

Flexus



Flexus is ideal for the protection of critical information and telecommunications networks which cannot run the risk of being powered from a power quality electrical supply.

The Flexus series is available in 10-12-15-20 kVA three-phase or single-phase input and single-phase output models, and 10-12-15-20-30-40-100-120 kVA three-phase input and output models, with double conversion on-line technology according to the VFI-SS-111 classification, as defined by the IEC EN 62040-3 standard.

Flexus has been designed and manufactured using state-of-the-art technologies in order to deliver maximum protection for critical users, a zero impact on the mains power supply and a high operating efficiency.

The high level of flexibility at the design stage means that there is full compatibility both with three-phase power and with single-phase sources, thus eliminating any critical factors in the connection between UPS and system.

ZERO IMPACT SOURCE

The superior technology of a Flexus UPS allows it be used where the site mains power supply is limited in capacity, or has an on-site generator and/or loads that generate current harmonic problems. Flexus is designed to have a zero-impact on its upstream power supply (mains or generator):

- Input current distortion < 3%
- Input power factor 0.99
- Power walk-in function to guarantee a progressive rectifier start-up
- Delayed switch-on function, to sequentially restart the UPS when installed as part of a parallel system.

Flexus also act as a filter and phase-shift protection device in respect to its upstream supply, providing protection from any harmonic components or reactive power generated by downstream loads.

BATTERY CARE SYSTEM

Battery management is one of the fundamentals of UPS management in order to ensure the system can perform in emergencies. The Flexus Battery Care System consists of a number of functions that together guarantee optimum battery performance.

Battery recharge: Flexus is suitable for use with sealed Valve Regulated (VRLA), AGM, GEL and open-vented lead acid batteries, in addition to Nickel-Cadmium. Depending on the battery type used, the recharging functions can include:

- One-level recharge, typical for the most commonly used VRLA AGM batteries
- Two voltage level recharge according to the IU characteristic
- Charge blocking system to reduce consumption of the electrolyte and further extend the life of VRLA batteries.



Display

Compensation of the recharge voltage according to temperature in order to avoid excessive battery charging currents and potential overheating problems.

Battery Test in order to detect battery performance deterioration or failure.

Protection against deep discharges: during extended low load discharges, the end-of-discharge voltage is increased as recommended by battery manufacturers, to prevent damage to the battery set.

Ripple Current: recharge current ripple (residual AC component) is one of the most common causes of poor battery performance and reduced operating life. Flexus, with its high-frequency battery-charger, produces negligible current ripple levels and therefore helps to extend operating life.

Wide voltage range: the rectifier can operate from a wide input range (up to 40% at half load), reducing battery usage and helping to extend their operational life.

LOW MANAGEMENT COST

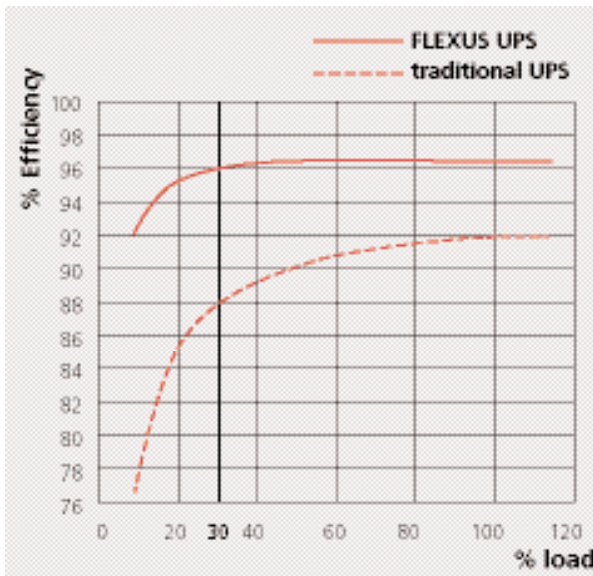
The high performance components and technology used by Flexus means that the UPS achieves exceptional performance and efficiency levels, from a very small footprint and overall compact dimensions:

- the lowest footprint in this category, only 0.26 sq. m. for 20kVA Flexus, batteries included
- the type of input stage guarantees a power factor close to 1 and a low current distortion without the addition of filters, which can be expensive and bulky
- output power factor of 0.9 providing up to 15% more active power than a traditional UPS and more load expansion.

