tecned

Industrial Inverters and UPS

شرکت همند نیرو گسیل
نماینده رسمی tecned
HNG

Industrial Inverters
Series OM (SF/D)

Reliable AC power is indispensable for infrastructure and industrial processes alike. Public transport, power plants, oil & gas and industry demand absolute reliability for their critical processes.

Secure AC is used to supply power to monitoring and control systems like DCS, PLC, control rooms, SCADA, security, railway signaling and critical communication systems.

Each of these processes is mission critical and therefore demands the highest reliability and durability of the back-up equipment. With this in mind, TECNED designed the OM inverter series. In its core an analog controlled inverter with fault tolerant design and output isolation transformer. Additional features include a build-in static and manual bypass switch and LCD display.

Industrial grade inverters

Industrial grade inverters are based on transformer technology for robustness and endurance. The output isolation transformer protects the semiconductors against peak currents and distortion, supplying short circuit currents and filtering noise. Transformer based technologies offer therefore a longer service life and higher degree of protection.

All TECNED OM inverters can be supplied with fault tolerant topology. Minimum two inverter ECU's are combined in a single enclosure. A default level of output will be maintained under all failure conditions, ensuring continuous supply to the load.

Product range :

The TECNED OM(SF/D) inverter series is available with

- Input voltages from 24Vdc to 600Vdc (-15 to +45%)
- Output voltage single phase 110/220/230/240V
- Output voltages 3-phase 208/380/420/460/480V
- Output frequency 50 or 60 Hz.
- Output rating 5 to 100 kVA depending on DC bus voltage levels.

Your Advantage :

- Output Power factor 0.9,
- Inverter bridge with IGBT technology.
- Output galvanic separation transformer.
- No DC component can be present on the output.
- Designed based on industry requirement.
- Fault tolerant in control and power
- Best price / Performance ratio.
- Highest reliability.

Industrial Inverter Technology

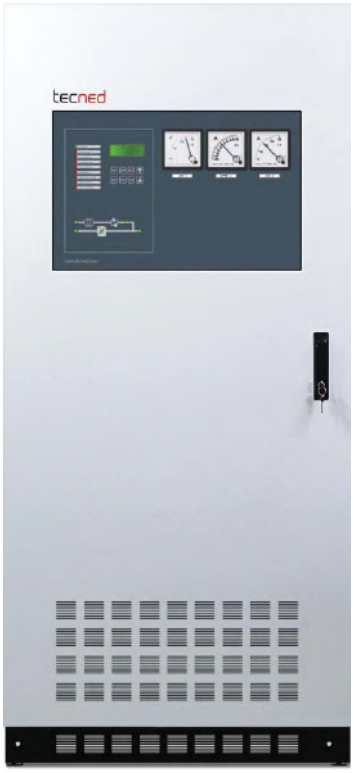
The TECNED OM(SF/D) inverter series is available with input voltages from 24Vdc to 600Vdc nominal and 1Ph or 3Ph output.

The OM(SF/D) inverters are available in capacities from 5 kVA up to 100 kVA depending on DC voltage levels.

OM (SF/D) inverters can be supplied as standard or fault tolerant systems within a single enclosure to meet customer requirements for safety and reliability.

The OM-SF (software free) model is a strictly analog inverter available with natural convection and forced air cooling depending on rating. Standard features include DC-high/low, output out of limits and general alarm, output V/A metering, potential free contacts and input/output fuse monitoring.

The OM-D model includes an additional digital controller with LCD display that shows the system current state of operation and system values, allowing setting of system parameters and includes event and alarm logs



The TECNED-OM series is designed with reliable and robust IGBT-technology using analog monitoring and control circuits to minimize sensitivity to electromagnetic distortion. The high frequency controlled inverter is able to supply non-linear loads with minimum output voltage distortion, providing a constant voltage to the load under all operating conditions.

With a separate mains input the inverter can be equipped with a static bypass and manual bypass switch. A visualization of the operating status is given by a mimic diagram on the front door.

