INTEGRATED INVERTER SOLUTIONS

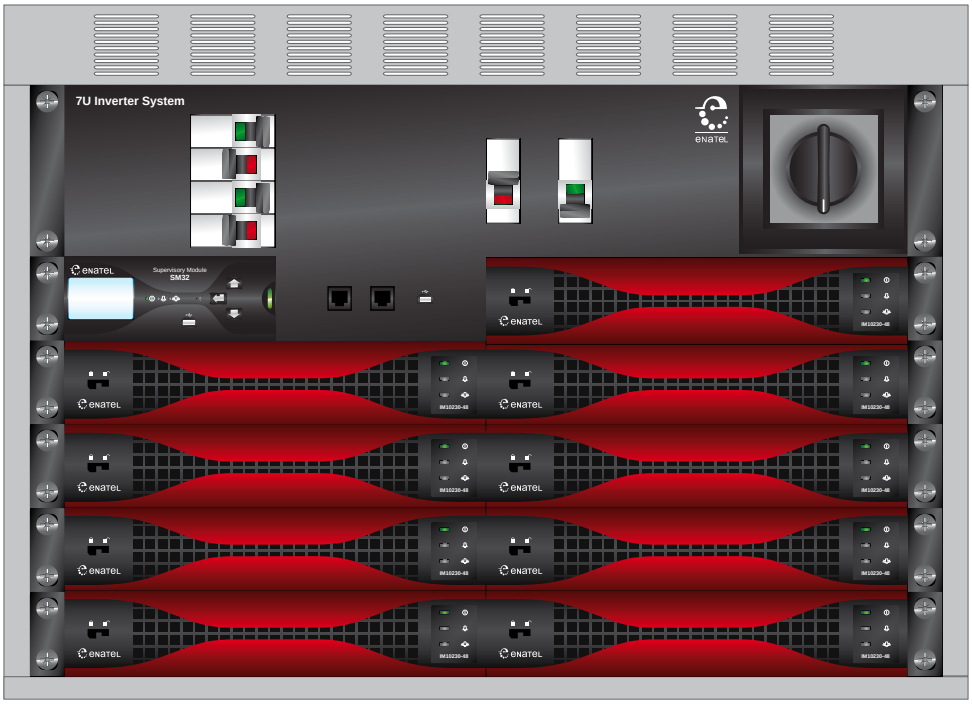
Enatel's ISM series inverter solutions offer a hot swappable modular inverter system for supplying critical AC loads in telecom, and data networking applications.

One of the unique features offered by the Enatel system solution is the ability to integrate AC/DC rectifiers, DC/DC converters and also DC/AC inverters into a system with a single controller, providing remote monitoring capabilities from a single point.

The inverter modules are available in 1.5kVA with either 110/120 or 220/230V AC output, and are scalable up to 15kVA. The inverter system solutions also include 12kVA static switch and maintenance bypass modules.

For further information on Enatel's range of integrated inverter systems, contact us today.

- Integrated monitoring presents simplified systems management.
- Hot-swap/hot-plug modules with n+1 redundancy.
- Small size means more room for revenue generating equipment.
- Fully featured telecom grade inverters.
- TCP/IP and SNMP network monitoring optional.
- High reliability means less cost of maintenance.
- Full remote monitoring reduces maintenance costs.
- Easily customized and configured to suit each customers individual needs.



enatel

SMART
power design

IM SERIES INVERTER MODULES

The Enatel IM series inverter modules utilize advanced power electronic techniques for reduced size, achieving a power density of 8.36W/inch³.

- Pure sine wave.
- Hot-swap replacement in shelf.
- Smart fan speed control.
- Wide operation temperature range -20 to +70°C.
- DSP designed.
- N+X redundancy system, load sharing < 5%.

SBM SERIES STATIC BYPASS MODULE

The Enatel SBM series static bypass module increases system reliability by automatically switching between the inverter output and the utility supply. The SBM12000 can be programmed so that the system operates in a standby backup mode were the utility is the normal source of supply or alternatively the system can be the normal source of supply with automatic switchover to the utility in the event of system failure.

- Universal input range.
- Hot-swap replacement in shelf.
- Back feed protection.
- Redundant fan design.
- Redundant power supply design.
- Fast transfer time, typically less than ¼ cycle.
- Wide operation temperature range -20 to +70°C.
- Lower audible noise <55dBA.
- Emergency power off function embedded.
- No-cross connect.
- Optional maintenance bypass switch function with interlock.
- Operation priority setup of transfer side by setting in controller module.