HIGH EFFICIENCY

High operating efficiency up to 96,5% in on-line operation providing a 50% saving in energy usage per annum compared to traditional UPS products (92%). This exceptional performance can lead to a full initial investment recovery within three years.

Thanks to the high efficiency up to 96,5% Flexus saves money during the operation



*Flexus 40kVA
Efficiency
(certified by TÜV)*



FLEXIBILITY

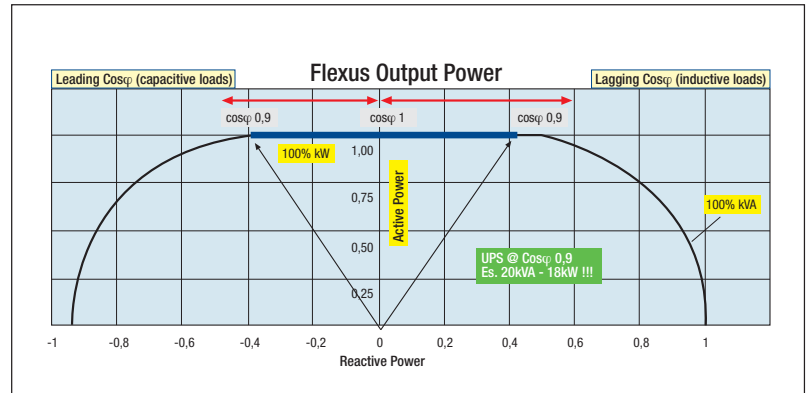
Flexus is suitable for use in a broad spectrum of applications, thanks to a variety of configurations, accessories and options providing flexibility and a choice of performance levels:

- suitable for powering capacitive loads, such as blade servers, without any reduction in active power (0.9 in lead to 0.9 lag)
- multiple operating modes: On Line, Eco, Smart Active and Stand By Off
- Frequency converter mode
- configurable Power Share connections to ensure backup for the most critical loads or programmed to operate only when mains power fails
- Cold Start facility that starts the UPS even when it is not connected to the mains
- FT/FM H version: in cabinet 440x850 x 1320 WDH, it provides optimum solutions when medium or long term runtime is required
- optional temperature sensor for external battery cabinets, to assist the recharge voltage compensation
- additional battery chargers to optimise recharge times
- optional dual input to mains power supply
- isolation transformer options to vary neutral connectivity in the event of separate power sources or for galvanic isolation between input and output
- battery cabinets of various sizes and capacities to ensure prolonged runtime.

ADVANCED COMMUNICATION

Flexus is equipped with a graphic display that provides information, measures, states and alarms regarding the UPS in 5 different languages.

- Advanced multiplatform communication, for all operating systems and network environments: Watch&Save 3000 monitoring and shutdown software included with for Windows 2008, Vista, 2003, XP; Mac OS X, Linux, Novell and most popular Unix operating systems
- Compatible with PowerNetGuard for the remote assistance service RS232 or USB serial port
- 3 slots for the installation of optional communication accessories such as



- network adapter and volt-free contacts.
- REPO (Remote Emergency Power Off)
- Input for synchronization from an external source
- Graphic mimic panel display for remote connection
- Input for connection of the auxiliary contact of an external manual bypass

