

10-100 kVA threephase/singlephase 10-800 kVA threephase/threephase







Smart Energy Solutions

### Overview



**LIBRA Pro series** is available with a power range from 10 to 100 kVA threephase/singlephase and 10 to 800 kVA threephase/threephase, using double conversion on-line technology (VFI) with an inverter transformer for output galvanic isolation.

The load is continuously powered by the inverter with a filtered, stabilised and regulated sinewave supply. The input and output EMI filters considerably increase the immunity of the load to mains disturbances and surges, making LIBRA Pro an very high reliability system, perfectly suitable for security or industrial applications.

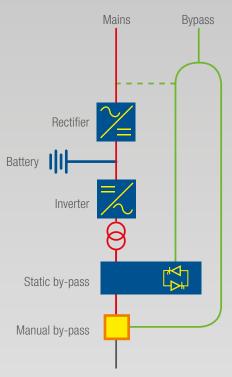
**Standard Libra Pro version** is designed with thyristor's rectifier 6 Pulse to improve the input current distortion performance (up to 200 kVA).

**Libra Pro IGBT version**, available from 100 to 800 kVA, is a low impact source solution, because the rectifier has an IGBT technology with Power Factor Correction that allows to reach input PF >0,99.

- + ISOLATING TRANSFORMER ON THE INVERTER
- + EXTREMELY HIGH SHORT-CIRCUIT CURRENT
- + SINUSOIDAL ABSORPTION (THDi% less than 3% for LIBRA Pro IGBT version)

#### Main features

- Reliable, filtered, stabilised and regulated sinewave output: double conversion online technology VFI according to EN50091-3 specifications with filters for atmospheric disturbance suppression
- **High reliability**: IGBT technology, full microprocessor control with no break in static and manual transferring, high short-circuit current (up to 3 x I nominal) to ensure compatibility with the most difficult application (lighting, drives and industrial processes) and an isolating transformer on the inverter output
- **Low impact on the supply network**: the input current distorsion is less than 3% for LIBRA Pro IGBT model 100-800 kVA. That reduces resonance problems, network disturbs, as well as design costs
- High level diagnostics: event log, states, measurements and alarms are all available
  from the built-in LCD, in several languages
- Selectable power walk-in allows to limit the input rushing current
- **Maximum reliability and power availability** thanks to parallel configuration, up to 8 units
- EPO (Emergency Power Off): allows UPS shut-down using remote emergency button
- Front access
- Smart battery system suitable for use with most common battery types such as Sealed, Wet and Ni-Cd
- Back-feed protection fitted as standard



Double-conversion online technology with isolating transformer

#### Specific solutions

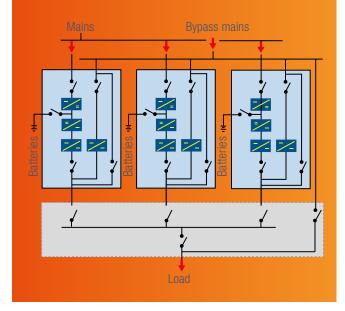
#### SIMPLIFIED MAINTENANCE

The wiring and all the electronic components are easily accessible from the front side. This allows to reduce the MTTR (Mean Time To Repair), that typically becomes less than 30 minutes.

A complete range of informations is available from the synoptic LCD and the main operating system parameters are software configurable by a local PC, in order to adjust or improve the operating specifications.

# Parallel configuration

LIBRA Pro supports parallel configuration, up to 8 units



#### **OPERATION MODES**

All LIBRA Pro operation modes can be easily selected by LCD display:

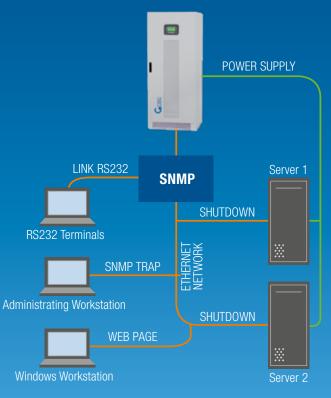
- Single mode operation online
- Parallel mode configuration up to 8 units
- Ecomode for energy saving
- Smart Active to adapt operation to the quality of main supply
- Automatic Voltage Stabilizer with or without batteries
- Frequency converter with or without batteries