Front panel LED Standard

- Operation
- Battery operation
- General Alarm
- Inverter failure
- DC Voltage High
- DC Voltage Low
- High Temperature
- Bypass out of limits
- Output out of limits

On Mimic diagram

- Input DC Fuse trip
- Output Fuse trip
- By-pass breaker trip
- Load on static by-pass
- Load on manual by-pass

Controls

- Push button-on
- Push button-off
- Push button silent buzzer
- Push button LED test
- Scroll-up/down (OM(D) only)

Potential free contact

- General alarm
- DC input Low
- Inverter overload
- Load on bypass

Option All alarms and indicators can be made available with (expandable to 12 PFC contacts)

- Main by-pass out-off range, DC ground fault,
- Fuse Trip, DC. Input, output fuse, By-pass fuse
- High temperature, Output not Syn. with by-pass

Industrial UPS

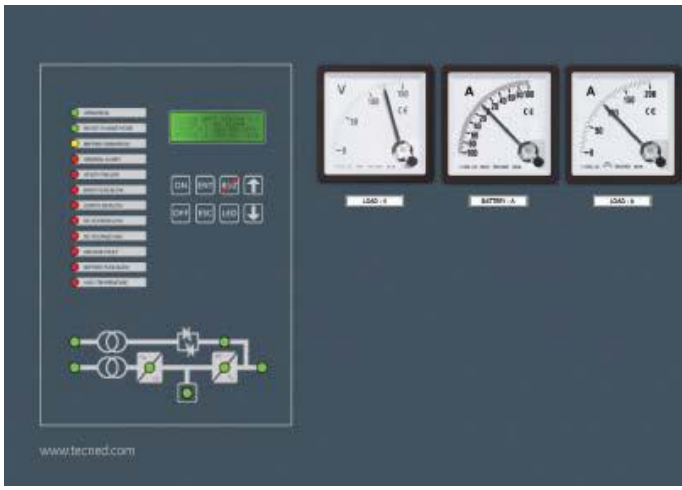
Combined with the TECNED GR (SF/D) series (see separate leaflet), the TECNED OM inverter series is part of the industrial UPS configuration.

The TECNED ONV(SF/D) UPS series is available with single phase and three phase input and single or three phase output with ratings up to 100 kVA in a single enclosure. The ONV (SF/D) series can be configured to charge all common battery types from VRLA to NICAD.

The ONV (SF/D) series can be supplied as standard or fault tolerant systems within a single enclosure to meet customer requirements for safety and reliability.

The ONV-SF (software free) model is a strictly analog UPS available with natural convection and forced air cooling depending on the rating. Standard features include output V/A/F metering, mains failure, DC-high/DC-low, general alarm with potential free contacts, input/output fuse and battery fuse monitoring.

The ONV-D model includes an additional digital controller with LCD display that shows the systems current state of operation and system values, allowing setting of system parameters and includes event and alarm logs



Option list (ONV-SF &D)

- Extend to 12x PFC (NO/NC) with LED
- Fan failure alarm
- Manual / automatic boost charge
- Individual fuse failure indicator
- DC ground fault
- Over temperature
- Up to 6 (DIN 96) meters / cabinet
- Static Bypass Switch
- Manual bypass switch

Additional features ONV-D

- Battery Monitoring
- Programmable values for charge voltage/current, boost-charge
- RS485, Profibus communication

Note: The TECNED ONV-series can be supplied with either a single leg static bypass build-in the inverter cabinet or a double leg static bypass (STS) within the same or separate enclosure.

TECNED OM-SERIES
Specifications

Topology	Transformer based technology								
Rated kVA/kW (PF 0.9)	10/9	15/13.5	20/18	30/27	40/36	50/45	60/54	80/72	100/90
Norminal Input DC.Voltage Nominal input range	24/48/110(120)/220Vdc/380Vdc/640Vdc -15% + 45%								
Max DC. Input current @ 220Vdc (incl overload)	60	90	120	180	240	300	360	480	600
Norminal Output AC. Voltage	1 Ph, 110/220/230/240 V - 3Ph,208/380/400/415/460/480V								
Output Frequency	50 or 60 Hz								
Overall effciency	up to 95% (depending on DC bus voltage)								
Inverter Bridge	Pulse wide modulation and IGBT Technology								
Output Galvanic seperation	Intergrated Isolation transformer								
Output:									
Output wave form	Sine wave								
THD-V for 100% linear load	Max 1.5%								
THD-V for 100% non linear load	Max 3%								
- static	+/-1%								
- dynamic (at load step 0-100-0%)	+/-3%								
- dynamic (at load step 0-50-0%)	+/-2%								
- recovery time to +/- 1%	< 20 ms								
Output frequency tolerance (free runing)	+/-0.1%								
Over load capability	125% 10 minutes								
Crest factor	> 3:1								
Static by-pass (option)	Static transfer switch on by-pass line (SCR Type)								
Over load on by-pass	200% for 5 minutes & 45 time In for 10 ms.								
Option	Input isolation, step down transformer in the by-pass line								
	Back-feed protection at bypass line (IEC62040-3)								
	Industrial grade voltage stabilizer								
Audible noise level (dbA)	63							72	
Operating temperature range	0° to 40° C								
Relative Humidity	Max 95% (non condensing)								
Protection degree	IP20 (higher IP values available on request)								
Enclosure Floor standing	Aluzinc frame / powder coat RAL 7035								
Service access	Front access only								
Standard									
EN/IEC 62040-1-1,-2	Safety								
EN/IEC 62040-2	EMC								
EN/IEC 62040-3	Performance								

