
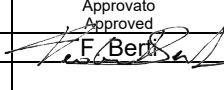


TECHNICAL DATA SHEET

INGENIO MAX

200 – 250 - 300 kVA

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

Rev.	Descrizione Description	Data Date	Emesso Issued	Approvato Approved	Lingua Language	Pagina Page	di Pag. of Pag.
O	VR76-24	08.07.24			E	1	8
					Codice / Code		
					OMP06078		

GENERAL INFORMATION

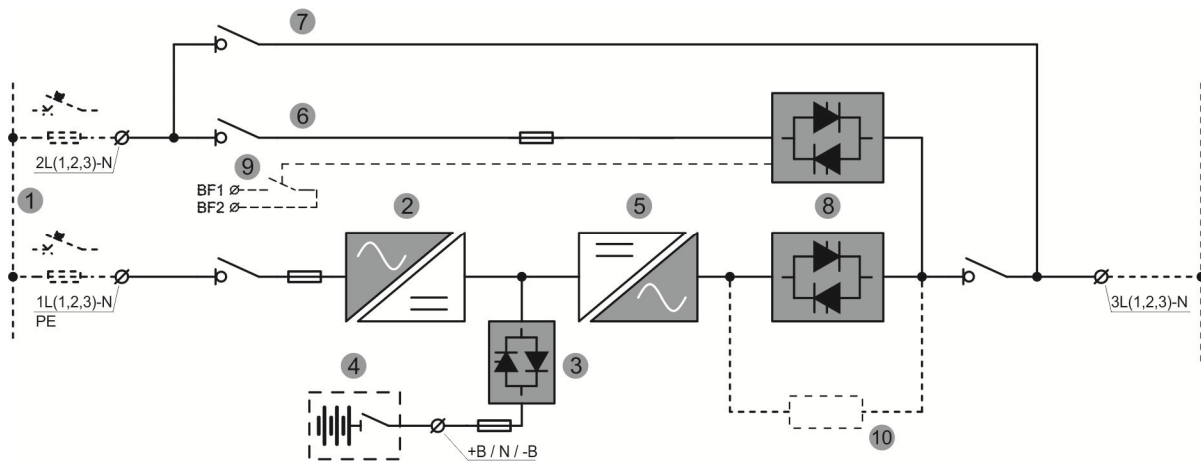
POWER		kVA	200	250	300		
UPS type			ON LINE - Doppia Conversione				
Rated apparent output power (cos φ = 1)		kVA	200	250	300		
Rated active output power (cos φ = 1)		kW	200	250	300		
AC/AC efficiency* (VFI - ON LINE Double Conversion) * Certified by TÜV NORD GmbH	@ 25% load	%		Without inverter contactor	# With inverter contactor	Without inverter contactor	# With inverter contactor
	@ 50% load		94,8	≥ 94,9	≥ 95,3	≥ 95,1	≥ 95,7
	@ 75% load		95,8	≥ 95,8	≥ 96,1	≥ 96,0	≥ 96,5
	@ 100% load		95,8	≥ 95,7	≥ 96,0	≥ 95,9	≥ 96,4
AC/AC efficiency* (VFD ECO MODE) * Certified by TÜV NORD GmbH	@ 25% load	%	96,3				
	@ 50% load		97,9				
	@ 75% load		98,4				
	@ 100% load		98,8				
Heat dissipation at rated load, VFI mode (cos φ = 1)		kW	9,4	11,8	14,1		
Ambient temperature	UPS BATTERY	° C	0 ÷ 40				
			0 ÷ 25				
Storage temperature	UPS BATTERY	° C	-10 ÷ 70				
			-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	1800	2200	2300		
Acoustic noise (according to EN 62040-3)		dB	< 65				
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 on request)				
Accessibility			Front access				
Installation			Against the wall				
Overall dimension	W	mm	880				
	D		970				
	H		1978				
Weight (without batteries)		kg	530	630	675		
Weight with batteries (maximum)			n.a.	n.a.	n.a.		
Input / Output terminals			Cables input from bottom				
Handling			Base provided for fork-lift				

See the section Option (Last page)

POWER	kVA	200	250	300
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		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
10. Energy enhancement kit (Option)

