



**IGBT Battery Chargers** are cutting-edge systems engineered to deliver reliable battery charging, clean energy, and secure power backup for critical DC loads where a minimal physical footprint is essential.

Thanks to their compact and lightweight design, these high-frequency units offer exceptional spatial efficiency and seamless scalability for modern industrial facilities. DNS Rectifiers come equipped with comprehensive electronic protection, including built-in DC leakage and earth fault safeguards. To adapt to your facility's layout, charger enclosures can be custom-manufactured either with integrated or separate battery compartments.

The systems offer fully selectable float and boost voltage levels, and support parallel redundant configurations for up to 8 units to maximize total power availability. Equipped with wide communication options, the series guarantees hassle-free integration into any industrial network. It also includes smart telemetry software designed for real-time tracking, diagnostics, and remote control of the unit from a distance.

### Key Features

- **IGBT-Controlled Technology:** Advanced insulated-gate bipolar transistor technology for ultra-fast, precise power regulation.
- **High-Frequency Switching:** Maximizes energy efficiency, reduces power losses, and ensures a cleaner DC output.
- **Graphic LCD Display:** User-friendly, intuitive interface providing real-time data tracking and clear diagnostics.
- **Compact & Lightweight Size:** Space-saving design engineered for easy installation in tight spaces or containerized substations.
- **Total System Protection:** Comprehensive built-in defense against overvoltage, overcurrent, short circuits, and ground faults.
- **3-Stage Smart Charging:** Automated charging cycles dynamically optimized to enhance battery health and maximize lifespan.
- **Advanced Remote Monitoring:** Smart network connectivity and software integration for seamless remote management.
- **2-Year Comprehensive Warranty:** Full manufacturer assurance backing premium component quality and reliable operation.



### Technical Specifications

**Technology:** IGBT-Controlled High-Frequency Switching

**Control System:** Automatic Microprocessor-Controlled Architecture

**System Protection:** Overload, Over-Temperature, Short-Circuit, Earth Fault, and High/Low Voltage Protection

**Output Voltage & Current:** 0 - 100% Digitally Adjustable Range

**Charging Protocol:** Constant Current & Constant Voltage (CC/CV)

**Charging Stages:** 3-Stage Smart Charging: Boost, Equalize, and Float

**User Interface / Display:** High-Resolution Graphic LCD Display



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### DNS High Frequency IGBT Rectifier / Battery Charger Technical Specifications

| GENERAL              |                                                                                               |                                      |
|----------------------|-----------------------------------------------------------------------------------------------|--------------------------------------|
| Phase                | Single-Phase                                                                                  | Three-Phase                          |
| Technology           | High Frequency AC/DC Rectifier                                                                |                                      |
| Control              | IGBT Controlled                                                                               |                                      |
| INPUT                |                                                                                               |                                      |
| AC Voltage           | 220/230/240 Vac (or 110/120/127 Vac)                                                          | 380/400/415 Vac (or 208/480/600 Vac) |
| Voltage Tolerance    | ±15%                                                                                          |                                      |
| Frequency            | 50 Hz / 60 Hz ±10%                                                                            |                                      |
| Power Factor         | ≥ 0.9                                                                                         |                                      |
| THDi                 | ≤3%                                                                                           |                                      |
| Input Protection     | MCB, Input High-Low Voltage Protection                                                        |                                      |
| OUTPUT               |                                                                                               |                                      |
| DC Voltage           | 12 / 24 / 48 / 72 / 110 / 220 / 400 Vdc (custom outputs available)                            |                                      |
| Output Accuracy      | ±1%                                                                                           |                                      |
| Current Adjustment   | 0 - 100% Digitally Adjustable                                                                 |                                      |
| Voltage Adjustment   | 0 - 100% Digitally Adjustable                                                                 |                                      |
| Charging Time        | Digitally Adjustable (1 sec accuracy)                                                         |                                      |
| Charging Protocol    | Constant Current and Voltage                                                                  |                                      |
| Charging Stages      | Boost, Equalize and Float                                                                     |                                      |
| Voltage Ripple       | 1% RMS                                                                                        |                                      |
| Boost Voltage        | 2.4 Vdc for AGM, 1.60 for NiCd (can change with battery type)                                 |                                      |
| Float Voltage        | 2.2 Vdc for AGM, 1.40 for NiCd (can change with battery type)                                 |                                      |
| Boost Charging Timer | Digitally Adjustable                                                                          |                                      |
| Overload Operation   | 100% - 110% load: 30 sec, >125% load: 3 sec                                                   |                                      |
| Output Protection    | MCB, DC High/Low, Over Temp, Short Circuit, Earth Fault Optional                              |                                      |
| Efficiency           | >95% at Full Load                                                                             |                                      |
| CONTROL PANEL        |                                                                                               |                                      |
| Display              | LCD Graphic Display                                                                           |                                      |
| Displayed Parameters | Float/Boost Voltage, Operation/Boost Charging Timer, Alarms Adjust, Password                  |                                      |
| Displayed Units      | Float/Boost Charge Voltage, Charge Current<br>Optional: Battery Capacity, Boost Charging Time |                                      |
| Event Log            | 512 Events Recorded (Optional)                                                                |                                      |
| COMMUNICATION        |                                                                                               |                                      |
| Standard             | Dry Contact Card (up to 10 adjustable relays), RS485 MODBUS                                   |                                      |
| Optional             | SNMP, CANBUS, Profibus, IEC 61850, RS232, USB                                                 |                                      |
| SAFETY and STANDARDS |                                                                                               |                                      |
| Over Voltage         | IEEE 587 4500 A, Surge Arrestor (Optional)                                                    |                                      |
| Interference         | FCC Class A                                                                                   |                                      |
| Safety               | EN 61204, EN 60950-1, IEC 60146                                                               |                                      |
| Standards            | EN 50091-1 (Security), EN 61204-3 (EMC), ISO 9001, ISO 14001, CE                              |                                      |
| ENVIRONMENT          |                                                                                               |                                      |
| Operating Conditions | -10 C° / + 60 C°, 0 - 90% (non-condensing)                                                    |                                      |
| Storage Conditions   | -20 C° / + 70 C°, 0 - 90% (non-condensing)                                                    |                                      |
| Noise Level          | Less than 55 dB                                                                               |                                      |
| Protection Level     | IP42 Indoor Type, IP56 Outdoor Type                                                           |                                      |
| Cooling              | Forced Air Cooling with Axial Fans                                                            |                                      |

### Highlights

- IGBT Controlled
- High Frequency Switching
- Compact Size
- Small Footprint Cabinet
- Graphic LCD Digital Control Panel
- Quiet Operation
- Simple Program Menu
- Charges All Type of Batteries
- Parallel Operation up to 8 Units
- Automatic Start-Up After Power Cut
- DC Low/High Voltage Protection
- Earth Fault Protection
- Over Temperature Protection
- 3 Stage Charging
- Remote Monitoring
- Double or More Outputs
- Digital Current and Voltage Control
- 2 Years Warranty

### General Features

DNS IGBT Controlled DC Rectifier - Battery Chargers are designed to be used in telecom applications, data centers and all kind of DC power supply requirements where small footprint is a must. Compact and light cabinet design offers scalability.

DNS IGBT rectifiers provide full protection for the DC load, including DC leakage and earth fault protections. Float and boost charging is available. Parallel operation is allowed up to 8 units. All parameters are adjustable from the control panel.

Wide communication options provide easy network integration. Smart software is included to monitor and remote control the unit.