## Advanced communication

- Remote maintenance available
- Advanced, multi-platform communication, for all operating system and network environments: UPSmod 5 supervision and shut-down software included, with SNMP agent, for Linux, Windows and Mac OS.
- The UPS is equipped as standard with CD and cable for direct connection to the PC (Plug & Play).
- Double RS232 serial ports
- Network adapter slot for SNMP agent
- EPO (Emergency Power Off) shut down input contact
- SNMP card for Ethernet Network (optional)
- Remote LCD display panel (optional)
- Interfaces JBUS/ModBUS and ProfiBUS (optional)
- Upon request the shut-down software can also be provided for: IBM AIX; Free BSD; BSDI UNIX; BSD/OS; Unixware; SCO Openserver; Solaris; SUN; DEC; Compaq True64; HP UNIX; SGI Irix MIPS; NCR UNIX.

3

#### **Direct connection with Ethernet Network**



### Technical specifications

10 9	15 13.5	2: Ba	80/400/415VAC (P) 300~-2 C 5% (5% for MPF ve 0 ÷ 100% in 30 ck Feed protection 1 Phase + Ne 20/230/240VAC (P) Default: -20 Selectable: - ± 2% (selectable	40 36 + Ground hase-Phase), 50/60H 180 VAC 0.9 rsion with input filter 0 sec (selectable) and splitted bypass li utral + Ground hase-Neutral), 50/60H 0% ~ +20% -5% ~ +25%	) ne	80 72	100 90			
9	13.5	31 21 Ba	3 Phases 80/400/415VAC (Pl 300~4 C 5% (5% for MPF ve 0 ÷ 100% in 3( ck Feed protection 1 Phase + Ne 20/230/240VAC (Pl Default: -2t Selectable: - ± 2% (selectable	+ Ground hase-Phase), 50/60H 180 VAC 0.9 rsion with input filter 0 sec (selectable) and splitted bypass li utral + Ground hase-Neutral), 50/60H 0% ~ +20% -5% ~ +25%	z ) ne	72	90			
		2: Ba	80/400/415VAC (P) 300~-2 C 5% (5% for MPF ve 0 ÷ 100% in 30 ck Feed protection 1 Phase + Ne 20/230/240VAC (P) Default: -20 Selectable: - ± 2% (selectable	hase-Phase), 50/60H 180 VAC 0.9 rsion with input filter 0 sec (selectable) and splitted bypass li sutral + Ground hase-Neutral), 50/60H 0% $\sim$ +20% -5% $\sim$ +25%	) ne					
		2: Ba	80/400/415VAC (P) 300~-2 C 5% (5% for MPF ve 0 ÷ 100% in 30 ck Feed protection 1 Phase + Ne 20/230/240VAC (P) Default: -20 Selectable: - ± 2% (selectable	hase-Phase), 50/60H 180 VAC 0.9 rsion with input filter 0 sec (selectable) and splitted bypass li sutral + Ground hase-Neutral), 50/60H 0% $\sim$ +20% -5% $\sim$ +25%	) ne					
		2: Ba	3002 C 5% (5% for MPF ve 0 ÷ 100% in 30 ck Feed protection 1 Phase + Ne 20/230/240VAC (Pr Default: -20 Selectable: - ± 2% (selectable	180 VAC 1.9 rsion with input filter 0 sec (selectable) and splitted bypass li utral + Ground nase-Neutral), 50/60H $2\% \sim +20\%$ $5\% \sim +25\%$	) ne					
		Ba	C 5% (5% for MPF ve 0 ÷ 100% in 3( ck Feed protection 1 Phase + Ne 20/230/240VAC (Pf Default: -2( Selectable: ± 2% (selectable	1.9 rsion with input filter' D sec (selectable) and splitted bypass li rutral + Ground nase-Neutral), 50/60H D% ~ +20% -5% ~ +25%	ne					