TECNED ONV- SERIES

Specifications

Rated kVA/kW (PF 0.9)	10/9	15/13.5	20/18	30/27	40/36	50/45	60/54	80/72	100/90
Rectifier Bridge									
Rectifier Bridge	IGBT & Thyristor Technology								
Standard input voltage 3Phase	208/220/240/380/415/460/480V, (3W+E), (-15% to + 20%)								
Standard input voltage 1Phase	110/120/200/220/230/240/277V, (2W+E), (-15%, to + 20%)								
Frequency	50 or 60 Hz +/- 10% (40 to 70 Hz)								
Input Galvanic seperation	Integrated input Isolation transformer								
Input Power factor	0.99								
Input current THDI (IEC 61000-3-12)	< 8% for 3Ph input / <12% for single phase input (20% to 100% load)								
Inrush current	Limited by soft-start circuit								
Power walk-in	1-15 Sec.								
Output voltage regulation	+/- 0.5% (full input voltage range)								
Voltage ripple [DC]	< 1% (3Ph, without battery) / < 2%, 1Ph with battery)								
Battery Charging current limit	Programmable (D) version / setting (SF) version								
Battery									
Nominal voltage [DC]	24/48/110(120)/220/400/500Vdc								
Max. boost voltage [DC]	600Vdc								
Battery	Ni-cad, Open lead acid or Seal lead acid								
- Ni-cad	up to 380 Cell								
- lead acid	up to 265 Cell								
Inverter									
Norminal input Voltage [DC]	24/48/110(120)/220/400/500Vdc								
Norminal Output AC. Voltage	1 Ph, 110/220/230/240 V - 3Ph 208/380/400/415/460/480V								
Output Frequency	50 or 60 Hz								
Inverter effciency	up to 94% (depending on DC bus voltage)								
Inverter Bridge	Pulse width modulation with IGBT Technology								
Output Galvanic seperation	Integrated Isolation transformer								
Output wave form	Sine wave								
Output voltage THD.V for 100% linear load	Max 1.5%								
Output voltage THD.V for 100% non linear	Max 3%								
Output voltage :									
- static stability	+/-1%								
- dynamic (at load step 0-100-0%)	+/-3%								
- dynamic (at load step 0-50-0%)	+/-2%								
- recovery time to +/- 1%	< 20 ms								
Output frequency tolerance (free runing)	+/-0.1%								
Over load capability	125%, 10 minutes								
Crest factor	> 3:1								
By-pass	standard 1 leg, option 2 leg (full STS)								
Standard input voltage 3Phase	208/220/380/415/460/480V, (3W+E)								
Standard input voltage 1Phase	110/120/200/220/230/240/277V, (2W+E)								
Bypass stabilizer	Option								
Static bypass type	Static transfer switch on by-pass line (SCR Type)								
Over load on by-pass	200% for 5 minutes & 45 time In for 10 ms.								
Manual bypass switch	Make before break								
General									
Overall effciency	up to 92% (depending on DC bus voltage)								
Audible noise level (dbA)	63							72	
Operating temperature range	0^{o} to 40^{o} C								
Relative Humidity	Max 95% (non condensing)								

Standard Compliant

ISO9001	Quality management systems
IEC- 60146	Semiconductor converters - General requirements and line commutated converters
EN/IEC62040-1	Uninterruptible power systems (UPS) – Part 1 General and safety requirements for UPS
EN/IEC62040-2	Uninterruptible power systems (UPS) – Part 2 Electromagnetic compatibility (EMC)
EN/IEC62040-3	Uninterruptible power systems (UPS) – Part 3 Method of specifying the performance and test requirements
EN 60950-1	Safety of information equipment including electrical business equipment.
EMC 55011	Industrial, scientific, and medical (ISM) radio-frequency equipment—Radio disturbance characteristics—Limits and methods of measurement; Amendment A1:1999 to EN 55011:1998.
IEC 61000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤16 A per phase)
IEC 61000-3-12	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤ 75 A per phase
IEC/61000-6-5	Low voltage AC Surge 1.2/50 µs, 2 kV line to ground,1 kV line to line (equipment installed in power stations and MV substations. Low voltage DC Surge 1.2/50 µs, 2 kV line to ground, 1 kV line to line