TECHNICAL DATA SHEET

INGENIO Plus

60 – 80 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	VR25-2020	18.03.2020	A. Regina	F. Berti	E	1	8
					Codice / Code		
					OMW07054		

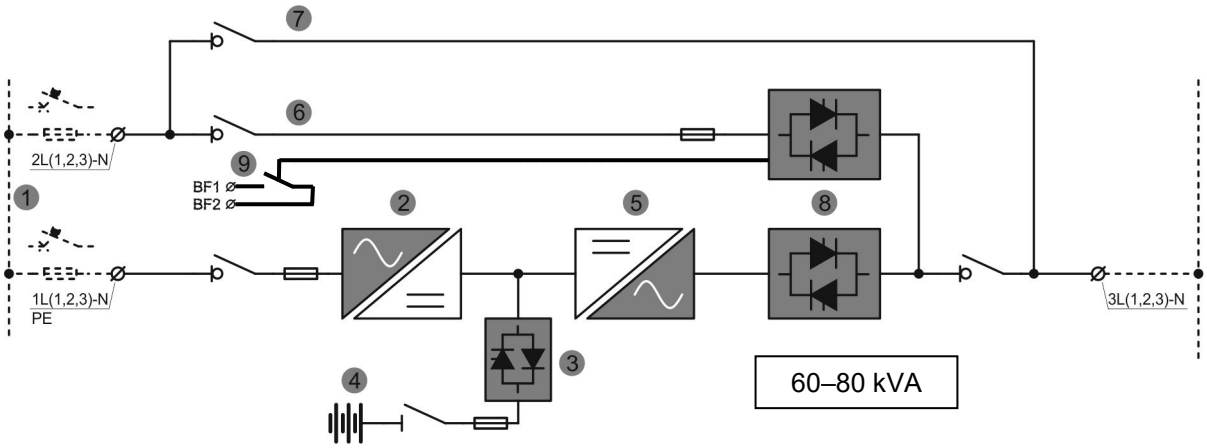
GENERAL INFORMATION

POWER		**kVA**	**60**	**80**
UPS type			ON LINE - Double Conversion	
Rated apparent output power (cos φ = 1)		kVA	60	80
Rated active output power (cos φ = 1)		kW	60	80
AC/AC efficiency (VFI - ON LINE Double Conversion)	@ 25% load	%	93,0	93,0
	@ 50% load		94,5	94,5
	@ 75% load		95,0	95,0
	@ 100% load		≥ 95	95,0
AC/AC efficiency (VFD ECO MODE - from 50% of load)		%	≥ 98,0	
Heat dissipation at rated load, VFI mode (cos φ = 1)		kW	3,2	4,2
Ambient temperature	UPS	° C	0 ÷ 40	
	BATTERY		0 ÷ 25	
Storage temperature	UPS	° C	-10 ÷ 70	
	BATTERY		-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	1100	1000
Acoustic noise (according to EN 62040-3)		dB	< 60	
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 (other o request)	
Accessibility			Front and top access Side access (with batteries)	
Installation			Against the wall	
Overall dimension	W	mm	560	
	D		940	
	H		1500	
Weight (without batteries)		kg	210	225
Weight with batteries (maximum)			770	785
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	60	80
Front panel		Liquid Cristal Display Touch-screen (optional)	
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. Internal battery (Optional external cabinet)
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**	**60**	**80**
Input			3-phase / 4-wire	
Rated input voltage Tolerance		Vac %	400 -20 / +15	
Input frequency (selectable) Tolerance		Hz %	50 - 60 +/- 10	
Input power factor			> 0,99	
Input current harmonic distortion (THDi) (at rated voltage and THDv < 0,5%)	@ 25% load @ 50% load @ 75% load @ 100% load	%	< 5 < 4 < 3 < 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 - at rated load - max current with DCM function		A	 15 30	 15 30
Rectifier bridge type			IGBT-based PFC	
Input protections			Fuses	
Rated current abosorbed from mains @ Vnom (at rated load and battery charged)		A	91	122
Maximum current abosorbed from mains at minimum voltage (at rated load and max recharging current)		A	136	175
Rectifier soft-start (walk-in)		s	5 ÷ 30 (programmable)	
Rectifier sequential start-up (hold-off)		s	1 ÷ 300 (programmable)	

BATTERY

POWER		**kVA**	**60**	**80**
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	61,9	82,5
Power drawn by the inverter (at rated load and minimum battery voltage)		A	100	133
Battery protection			Fuses	
Battery test			Provided as standard	

INVERTER

POWER		kVA	60	80
Inverter bridge type			IGBT (High frequency PWM)	
Rated apparent power at cos φ = 1		kVA	60	80
Rated active power at cos φ = 1		kW	60	80
DC/AC efficiency	@ 25% load	%	96,0	
	@ 50% load		97,0	
	@ 75% load		97,0	
	@ 100% load		97,0	
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	87	115
Overload capability	>100…110%	min	10	
	>110…125%	min	5	
	>125…150%	s	30	
	>150%	ms	100	
Short circuit current (1)		A	200	265
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. VFI / 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