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TSSC is pleased to endorse a CVSS series of devices manufactured by Innovolt Inc. that meets the TSSC recommendation for premiere power protection. The devices are distributed through our vendor relationship with Syratec and available as a finished good through the Ricoh Supply Chain network.

Ricoh equipment operates from an internal DC voltage that is derived from the incoming AC voltage using a rectifier and energy storage capacitor. Disturbances on the power line can reflect into DC voltage anomalies that can damage this power input stage. The vast majority of MFP and Printer products, as well as most electronic devices, use sensitive digital components that can be damaged or put into 'phantom' states by power disturbances.

Significant research and data collection were used to understand the protection level needed for Office products and Ricoh devices. Historically, Ricoh's Technology Support Services Center has endorsed transient voltage surge suppression devices (TVSS) for protection against transient voltage surges. Research has shown us and we now recognize that there are other power anomalies that can be damaging to electronic devices, that are not being properly addressed with traditional TVSS products.

Technological improvements have recently been made, and new devices introduced to our industry that address, most power anomalies which affect electronic office equipment. The new devices are referred to as Surge Protection Devices (SPD) with current and voltage surge suppression technology. Ricoh TSSC is endorsing the use of CURRENT VOLTAGE SURGE SUPPRESSION (CVSS®) type devices as the premiere technology for the highest level of protection against power anomalies. The CURRENT VOLTAGE SURGE SUPPRESSION devices have only been recently released to the industry. We are in the earliest phases of testing the devices, however, we have found through the use of a third party testing laboratory, the CURRENT VOLTAGE SURGE SUPPRESSION device tested, performed Voltage surge protection similar to that of the standard TVSS devices. The CURRENT VOLTAGE SURGE SUPPRESSION unit was found to be more robust in the additional areas of protection required and has data capture and reporting capabilities, not present in the TVSS devices at this time, or near this price point.

Based upon the current state of the industry, we have established the following criteria for improved levels of power protection. TSSC recommends that Ricoh devices are protected against these conditions as they represent the majority of power anomalies that could damage the equipment. There are 7 specific areas of protection that we are now striving for in a power protection product:

1. Voltage surges caused by lightning strikes in the immediate vicinity of the equipment
2. Voltage surges caused by grid faults
3. Voltage swells
4. Overvoltage
5. Voltage sags resulting in current surges
6. Under-voltage
7. Transients from power outages

Most existing power filtration products only protect against type (1) of these disturbances.

As a quick reference and in an effort to assist with understanding the differences in technology between TVSS and CVSS, we offer the following table, based upon the criteria established above:

Power Protection Features	TVSS Protection	CURRENT VOLTAGE SURGE SUPPRESSION Protection
Voltage Surges	Yes	Yes
Over Voltage	Custom	Yes
Under Voltage	Custom	Yes
Current Surge	No	Yes
Noise Filtering	Yes	Yes
Power Monitoring	No	Available
Event data Capture	No	Available
Handheld Diagnostic Tool- with output capability to PC	No	Available

It is also important to point out that the Innovolt CVSS products are the only power protection devices to provide on board diagnostics in every device, from the smallest plug-in protector to the power management devices that Ricoh TSSC currently endorses.

Product offerings include a full range of products to meet the needs of Ricoh devices. Additionally, Innovolt is offering a LCD screen on certain products which displays captured/stored events that have recently occurred. This information can be reviewed on the device by the End User or by a Technician during a service visit. Data from the CVSS can be retrieved and uploaded into a PC, using a handheld device called the "Power Doctor". The Power Doctor is available as a service tool to download the events onto a laptop for archiving, reporting and issue tracking.

We are excited to have a new power protection product that represents a paradigm shift in the power protection industry and to be introducing this new technology to our Field.

Sincerely,



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