

TECHNICAL DATA SHEET

INGENIO

30 – 40 – 50 kVA

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

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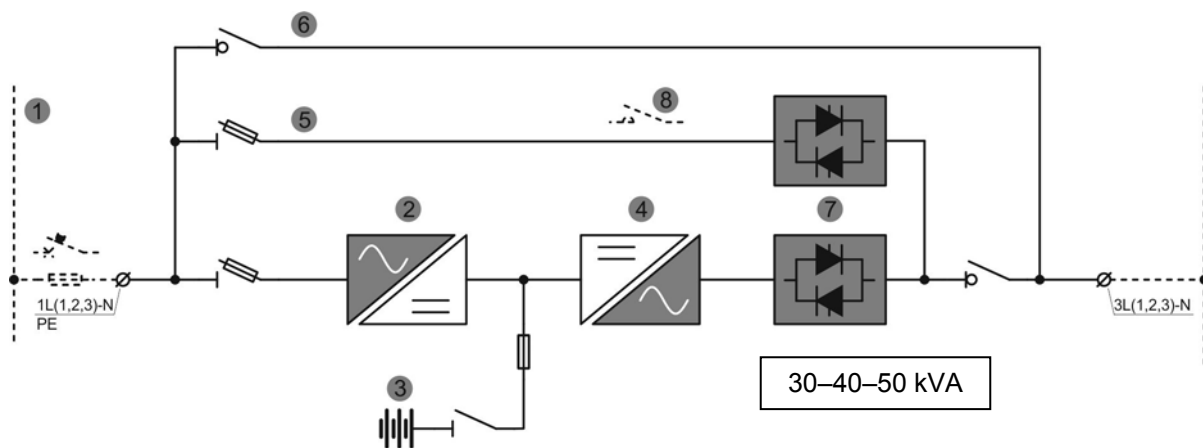
GENERAL INFORMATION

POWER		kVA	30	40	50
UPS type					
Rated output apparent power (cos φ = 1)		kVA	30	40	50
Rated output active power (cos φ = 0,9)		kW	27	36	45
AC/AC efficiency (VFI - ON LINE Double Conversion)	@ 25% load	%	90,0	90,0	90,0
	@ 50% load		91,0	91,0	91,0
	@ 75% load		92,0	92,0	92,0
	@ 100% load		93,0	93,0	93,0
AC/AC efficiency (VFD ECO MODE - from 50% of load)		%	> 98,0		
Heat dissipation at rated load, VFI mode (cos φ = 1)		kW	2,0	2,7	3,4
Ambient temperature	UPS BATTERY	° C	0 ÷ 40 0 ÷ 25		
Storage temperature	UPS BATTERY	° C	-10 ÷ 70 -10 ÷ 60		
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	900	900	1100
Acoustic noise (according to EN 62040-3)		dB	< 52		< 57
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 and side access		
Installation			Against the wall		
Overall dimension	L	mm	505		
	P		940		
	H		1505		
Weight (without batteries)		kg	140	150	190
Weight with batteries (maximum)			500	510	550
Input / Output terminals			Cables input from bottom (from top on request)		
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
Front panel		Liquid Cristal Display
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. Common mains input for rectifier and bypass (Optional separate input for bypass)
2. Rectifier battery-charger
3. Internal battery (Optional external cabinet)
4. Inverter
5. Emergency line (bypass)
6. Maintenance bypass line
7. Inverter (SSI) and bypass(SSB) static switch
8. Back-feed protection relay (optional for 30-40-50 kVA)

RECTIFIER AND BATTERY CHARGER

POWER		kVA	30	40	50
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	%	< 13		
	@ 50% load		< 7		
	@ 75% load		< 5		
	@ 100% load		< 3		
Output voltage static stability		%	+/- 1		
Output voltage ripple		%	< 1 (rms)		
Battery recharging characteristic			IU (DIN 41773)		
Maximum recharging current at rated load		A	10	8	15
Rectifier bridge type			IGBT-based PFC		
Input protections			Fast-acting fuses		
Rated current absorbed from mains @ Vnom (at rated load and battery charged)		A	42	56	70
Rated current absorbed from mains @ Vnom (at rated load and max recharging current)		A	54	66	88
Rectifier soft-start (walk-in)		s	5 ÷ 30 (programmable)		
Rectifier sequential start-up (hold-off)		s	1 ÷ 300 (programmable)		

BATTERY

POWER		kVA	30	40	50
Battery type (standard)			Sealed lead acid (VRLA - maintenance free)		
Number of cells			360 - 372		
Floating voltage at 25 °C	360 el.	Vdc	812		
	372 el.		840		
Minimum discharge voltage	360 el.	Vdc	620		
	372 el.		632		
Power drawn by the inverter (at rated load $\cos \varphi = 0,9$)		kW	28,1	37,5	46,9
Power drawn by the inverter (at rated load and minimum battery voltage)		A	45	60	76
Battery protection			Fuses		
Battery test			Provided as standard		

INVERTER

POWER		kVA	30	40	50
Inverter bridge type					
Rated apparent power at $\cos \varphi = 1$		kVA	30	40	50
Rated active power at $\cos \varphi = 0,9$		kW	27	36	45
DC/AC efficiency		%	> 96		
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%)	°		+/- 2		
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)					
- $\cos \varphi$ 0,9 (leading and lagging)	A		44	58	73
- $\cos \varphi$ 1 (resistive)	A		39	52	65
Overload capability	>100...125%	min	10		
	>125...150%	sec	30		
	>150%	ms	100		
Short circuit current ⁽¹⁾		A	78	104	130
Short circuit characteristic			Current limited with electronic protection Automatic stop after 5 seconds		
Selectivity			1/2 cycle (fuse gG 20% In)		
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

POWER	kVA	30	40	50
Automatic bypass		Electronic thyristor switch		
Input		3-phase / 4-wire		
Protection		Fuses		
Rated input voltage (selectable)	Vac	380 - 400 - 415		
Tolerance (selectable)	%	+/- 10		
Input frequency (selectable)	Hz	50 - 60		
Tolerance (selectable)	%	+/- 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		
Protezione di back-feed		Optional		

SOFTWARE ENABLED FUNCTIONS

1. RECTIFIER WALK-IN TIME
2. RECTIFIER DELAY ON STARTUP (HOLD-OFF TIME)
3. VFI / VFD (ECO) OPERATING MODE MANAGEMENT
4. FREQUENCY CONVERTER

OPTIONS

1. BATTERY TEMPERATURE VOLTAGE COMPENSATION
2. ISOLATION TRANSFORMER
3. SEPARATED BYPASS INPUT KIT (30-40-50 kVA)
4. VOLTAGE ADAPTATION AUTO-TRANSFORMER
5. BACK-FEED PROTECTION (30-40-50 kVA)
6. REMOTE STATUS / ALARMS CARD
7. SERIAL INTERFACE RS-485 (ModBus protocol RTU)
8. SNMP ADPTER
9. REMOTE MONITORING PANEL
10. PARALLEL CARD INTERFACE KIT
11. EXTERNAL BATTERY CABINET
12. WALL MOUNTED FUSED SWITCH BOX
13. DIESEL MODE OPERATION
14. EXTERNAL EPO AUXILIARY CONTACT
15. EXTERNAL MCB AUXILIARY CONTACT
16. SPECIAL PAINT