SPECIFICATIONS

DC Input	
Nominal Voltage:	48V DC for 48V DC system.
Operating Range:	40.5V DC ~ 58V DC for 48V DC system.
Surge Protection:	Telcordia GR-1089 CORD, ANSI C62.41-IEEE, STD 587-1980.
Input Protection:	Reverse polarity protection.
Psophometric Noise:	≤1.0mV ITU-T O.41 (16.66~6000Hz).
Peak To Peak Noise:	150mV up to 100MHz.
AC Output	
Output Waveform:	Pure sine wave.
Output Power:	1500VA/1200W
Power Factor:	0.8
Nominal Output Voltage:	IM15110-48: 110/115/120V AC.; Max ±2%, IN15230-48: 208/220/230/240V AC; Max ±2%
Frequency:	50/60Hz ±0.5%
Crest Factor:	3:1
THD:	<3%, linear load, <5%, non-linear load.
Efficiency:	Min 89% at rated load.
Dynamic Response:	Max. ±10%
Over Load Protection:	1.5 * Inom > 20s, 1.25 * Inom temperature controlled, Inom = 1000VA / 1500VA output voltage.
Mechanical	
Dimensions (W, H, D):	215mm (5U), 40.5mm (body), 43.8mm (1U) front panel, 270mm
Weight:	2.5kg
Shipping Dimensions (W, H, D):	540mm, 95mm, 400mm
Shipping Weight:	6kg (excluding rectifier modules)
Monitoring & Control:	Communications, monitoring and control are provided via the Enatel SM31/32 modules. Integrated solutions with AC/DC Rectifiers, and/or DC converters can simultaneously be monitored from the same controller module as the inverter system.
Part Numbers:	
IM15230-48:	48V DC input, 230V AC output, 1.5kVA, 1200W.
IM15110-40:	48V DC input, 120V AC output, 1.5kVA, 1200W.

SPECIFICATIONS

Input	
AC Voltage Range:	
110/115/120V AC:	From 89 to 138VAC.
208/220/240V AC:	176 to 276VAC.
Over Voltage Threshold:	Adjustable Using Controller: 220 to 240V AC for 208V AC systems. 233 to 252V AC for 220V AC systems. 244 to 264V AC for 230V AC systems. 254 to 276V AC for 240V AC systems. 117 to127V AC for 110V AC systems. 122 to 132V AC for 115V AC systems. 127 to 138V AC for 120V AC systems.
Under Voltage Threshold:	Adjustable Using Controller: 176 to 198V AC for 208V AC systems. 176 to 209V AC for 220V AC systems. 185 to 218V AC for 230V AC systems. 193 to 228V AC for 240V AC systems. 89 to 105V AC for 110V AC systems. 93 to 110V AC for 115V AC systems. 100 to 114V AC for 120V AC systems.
Redundant Power Supply Design:	Startup power-on by priority source or alternative.
Output	
Waveform:	Sinusoidal.
Nominal Output Voltage:	Same as mains AC or the output of inverter modules.
Permissible Frequency Area:	Max. ±2.5% (Synchronize area of inverter). ±1.5Hz for 60Hz inverter. ±1.25Hz for 50Hz inverter.
Transfer Time:	Typical ¼ cycle.
Rated Current:	50A (All voltage settings).
Operation Methods:	Inverter priority or utility priority (Programmable).
Part Number:	
SBM12000:	50A/12kVA static bypass module.

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INVERTER SYSTEM MONITORING & MANUAL BYPASS

SM31/32 Supervisory & Control Module.

- Compact 1U design.
- SNMP. (SM32)
- USB.
- Programmable output dry relay contacts.
- Hot swappable.
- Embedded real time clock.
- LCD display.
- LED status indicators.
- Audible alarm function embedded.

The Enatel SM31/32 series system controllers allow a single point monitoring of all power system parameters including AC/DC rectifiers, DC/DC converters and AC/DC inverters.

The Enatel SM31/32 series controllers, allow the user to monitor real-time system status such as output voltage, output current, alarm status, and also allows system parameters, to quickly be changed with the touch of a few keys on the front panel. With the the SM32 which includes the communications interface module, remote access can be made with a personal computer over a variety of interfaces, including USB, RS232 or TCP/IP and SNMP. *see the SM31/32 Brochures for specifications.

AIS-MBP Manual Bypass/Distribution Module.

- 100A bypass switch.
- Enables hot-swap of STS module.
- 100A bulk output on terminal block.
- AC utility can be isolated via MCB.
- 100A master MCB.
- 8x IEC320-C13 outlets.
- 1x MCB for each two output circuits.

The Enatel AIS series manual bypass and power distribution module enables the user to manually switch between inverter output or utility output and to override the static transfer switch module for maintenance purposes. A mechanical interlock between the manual bypass and the static transfer switch module ensures that AC to the load cannot be inadvertently interrupted.

The AIS-MBP provides two means of distributing AC to the load as standard; as a single bulk output or via eight IEC320 outlet sockets with individual thermal/magnetic circuit breakers.

An example of an integrated rectifier, Inverter and DC/DC converter solution with single point control and monitoring via SM32.