RECTIFIER AND BATTERY CHARGER

POWER		kVA	200	250	300
Input			3-phase / 4-wire		
Rated input voltage		Vac	400		
Tolerance		%	-20 / +20		
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	%	< 8		
	@ 50% load		< 4		
	@ 75% load		< 3		
	@ 100% load		< 2,5		
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		A	30	40	40
- max current with DCM function			100	100	100
Rectifier bridge type			IGBT-based PFC		
Input protections			Fuses		
Rated current absorbed from mains @ Vnom (at rated load and battery charged)		A	302	378	453
Maximum current absorbed from mains at minimum voltage (at rated load and max recharging current)		A	423	530	627
Rectifier soft-start (walk-in)		s	5 ÷ 30 (programmable)		
Rectifier sequential start-up (hold-off)		s	1 ÷ 300 (programmable)		

BATTERY

POWER		kVA	200	250	300
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 $\cos \varphi = 1$)		kW	204,1	255,1	306,1
Power drawn by the inverter (at rated load and minimum battery voltage)		A	329	411	494
Battery protection			Fuses		
Battery test			Provided as standard		

INVERTER

POWER		kVA	200	250	300
Inverter bridge type			IGBT (High frequency PWM) 3 level		
Rated apparent power at $\cos \varphi = 1$		kVA	200	250	300
Rated active power at $\cos \varphi = 1$		kW	200	250	300
DC/AC efficiency	@ 25% load	%	96,0		
	@ 50% load		97,0		
	@ 75% load		97,0		
	@ 100% load		98,0		
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	289	361	433
Overload capability	>100...110%	min	10		
	>110...125%	min	5		
	>125...150%	sec	30		
	>150%	ms	100		
Short circuit current ⁽¹⁾ 1 st Level		A	714	893	1071
Time of short circuit 1° Level		ms	70		
Short circuit current ⁽¹⁾ 2 nd Level		A	438	546	655
Time of short circuit 2° Level		s	5		
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

POWER	kVA	200	250	300
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		
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


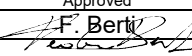
1. BATTERY TEMPERATURE VOLTAGE COMPENSATION
2. REMOTE STATUS / ALARMS CARD
3. SERIAL INTERFACE RS-485 (ModBus protocol RTU)
4. SNMP ADAPTER
5. PARALLEL CARD INTERFACE KIT
6. LOAD-SYNC CARD INTERFACE KIT
7. ISOLATION TRANSFORMER
8. WALL MOUNTED FUSED SWITCH BOX
9. SPECIAL PAINT
10. ENERGY ENHANCEMENT KIT (PLEASE CONTACT THE MANUFACTURER FOR AVAILABILITY AND LEAD TIME.)
11. COMMON BATTERY
12. LITHIUM BATTERY (PLEASE CONTACT THE MANUFACTURER FOR AVAILABILITY AND LEAD TIME)
13. BACKFEED PROTECTION (AVAILABLE FOR SIZE 200kVA , OTHER SIZE PLEASE CONTACT THE MANUFACTURER FOR AVAILABILITY AND LEAD TIME)

TECHNICAL DATA SHEET

INGENIO MAX

400 kVA

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

Rev.	Descrizione Description	Data Date	Emesso Issued	Approvato Approved	Lingua Language	Pagina Page	di Pag. of Pag.
D	VR11-19	04/02/19	 A. Regina	 F. Bertini	E	1	8
					Codice / Code OMT87002		