		Ba	5% (5% for MPF ve 0 ÷ 100% in 3( ck Feed protection 1 Phase + Ne 20/230/240VAC (Pf Default: -2( Selectable: - ± 2% (selectable)	rsion with input filter <sup>1</sup> D sec (selectable) and splitted bypass li rutral + Ground hase-Neutral), 50/60H D% ~ +20% -5% ~ +25%	ne					
		Ba	0 ÷ 100% in 30 ck Feed protection 1 Phase + Ne 20/230/240VAC (Ph Default: -20 Selectable: - ± 2% (selectable	) sec (selectable) and splitted bypass li utral + Ground nase-Neutral), 50/60H 0% ~ +20% .5% ~ +25%	ne					
			ck Feed protection 1 Phase + Ne 20/230/240VAC (Pf Default: -20 Selectable: - ± 2% (selectable	and splitted bypass li utral + Ground nase-Neutral), 50/60F 0% ~ +20% .5% ~ +25%						
			1 Phase + Ne 20/230/240VAC (Ph Default: -20 Selectable: - ± 2% (selectable	utral + Ground nase-Neutral), 50/60H 0% ~ +20% -5% ~ +25%						
		22	20/230/240VAC (Pr Default: -20 Selectable: - ± 2% (selectable	nase-Neutral), 50/60F 0% ~ +20% ·5% ~ +25%	łz					
		22	20/230/240VAC (Pr Default: -20 Selectable: - ± 2% (selectable	nase-Neutral), 50/60F 0% ~ +20% ·5% ~ +25%	lz					
		22	Default: -20 Selectable: - ± 2% (selectable	0% ~ +20% 5% ~ +25%	Z					
			Selectable: - ± 2% (selectable	5% ~ +25%						
			$\pm$ 2% (selectable							
				e from 1% to 5%)						
			110% 6	0 minutes						
				0 minutes						
			150%,	1 minute						
		22	20/230/240VAC (Ph	nase-Neutral), 50/60H	Iz					
		00/ //			0.40, 0)					
		<3% (†L			040-3)					
125%, 10 minutes										
150%, 1 minute										
50/60Hz ±0.05%										
3:1										
Pb sealed acid, Wet, Ni-Cd										
< 1%										
							Standard 33/12V Select. 32-34/12V			
In	ternal and/or extern			5 12 1	External		001001.02 04/120			
					Entorma					
		020	0/2			Q	2.5%			
		52		8%		9	2.570			
	Standard ec	uipment: double RS2	32 port with monito	oring software CD, dr	/ contacts, 2 interfa	ce intellislots				
	Op	tional: SNMP, JBUS/N	ModBUS converter F	RS485 port, ProfiBUS	converter, Multilice	nce				
			0 ~	40°C						
-25 ~ 60°C										
0 ~ 95% (no condensing)										
<54dB <62dB <63dB										
		<1000m;	load derated 1% pe	er 100m, from 1000	~ 4000m					
		555*740*1400			800*74	0*1400	800*800*1900			
200	220	230	290	340	440	520	650			
Furances direct	VO. 001 / /05 /511	w voltogo dis-sti			notibility directly					
Security: EN62     EMC: EN6204	2040-1 0-2				ipationity directive					
•	<54 200 iuropean directi Security: EN62 EMC: EN6204	<54dB 200 220 iuropean directive: 2014/35/EU Lo Security: EN62040-1 EMC: EN62040-2	<ul> <li>&lt;3% (ft </li> <li>&lt;3% (ft </li> <li></li> &lt;</ul>	<td< td=""><td>0.9           &lt;1% (from 0% to 100% linear load);</td>           &lt;3% (full non-linear load according to IEC/EN62</td<>	0.9           <1% (from 0% to 100% linear load);	<1% (from 0% to 100% linear load); <3% (full non-linear load according to IEC/EN62040-3) ± 1% 	0.9 <i> I (1% (from 0% to 10% linear load); <i (3%="" (full="" according="" en62040-3)<="" iec="" load="" non-linear="" td="" to=""></i></i>			

(B) Also available with internal batteries \* Also available with input filter for lower current distorsion (MPF version)

