load side of the main disconnect and ahead of any and all ITS electronic devices. Configure the SPD to operate at 120 volt single phase (i.e., line, neutral and ground) or 120/240 volt single phase (line 1, line 2, neutral and ground) as required to match the supply circuit configuration. Ensure that the SPD maximum surge current rating is 80kA per phase or greater. *Ensure* ~~Verify~~ that the SPD has been labeled to indicate that the unit is ~~UL~~-listed and meets the requirements of UL 1449, Third Edition.

Ensure that the SPD has a visual indication system that monitors the weakest link in each mode and shows normal operation or failure status and also provides one set of normally open (NO)/normally closed (NC) Form C contacts for remote alarm monitoring. The enclosure for a SPD shall have a NEMA 4 rating.

785-2.4.3 SPD at Point of Use: Install a SPD at the point the ITS devices receive 120 volt power. *Ensure that these devices comply with the functional requirements shown in Table 785-1.* Ensure that the units are rated at 15 or 20 amps load and ~~a minimum of 20kA of surge current capacity and~~ are configured with receptacles.

Ensure that these units have internal fuse protection and provide common mode (L+N-G) protection.

785-2.4.4 SPD for Low-Voltage Power, Control, Data and Signal Systems: Install a specialized SPD on all conductive circuits including, but not limited to, data communication cables, coaxial video cables, and low-voltage power cables. Ensure that these devices comply with the functional requirements shown in Table 785-1 for all available modes (i.e. power L-N, N-G; L-G, data and signal center pin-to-shield, L-L, L-G, and shield-G where appropriate).

Table 785-1				
SPD Minimum Requirements				
Circuit Description	Clamping Voltage	Data Rate	Surge Capacity	Maximum Let-Through Voltage
12 VDC	15-20 V	N/A	5kA per mode (8x20 μs)	<150 Vpk

Table 785-1				
SPD Minimum Requirements				
Circuit Description	Clamping Voltage	Data Rate	Surge Capacity	Maximum Let-Through Voltage
24 VAC	30-55 V	N/A	5kA per mode (8x20 μs)	<175 Vpk
48 VDC	60-85 V	N/A	5kA per mode (8x20 μs)	<200 Vpk
120 VAC at POU	150-200 V	N/A	20kA per mode (8x20 μs)	<550 Vpk
Coaxial Composite Video	4-8 V	N/A	10kA per mode (8x20 μs)	<6530 Vpk <i>(8x20 μs/1.2x50μs; 6kV, 3kA)</i>
RS422/RS485	8-15 V	Up to 10 Mbps	10kA per mode (8x20 μs)	<30 Vpk
T1	13-30 V	Up to 10 Mbps	10kA per mode (8x20 μs)	<30 Vpk
Ethernet Data	7-12 V	Up to 1 Gbps	1kA per mode (10x1000 μs)	<30 Vpk

Install a SPD that has an operating voltage matching the characteristics of the circuit. Ensure that these specialized SPDs are *listed and meet the requirements of* UL 497B or UL 497C *listed*, as applicable.

ARTICLE 785- 6 (of the Supplemental Specifications) is deleted and the following substituted:

785-6 Guaranty Provision *Warranty*.

785-6.1 General: ~~Ensure that the manufacturers' warranties on SPDs, ITS field cabinets, and ITS equipment shelters are fully transferable from the Contractor to the Department.~~ Ensure that ~~manufacturer's these warranties require~~ the manufacturer ~~will to~~ furnish replacements for any part or equipment found to be defective during the warranty period at no cost to the Department *or maintaining agency* within 10 calendar days of notification ~~by the Department~~.

785-6.2 Lowering Devices: Ensure that the lowering devices ~~furnished, assembled, fabricated, or installed are~~ *have a manufacturer's warranty covering* ~~warranted by the manufacturer~~ against defects ~~in materials or workmanship for a period of no less than~~ *for a minimum of* three years from the date of final acceptance by the Engineer in accordance with 5-11 ~~and Section 608 of all work to be performed under the Contract. If the manufacturer's warranties for the components are for a longer period, those longer period warranties will apply.~~

785-6.3 Surge Protective Devices: ~~Ensure that the~~ Provide a SPD ~~has a manufacturer's warranty covering failures for a minimum of that is warranted by its manufacturer against any failures caused by electrical events, including direct lightning strikes, for a period of not less than 10 years from the date of final acceptance by the Engineer in accordance with 5-11 and Section 608. or the SPD device manufacturer's standard warranty period, whichever is greater.~~

The term "failure" for warranty replacement is defined as follows:

Parallel-connected, power-rated SPD units are considered in failure mode when any of the visual indicators shows failure mode when power is applied to the terminals at the unit's rated voltage, or the properly functioning over-current protective device will not reset after tripping.

Series-connected, low-voltage power, data, or signal units are considered in the failure mode when an open circuit condition is created and no data/signal will pass through the SPD device or a signal lead is permanently connected to ground.

In the event that the SPD, including any component of the unit, should fail during the warranty period, the entire SPD shall be replaced by the manufacturer at no cost to the Department ~~or maintaining agency. Costs relating to the removal of the SPD, shipping and handling, and the reinstallation of the SPD shall be paid by the Department.~~

785-6.4 ITS Field Cabinet: Ensure that the ITS field cabinet has a manufacturer's warranty covering defects ~~in assembly, fabrication, and materials~~ for a minimum of two years from the date of final acceptance in accordance with 5-11 ~~of all work to be performed under the Contract and Section 608. If the manufacturer's warranties for the cabinet and components are for a longer period, those longer period warranties will apply.~~

785-6.5 ITS Equipment Shelter: Ensure that the equipment shelter, its components, and hardware have a manufacturer's warranty covering defects ~~in assembly, fabrication, and materials~~ for a minimum of one year from the date of final acceptance in accordance with 5-11 ~~of all work to be performed under the Contract and Section 608. If the manufacturer's warranties for the equipment shelter or components are for a longer period, those longer period warranties will apply.~~