SECTION 26 3353 – STATIC UNINTERRUPTIBLE POWER SUPPLY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. On-line, double-conversion, static-type, UPS units. UPS systems shall be designed with modular assemblies that allow user flexibility for operation as a fixed capacity system or as a modular redundant system.), Inverter(s), Battery Charger(s), Static
, and associated Control and Monitor Panel.
string(s) in UPS enclosure or in external Line-and-Match Battery Cabinets.
suppression.
d-Match and/or sidecar-type accessory cabinets for transformer,
nance bypass, parallel tie and distribution applications.
atching wall mounted or floor standing maintenance bypass cabinets or
odule parallel tie cabinets.
monitoring.

ection "Grounding and Bonding for Electrical Systems".
ection "Low Voltage Electrical Power Conductors and Cables".

each type of product indicated. Include data on features, components,
ance.

etail equipment assemblies and indicate dimensions, weights, components,
dentification of each field connection. Show access, workspace, and
ents; details of control panels; and battery arrangement. Include wiring

s: Comply with specified requirements.

reports.

enance Data:

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70 and marked for intended location and application.

B. UL Compliance: Listed and labeled under UL 1778. h

a. Battery Labor: Twelve (12) months from the date of product installation.
b. Batteries two hundred (200) watts per cell and greater,: Thirty-six (36) months from

8. When the fault has cleared, the static bypass transfer switch returns the load to the UPS system.
9. If the battery is disconnected, the UPS continues to supply power to the load with no degradation of its regulation of voltage and frequency of the output bus.

B. Manual operation includes the following:

1. System shall have the ability to be manually transferred to bypass for maintenance or service without disturbance or interruption to the connected load.

C. Maintenance Bypass/Isolation Switch Operation: Switch is interlocked so it cannot be operated unless the static bypass transfer switch is in the bypass mode. Device provides manual selection among the three conditions in subparagraphs below without interrupting supply to the load during switching:

1. Full Isolation: Load is supplied, bypassing the UPS. Normal UPS *AC* input circuit, static bypass transfer switch, and UPS load terminals are completely disconnected from external circuits.
2. Maintenance Bypass: Load is supplied, bypassing the UPS. UPS *AC* supply terminals are energized to permit operational checking, but system load terminals are isolated from the load.
3. Normal: Normal UPS *AC* supply terminals are energized and the load is supplied through either the static bypass transfer switch ath1(o)-12.8(s)-8( )0 8( )0. enerarch ypns 3w6

D. Overall UPS Efficiency: All systems shall be available with energy saving operating modes that minimize losses without compromising power quality or reliability. Maximum efficiency shall be

NORTHWESTERN UNIVERSITY
PROJECT NAME _____

1. UPS on battery.
2. UPS on-line.
3. UPS load-on bypass.
4. UPS in alarm condition.
5. UPS off (maintenance bypass closed).

2.11 MONITORING/CONTROL BY REMOTE COMPUTER

A. Coordinate remote monitoring and control communication module package with the University's SCADA network for successful transmission and remote readout of monitoring data and UPS Control. Connect remote monitoring communication module to the University's SCADA network through appropriate network interface unit. The manufacturer shall wire between all communications capable devices within the equipment, including electronic meters with the same protocol and wire to a set of easily accessible terminal blocks.

B. Description: Communication module in unit control panel provides capability for remote monitoring of status, parameters, and alarms specified in "Controlman13.1(1i3nt)-1.anunicaimt(t)-1.1(o23 Tw 4.6-

2.14 BATTERY MONITORING

A. BASIC BATTERY MONITORING: Subject to compliance with requirements, the UPS shall contain a battery management system which has the following features:

1. The battery management system shall provide battery time remaining while operating in normal mode and battery mode. Battery time available information shall be displayed real-time, even under changing load conditions. Upon commissioning, battery runtime information shall be available.
2. The battery management system shall automatically test the battery system to ensure that the battery is capable of providing greater that 80% of its rated capacity. Testing the batteries shall not jeopardize the operation of the critical load. Upon detection of the battery string(s) not capable of providing 80%, the UPS system will alarm that the battery needs attention/replacement. The battery test shall be able to detect the following:

a. Open battery string
b. Shorted battery string (current limit)
c. Battery capacity (runtime) less than 80% of “new” battery capacity

B. COMPREHENSIVE BATTERY MOly mana

PART 3 - EXECUTION

3.1 INSTALLATION

A. Equipment Mounting: Examine UPS system before installation. Reject equipment that is moisture damaged or physically damaged. Examine elements and surfaces to receive UPS for compliance with installation tolerances and other conditions affecting performance of the Work Comply with requirements for installation as specified by supplier.

B. Maintain minimum clearances and workspace at equipment according to manufacturer's written instructions and NFPA 70.

C. Connections: Interconnect system components. Make connections to supply and load all circuits according to manufacturer's wiring diagrams unless otherwise indicated.

D. Grounding Separately Derived Systems: If not part of a listed power supply for a data-processing room, comply with NFPA 70 – 250 requirements.

E. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

F. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

G. Identify components and wiring according to Division 26 Section "Identification for Electrical Systems."

3.2 CONNECTIONS

A.