Note: technical specifications and data could be changed without notification

### Technical specifications

Model	LB010TP <sup>(B)</sup>	LB015TP <sup>(B)</sup>	LB020TP <sup>(B)</sup>	LB030TP	LB040TP	LB060TP	LB080TP	LB100TP	LB120TP	LB160TP	LB200TP		
Nominal power	10	15	20	30	40	60	80	100	120	160	200		
Active power	9	9 13.5 18 27 36 54 72 90 108 144 180											
MAIN INPUT													
Grid system					3	Phases + Grou	nd						
Rated voltage / Frequency		380/400/415VAC (Phase-Phase), 50/60Hz											
Voltage range		300~480 VAC											
Power factor		0.9 25% (5% for TPF version with input filter*) 30% (5% for TPF version with input filter*)											
Current THDi			25% (5% for	TPF version wit				30%	(5% for TPF ver	sion with input	filter*)		
Power walk-in Standard features						% in 30 sec. (se							
					Back Feed pro	tection and split	ted bypass line						
BYPASS INPUT					0.01		o						
Grid system		3 Phases + Neutral + Ground 380-400-415VAC (Phase-Phase) 50/60Hz											
Rated voltage / Frequency		380-400-415VAC (Phase-Phase), 50/60Hz Default: -20% ~ +20%											
Voltage range		Detault: -20% ~ +20% Selectable: -5% ~ +25%											
Frequency range					± 2% (se	electable from 1	% to 5%)						
						10%, 60 minute							
Bypass overload						25%, 10 minute 150%, 1 minute							
OUTPUT						. 56,6, 1 minut	-						
Rated voltage / Frequency					380-400-415	iVAC (Phase-Ph	ase) 50/60Hz						
Power factor					000 100 110	0.9	230/1 00/ 00/ IZ						
Voltage THDv					<1% (from	n 0% to 100% l	near load);						
				<3%	6 (full non-linea		to IEC/EN6204	10-3)					
Voltage precision						± 1%							
Transient response						± 5% in 10 mse 10%, 60 minute							
Inverter overload						25%, 10 minute							
		150%, 1 minute											
Frequency stability		50/60Hz ±0.05%											
Crest factor						3:1							
BATTERIES													
Battery type		Pb sealed acid, Wet, Ni-Cd											
Ripple		< 1%											
Typical charging current		0,1 x C10 Standard: 32 batteries 12V Standard: 33 batteries 12V											
Number of batteries		Standard: 32 batteries 12V Standard: 33 batteries 12V Selectable: 31-33 batteries 12V Selectable: 32-34 batteries 12V											
Batteries arrangement	Inte	rnal and/or exte	ernal				Exte	ernal					
SYSTEM													
Efficiency - Normal operation	90.	.5%	91%		92	2%		9(	3%	93	8.5%		
Efficiency - Eco Mode operation						98%		1					
Efficiency - Battery operation				94%						5%			
Display						LED + LCD IP20							
Protection degree			Standard equi	nment: double l	RS232 port with		tware CD, dry c	ontacts 2 inter	face intellislots				
Interface			Optic	onal: SNMP, JBl	JS/ModBUS cor	verter RS485 p	ort, ProfiBUS co	onverter, Multilio	cence				
ENVIRONMENT													
Operating temperature						0~40°C							
Storage temperature						-25 ~ 60°C							
Relative humidity					0 ~ 9	95% (no conder	ising)						
Noise (dBA)	<54	<54dB <60dB <62dB 63 ~ 68dB											
Altitude				<1000	0m; load derate	d 1% per 100m	, from 1000 ~	4000m					
MECHANICAL DATA													
Cabinet dimensions W*D*H (mm)		1	555*740*1400	1			0*1400			0*1900			
Cabinet weight (Kg)	210	220	230	280	330	450	600	640	650	770	810		
Color						d: RAL 7035, li iest: RAL 7016.							
Compliance	Security:     EMC: EN6	Upon request: RAL 7016, dark grey European directive: 2014/35/EU Low voltage directive; and 2014/30/EU Electromagnetic compatibility directive • Security: EN62040-1 • EMC: EN62040-2 • Performance: EN62040-3 (Voltage Frequency Independent) VFI - SS - 111											
B) Also available with internal batteries													

(B) Also available with internal batteries \* Also available with input filter for lower current distorsion (TPF version)