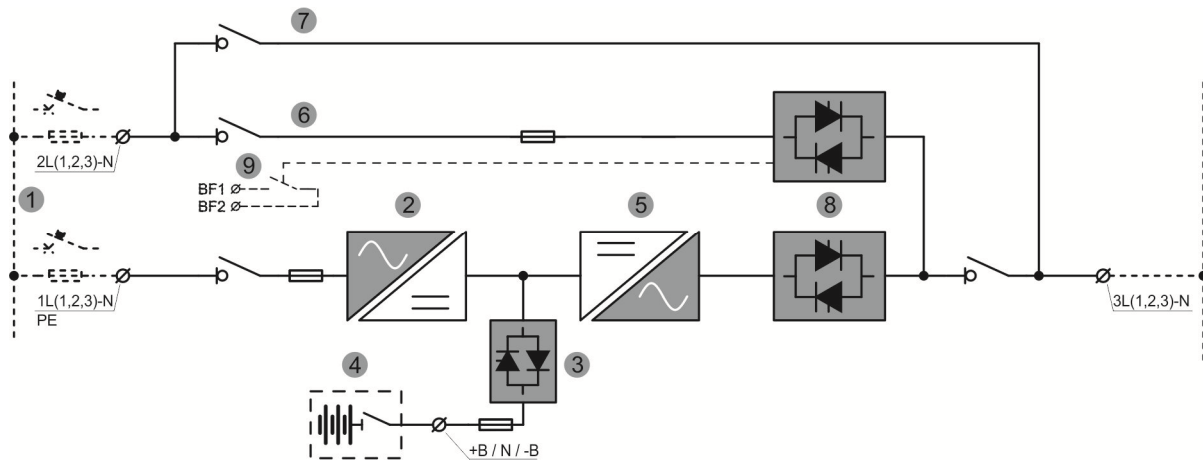
GENERAL INFORMATION

POWER		kVA	400
UPS type			ON LINE - Double Conversion
Rated apparent output power (cos $\varphi = 1$)		kVA	400
Rated active output power (cos $\varphi = 1$)		kW	400
AC/AC efficiency* (VFI - ON LINE Double Conversion) * Certified by TÜV NORD GmbH	@ 25% load	%	> 94,8
	@ 50% load		≥ 96,0
	@ 75% load		≥ 96
	@ 100% load		≥ 95,6
AC/AC efficiency (VFD ECO MODE - from 50% of load)		%	≥ 98,0
Heat dissipation at rated load, VFI mode (cos $\varphi = 1$)		kW	18,4
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	4000
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	1080
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	400
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	400
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	50
- at rated load			
- max current with DCM function			100
Rectifier bridge type			IGBT-based PFC
Input protections			Fuses
Rated current absorbed from mains @ Vnom (at rated load and battery charged)		A	606
Maximum current absorbed from mains at minimum voltage (at rated load and max recharging current)		A	831
Rectifier soft-start (walk-in)		s	5 ÷ 30 (programmable)
Rectifier sequential start-up (hold-off)		s	1 ÷ 300 (programmable)

BATTERY

POWER		kVA	400
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 $\cos \varphi = 1$)		kW	407,7
Power drawn by the inverter (at rated load and minimum battery voltage)		A	658
Battery protection			Fuses
Battery test			Provided as standard

INVERTER

POWER		kVA	400
Inverter bridge type			IGBT (High frequency PWM) – 3 level
Rated apparent power at $\cos \varphi = 1$		kVA	400
Rated active power at $\cos \varphi = 1$		kW	400
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	577
Overload capability	>100...110%	min	10
	>110...125%	min	5
	>125...150%	sec	30
	>150%	ms	100
Short circuit current ⁽¹⁾		A	1400
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		Fusibili
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
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

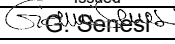
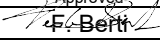
1. BATTERY TEMPERATURE VOLTAGE COMPENSATION
2. REMOTE STATUS / ALARMS CARD
3. SERIAL INTERFACE RS-485 (ModBus protocol RTU)
4. SNMP ADPTER
5. PARALLEL CARD INTERFACE KIT
6. LOAD-SYNC CARD INTERFACE KIT
7. ISOLATION TRANSFORMER
8. WALL MOUNTED FUSED SWITCH BOX
9. SPECIAL PAINT

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. Bertini	E	1	8
					Codice / Code OMU14001		

