TECHNICAL DATA SHEET

INGENIO MAX

500 kVA

3-Ph (IN) / 3-Ph (OUT)

Rev.	Descrizione Description	Data Date	Emesso Issued	Approvato Approved	Lingua Language	Pagina Page	di Pag. of Pag.
B	VR 11-19	04/02/19	G. Senesi	F. Berti	E	1	8
					Codice / Code		
					OMU14001		

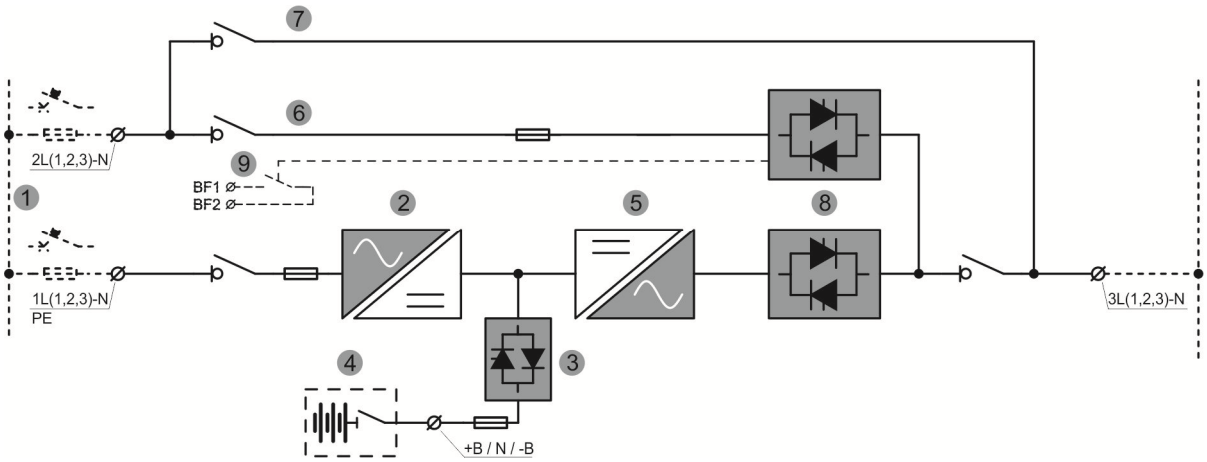
GENERAL INFORMATION

POWER		**kVA**	**500**
UPS type			ON LINE - Double Conversion
Rated apparent output power (cos φ = 1)		kVA	500
Rated active output power (cos φ = 1)		kW	500
AC/AC efficiency (VFI - ON LINE Double Conversion)	@ 25% load	%	> 94.8
	@ 50% load		≥ 96.0
	@ 75% load		≥ 96.0
	@ 100% load		≥ 95.6
AC/AC efficiency (VFD ECO MODE - from 50% of load)		%	≥ 98,0
Heat dissipation at rated load, VFI mode (cos φ = 1)		kW	23.0
Ambient temperature	UPS	° C	0 ÷ 40
	BATTERY		0 ÷ 25
Storage temperature	UPS	° C	-10 ÷ 70
	BATTERY		-15 ÷ 40
Relative humidity (non condensing)		%	< 95
Altitude		m	< 1000 (above sea level)
Power derating for altitude > 1000 m			According to EN 62040-3 0,5% every 100 m
Cooling			Forced
Required cooling air volume		m^3/h	4600
Acoustic noise (according to EN 62040-3)		dB	< 72
Number of cells for standard Lead acid battery			360 ÷ 372
Protection degree			IP20
Electromagnetic compatibility			According to EN 62040-2 (CE marking)
Safety			According to EN 62040-1
Test and performance			According to EN 62040-3
Colour			RAL 9005 (altri su richiesta)
Accessibility			Front access
Installation			Against the wall
Overall dimension	W	mm	1430
	D		970
	H		1978
Weight (without batteries)		kg	1250
Weight with batteries (maximum)			n.a.
Input / Output terminals			Cables input from bottom
Handling			Base provided for fork-lift
Storage and transport conditions			According to EN 62040-3
Reference standards			EN 62040-1 - EN62040-2 - EN62040-3 ISO 9001:2008 - ISO 14001

POWER	kVA	500
Front panel		Touch-screen 10"
Voltage-free contact interface		Optional for signalisations / alarms
Serial communication interface		Standard: RS232/USB Optional: RS485 (ModBus RTU protocol)
Parallel configuration (optional)		Up to 5+1 (parallel redundant) Up to 6 (power parallel) (1)

(1) For higher configurations contact the manufacturer

BLOCK DIAGRAM



1. Separate mains input for rectifier and bypass
2. Rectifier battery-charger
3. Battery static switch
4. External battery
5. Inverter
6. Emergency line (bypass)
7. Maintenance bypass line
8. Inverter (SSI) and bypass(SSB) static switch
9. Contact for external back-feed protection