Note: technical specifications and data could be changed without notification

• • • • • • • •

5

### Technical specifications Libra Pro IGBT

Model	LB100IGBT	LB120IGBT	LB160IGBT	LB200IGBT	LB250IGBT	LB300IGBT	LB400IGBT	LB500IGBT	LB600IGBT				
Nominal power	100	120	160	200	250	300	400	500	600				
Active power	90	108	144	180	225	270	360	450	540				
MAIN INPUT													
Grid system					3 Phases + Groun	d							
Rated voltage / Frequency	380/400/415VAC (Phase-Phase), 50/60Hz												
Voltage range		360~480 VAC (100% load) 240~360 VAC (65% load)											
Power factor					>0.99								
Current THDi					<3%								
Power walk-in				0÷10	0% in 30 sec. (sel	ectable)							
Standard features				Back Feed pr	otection and splitte	ed bypass line							
BYPASS INPUT													
Grid system				3 Pha	ses + Neutral + G	round							
Rated voltage / Frequency		380/400/415VAC (Phase-Phase), 50/60Hz											
Voltage range		Default: -20% ~ +20% Selectable: -5% ~ +25%											
Frequency range		± 2% (selectable from 1% to 5%)											
Bypass overload		110%, 60 minutes 125%, 10 minutes 150%, 1 minute											
OUTPUT													
Rated voltage / Frequency				380/400/41	5VAC (Phase-Pha	se), 50/60Hz							
Power factor					0.9								
Voltage THDv				<1% (fro	m 0% to 100% lin	ear load);							
				<3% (full non-line		to IEC/EN62040-3	3)						
Voltage precision		± 1%											
Transient response		± 5% in 10 msec											
Inverter overload		110%, 60 minutes 125%, 10 minutes 150%, 1 minute											
Frequency stability		50/60Hz ±0.05%											
Crest factor					3:1								
BATTERIES													
Battery type				Pbs	ealed acid, Wet, N	i-Cd							
Ripple					< 1%								
Typical charging current					0,1 x C10								
Number of batteries					ndard: 40 batteries								
				Select	able: 37-43 batteri	es 12V							
Batteries arrangement					External								
SYSTEM													
Efficiency - Normal operation									.3%				
Efficiency - Eco Mode operation					98% 94%								
Efficiency - Battery operation													
Display Protection degree					LED + LCD IP20								
Interface	IP20 Standard equipment: double RS232 port with monitoring software CD, dry contacts, 2 interface intellisIots Optional: SNMP, JBUS/ModBUS converter RS485 port, ProfiBUS converter, Multilicence												
ENVIRONMENT			optional orange,	0000,000000000									
Operating temperature					0 ~ 40°C								
Storage temperature		-25 ~ 60°C											
Relative humidity		0 ~ 95% (no condensing)											
Noise (dBA)		63 ~ 68dB 70 ~ 72dB											
Altitude				n; load derated 1%	per 100m, from <sup>-</sup>	000 ~ 4000m-2							
MECHANICAL DATA													
Cabinet dimensions W*D*H (mm)	800*85	i0*1900		1000*850*1900		1500*10	00*1900	2100*10	00*1900				
Cabinet weight (Kg)	730	785	865	990	1090	1550	1750	2525	2700				
Color		Standard: RAL 7035, light grey Upon request: RAL 7016, dark grey											
Compliance	European directive: 2014/35/EU Low voltage directive; and 2014/30/EU Electromagnetic compatibility directive • Security: EN62040-1 • EMC: EN62040-2 • Performance: EN62040-3 (Voltage Frequency Independent) VFI - SS - 111												