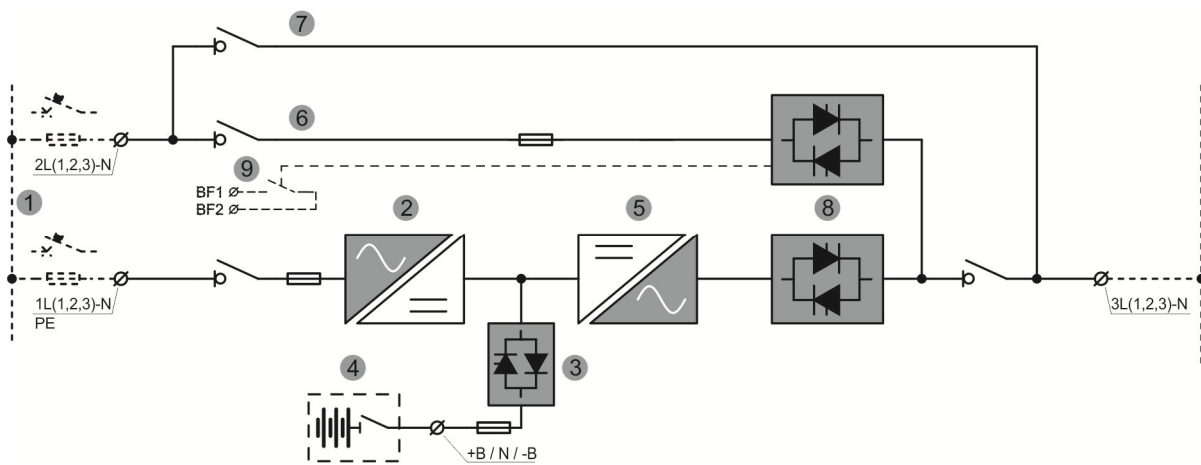
GENERAL INFORMATION

POWER		kVA	500
UPS type			ON LINE - Double Conversion
Rated apparent output power (cos $\varphi = 1$)		kVA	500
Rated active output power (cos $\varphi = 1$)		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)		%	$\geq 98,0$
Heat dissipation at rated load, VFI mode (cos $\varphi = 1$)		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	70
- at rated load			
- max current with DCM function			120
Rectifier bridge type			IGBT-based PFC
Input protections			Fuses
Rated current absorbed from mains @ Vnom (at rated load and battery charged)		A	757
Maximum current absorbed 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.	Vdc	812
	372 el.		840
Minimum discharge voltage	360 el.	Vdc	620
	372 el.		632
Power drawn by the inverter (at rated load $\cos \varphi = 1$)		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 $\cos \varphi = 1$		kVA	500
Rated active power at $\cos \varphi = 1$		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)	Vac	380 - 400 - 415
Tolerance (selectable)	%	+/- 10
Input frequency (selectable)	Hz	50 - 60
Tolerance (selectable)	%	+/- 10
Transfer mode		No-break
Inverter --> automatic bypass transfer		<ul style="list-style-type: none"> In case of: - Short-circuit - Battery discharged - Inverter test - Inverter failure
Automatic bypass --> inverter transfer		<p>Automatic</p> <p>Block on bypass in case of 6 transfers in 2 minutes, local reset by display</p>
Overload capability	%	<p>150 continuously</p> <p>1000 for 1 cycle</p>
Manual bypass		<ul style="list-style-type: none"> - 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

TECHNICAL DATA SHEET

INGENIO MAX

600 kVA

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

Rev.	Descrizione Description	Data Date	Emesso Issued	Approvato Approved	Lingua Language	Pagina Page	di Pag. of Pag.
D	VR76/24	08.07.2024	A. Regina	F. Berti	E	1	8
					Codice / Code OMZ37121		