RECTIFIER AND BATTERY CHARGER

POWER		**kVA**	**500**
Input			3-phase / 4-wire
Rated input voltage		Vac	400
Tolerance		%	-20 / +15
Input frequency (selectable)		Hz	50 - 60
Tolerance		%	+/- 10
Input power factor			> 0,99
Input current harmonic distortion (THDi) (at rated voltage and THDv < 0,5%)	@ 25% load	%	< 10
	@ 50% load		< 4
	@ 75% load		< 3
	@ 100% load		< 3
Output voltage static stability		%	+/- 1
Output voltage ripple		%	< 1 (rms)
Battery recharging characteristic			Intermittent charging with prevailing state of complete rest and control of the battery status IU (DIN 41773)
Maximum battery recharging current		A	
- at rated load			70
- max current with DCM function			120
Rectifier bridge type			IGBT-based PFC
Input protections			Fuses
Rated current abosorbed from mains @ Vnom (at rated load and battery charged)		A	757
Maximum current abosorbed from mains at minimum voltage (at rated load and max recharging current)		A	1050
Rectifier soft-start (walk-in)		s	5 ÷ 30 (programmable)
Rectifier sequential start-up (hold-off)		s	1 ÷ 300 (programmable)

BATTERY

POWER		**kVA**	**500**
Battery type (standard)			Sealed lead acid (VRLA - maintenance free)
Number of cells			360 - 372
Floating voltage at 25 °C	360 el. 372 el.	Vdc	812 840
Minimum discharge voltage	360 el. 372 el.	Vdc	620 632
Power drawn by the inverter (at rated load cos φ = 1)		kW	509.7
Power drawn by the inverter (at rated load and minimum battery voltage)		A	822
Battery protection			Fuses
Battery test			Provided as standard

INVERTER

POWER		kVA	500
Inverter bridge type			IGBT (High frequency PWM)
Rated apparent power at cos φ = 1		kVA	500
Rated active power at cos φ = 1		kW	500
DC/AC efficiency	@ 25% load	%	96.0
	@ 50% load		97.0
	@ 75% load		97.0
	@ 100% load		98.1
Output			3-phase / 4-wire
rated output voltage (selectable)		Vac	380 - 400 - 415
Output voltage stability			
- Static (balanced load)		%	+/- 1
- Static (unbalanced load)		%	+/- 2
- Dynamic (load step 20%-100%-20%)		%	+/- 5
- Output voltage recovery after load step		ms	< 20
- Classification according to EN 62040-3			VFI-SS-111
Phase angle accuracy			
- Balanced load		°	+/- 1
- Unbalanced load (100% - 0% - 0%)		°	+/- 1
Output frequency		Hz	50 - 60
Output frequency stability			
- Internal clock (mains not present)		Hz	+/- 0,001
- Inverter synchronized with mains		Hz	+/- 2 (other on request)
- Maximum frequency slew rate		Hz/s	< 1
Rated output current (@ 400 Vac)		A	722
Overload capability	>100…110%	min	10
	>110…125%	min	5
	>125…150%	sec	30
	>150%	ms	100
Short circuit current (1)		A	1750
Short circuit characteristic			Current limited with electronic protection Automatic stop after 5 seconds
Output waveform			Sinusoidal
Output voltage harmonic distortion THDv			
- With linear load		%	< 1
- With non-linear load		%	< 5
- According to EN 62040-3			Fully compliant
Max crest factor without derating			3 : 1

(1) Value referred to short-circuit mode IK1 - IK2 - IK3

BYPASS

Automatic bypass		Electronic thyristor switch
Input		3-phase / 4-wire
Protection		Fuses
Rated input voltage (selectable) Tolerance (selectable)	Vac %	380 - 400 - 415 +/- 10
Input frequency (selectable) Tolerance (selectable)	Hz %	50 - 60 +/- 10
Transfer mode		No-break
Inverter --> automatic bypass transfer		In case of: - Short-circuit - Battery discharged - Inverter test - Inverter failure
Automatic bypass --> inverter transfer		Automatic Block on bypass in case of 6 transfers in 2 minutes, local reset by display
Overload capability	%	150 continuously 1000 for 1 cycle
Manual bypass		- Electronically controlled - No-break assisted re-start procedure
Back-feed protection		NC contact for the control of an external device

SOFTWARE ENABLED FUNCTIONS

1. DIESEL MODE OPERATION
2. RECTIFIER WALK-IN TIME
3. RECTIFIER DELAY ON STARTUP (HOLD-OFF TIME)
4. DYNAMIC CHARGING MODE (DCM)
5. VFD (ECO) OPERATING MODE MANAGEMENT
6. FREQUENCY CONVERTER

OPTIONS

1. BATTERY TEMPERATURE VOLTAGE COMPENSATION
2. REMOTE STATUS / ALARMS CARD
3. SERIAL INTERFACE RS-485 (ModBus protocol RTU)
4. SNMP ADPTER
5. PARALLEL CARD INTERFACE KIT
6. LOAD-SYNC CARD INTERFACE KIT
7. ISOLATION TRANSFORMER
8. WALL MOUNTED FUSED SWITCH BOX
9. SPECIAL PAINT