Note: technical specifications and data could be changed without notification

•••••

### Technical specifications Libra Pro IGBT PF1

Model	LB100 IGBTPF1	LB120 IGBTPF1	LB160 IGBTPF1	LB200 IGBTPF1	LB250 IGBTPF1	LB300 IGBTPF1	LB0400 IGBTPF1	LB500 IGBTPF1	LB600 IGBTPF1	LB800 IGBTPF1			
Nominal power	100	120	160	200	250	300	400	500	600	800			
Active power	100	100 120 160 200 250 300 400 500 600 800											
MAIN INPUT													
Grid system					3 Phase	s + Ground							
Rated voltage / Frequency		380/400/415VAC (Phase-Phase), 50/60Hz											
Voltage range		360~480 VAC (100% load) 240~360 VAC (65% load)											
Power factor					>	0.99							
Current THDi					<	<3%							
Power walk-in					0 ÷ 100% in 3	0 sec. (selectable	)						
Standard features				Bac	k Feed protection	and splitted bypa	ass line						
BYPASS INPUT													
Grid system		3 Phases + Neutral + Ground											
Rated voltage / Frequency		380/400/415VAC (Phase-Phase), 50/60Hz											
Voltage range						20% ~ +20%							
						-5% ~ +25% le from 1% to 5%	)						
Frequency range						60 minutes	)						
Bypass overload					125%,	10 minutes 1 minutes							
OUTPUT													
Rated voltage / Frequency				38	)_////_/15\/// (F	Phase-Phase), 50	/60Hz						
Power factor					I) 07401 F 00F 0	1	100112						
					<1% (from 0% to	o 100% linear loa	d).						
Voltage THDv						according to IEC/E							
Voltage precision		± 1%											
Transient response		± 5% in 10 msec											
Inverter overload	110%, 60 minutes 125%, 10 minutes 150%, 1 minute												
Frequency stability	50/60Hz ±0.05%												
Crest factor		3:1											
BATTERIES													
Battery type		Pb sealed acid, Wet, Ni-Cd											
Ripple						≈0							
Typical charging current					,	x C10							
Number of batteries						0 batteries 12V -43 batteries 12V							
Batteries arrangement						ternal							
SYSTEM					LA	tornar							
						95%							
Efficiency - Normal operation Efficiency - Eco Mode operation						95%							
Efficiency - Eco Mode operation						)5%							
Display						+ LCD							
Protection degree				IP20 star			on request)						
Interface		IP20 standard (higher IP level available upon request) Standard equipment: double RS232 port with monitoring software CD, dry contacts, 2 interface intellislots Optional: SNMP, JBUS/ModBUS converter RS485 port, ProfiBUS converter, Multilicence											
ENVIRONMENT			optione			2.25 port; 1101							
Operating temperature					0 -	40°C							
Storage temperature						~ 60°C							
Relative humidity						io condensing)							
Noise (dBA)	<65	5dB		<68dB	0 00,00			<72dB					
Altitude					bad derated 1% r	er 100m, from 1	000 ~ 4000m	100					
MECHANICAL DATA						. ,							
Cabinet dimensions W*D*H (mm)	800*85	0*1900		1000*850*1900		1500*10	00*1900	2100*1	000*1900	3200*1000*1900			
Cabinet weight (Kg)	890	900	975	1100 1100	1300	1520	1670	2500	2830	3950			
Color	000	000	510	1100			1010	2000	2000	0000			
Compliance	RAL 7016, dark grey European directive: 2014/35/EU Low voltage directive; and 2014/30/EU Electromagnetic compatibility directive • Security: EN62040-1 • EMC: EN62040-2 • Performance: EN62040-3 (Voltage Frequency Independent) VFI - SS - 111												

### **G-Tec Service**

G-Tec supports its customers throughout the whole product life cycle, providing technical assistance and after-sales service at the highest professional standards.

**MAINTENANCE** is an essential activity in order to guarantee a safe and stable load protection. G-Tec shows maximum care about this topic, providing the best service in terms of experience, instrumentation and safety level.

Through the dedicated **CALL CENTER**, customers receive prompt answers to any request, and the specialized technicians directly schedule maintenance interventions.

The partnership between G-Tec and its customers gets consolidated through the **TRAINING SESSIONS** proposal for technical staff, so that each user can operate on the UPSs with maximum consciousness and safety.

A **PROJECT CONSULTING** team is also available in G-Tec Service offer, in order to provide to designers the best solution according to their specific needs.

#### www.gtec-power.eu

#### G-Tec Europe srl

Strada Marosticana, 81/13 36031 Povolaro (VI), Italia Tel. +39 0444.361321 - Fax +39 0444.365191 info@gtec-power.eu

#### G-Tec France france@gtec-power.eu



ŏo

CE

Rev. 15/03/2019