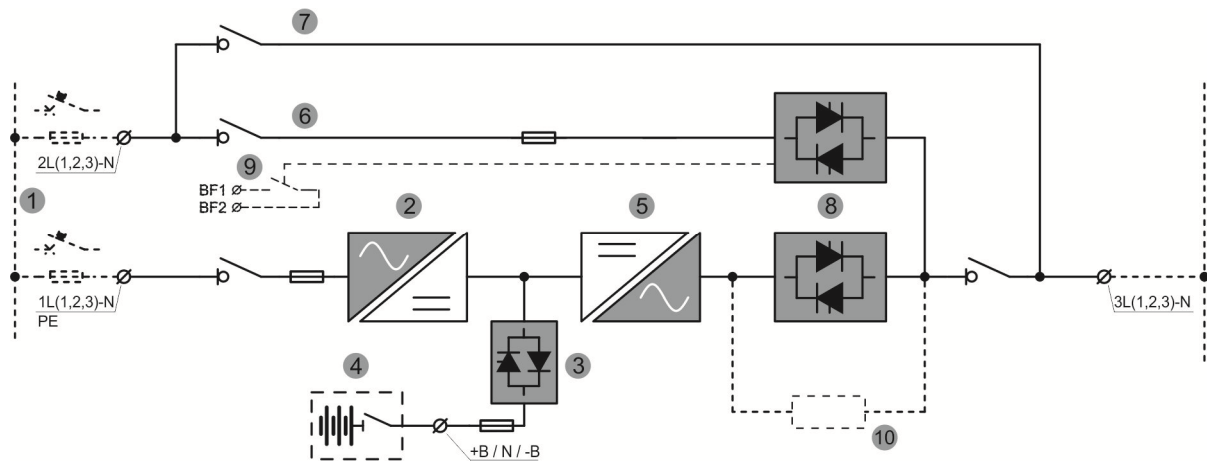
GENERAL INFORMATION

POWER		kVA	600	
UPS type			ON LINE - Double Conversion	
Rated apparent output power (cos φ = 1)		kVA	600	
Rated active output power (cos φ = 1)		kW	600	
AC/AC efficiency (VFI - ON LINE Double Conversion)	@ 25% load	%	Without inverter contactor	# With inverter contactor
	@ 50% load		≥ 95,2	≥ 95,6
	@ 75% load		≥ 96,0	≥ 96,4
	@ 100% load		≥ 95,9	≥ 96,3
AC/AC efficiency (VFD ECO MODE)	@ 25% load	%	97	
	@ 50% load		98,4	
	@ 75% load		98,8	
	@ 100% load		98,9	
Heat dissipation at rated load, VFI mode (cos φ = 1)		kW	25,7	
Ambient temperature	UPS	° C	0 ÷ 40	
	BATTERIA		0 ÷ 25	
Storage temperature	UPS	° C	-10 ÷ 70	
	BATTERIA		-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	7500	
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 (other on request)	
Accessibility			Front access	
Installation			Against the wall	
Overall dimension	W	mm	1630	
	D		970	
	H		1978	
Weight (without batteries)		kg	1400	
Weight with batteries (maximum)			n.a.	
Input / Output terminals			Cables input from bottom	
Handling			Base provided for fork-lift	

See the section Option (Last page)

POWER	kVA	600
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		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



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
10. Energy enhancement kit (Option)

RECTIFIER AND BATTERY CHARGER

POWER		kVA	600
Input			3-phase / 4-wire
Rated input voltage		Vac	400
Tolerance		%	-20 / +20
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			
- at rated load		A	70
- max current with DCM function			140
Rectifier bridge type			IGBT-based PFC
Input protections			Fuses
Rated current absorbed from mains @ Vnom (at rated load and battery charged)		A	903
Maximum current absorbed from mains at minimum voltage (at rated load and max recharging current)		A	1204
Rectifier soft-start (walk-in)		s	5 ÷ 30 (programmable)
Rectifier sequential start-up (hold-off)		s	1 ÷ 300 (programmable)

BATTERY

POWER		kVA	600
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 $\cos \varphi = 1$)		kW	611,6
Power drawn by the inverter (at rated load and minimum battery voltage)		A	986
Battery protection			Fuses
Battery test			Provided as standard

INVERTER

POWER		kVA	600
Inverter bridge type			IGBT (High frequency PWM) – 3 Level
Rated apparent power at $\cos \varphi = 1$		kVA	600
Rated active power at $\cos \varphi = 1$		kW	600
DC/AC efficiency	@ 25% load	%	Up to 96,0
	@ 50% load		Up to 97,0
	@ 75% load		Up to 97,0
	@ 100% load		Up to 98,0
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	866
Overload capability at 25°C	>100...110%	min	10
	>110...125%	min	5
	>125...150%	sec	30
	>150%	ms	100
Short circuit current ⁽¹⁾ 1 st Level		A	1785
Time of short circuit 1 st Level		ms	70
Short circuit current ⁽¹⁾ 2 nd Level		A	1339
Time of short circuit 2 nd Level		s	5
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
Rated input voltage (selectable)		Fuses
Tolerance (selectable)	Vac	380 - 400 - 415
Input frequency (selectable)	%	+/- 10
Tolerance (selectable)	Hz	50 - 60
Transfer mode	%	+/- 10
Inverter --> automatic bypass transfer		No-break
Automatic bypass --> inverter transfer		In case of: - Short-circuit - Battery discharged - Inverter test - Inverter failure
Overload capability		Automatic Block on bypass in case of 6 transfers in 2 minutes, local reset by display
Sovraccaricabilità Manual bypass	%	150 continuously 1000 for 1 cycle
Back-feed protection		- Electronically controlled - No-break assisted re-start procedure
Automatic bypass		NC contact for the control of an external device

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9. SPECIAL PAINT
10. ENERGY ENHANCEMENT KIT