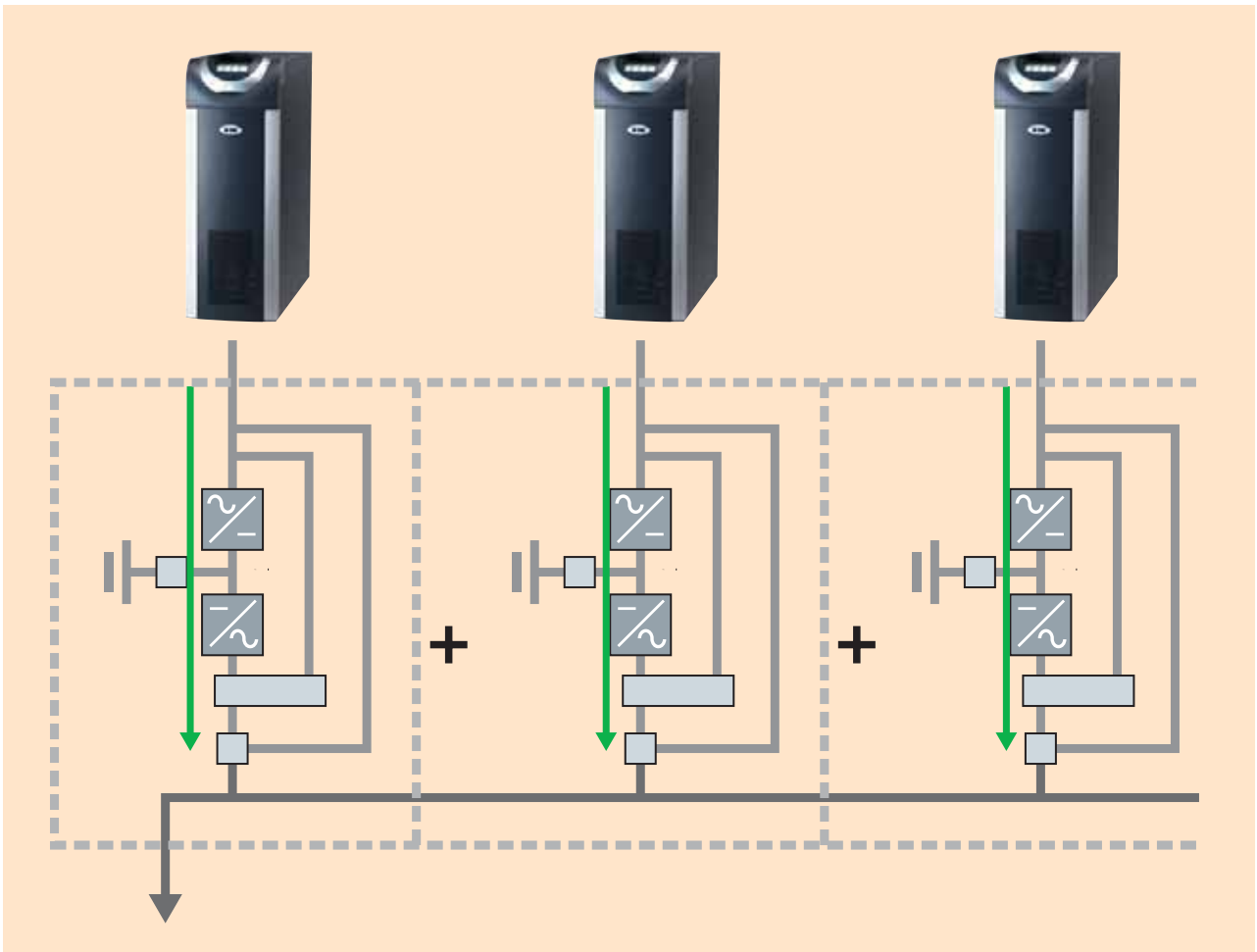
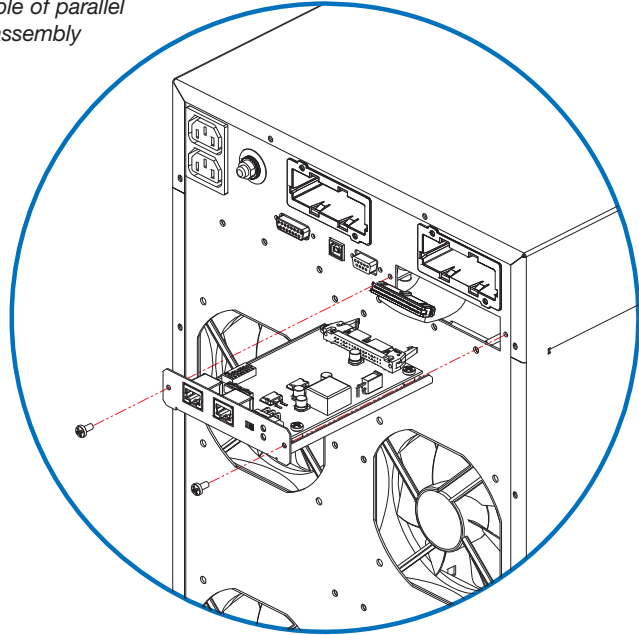
**SUITABLE FOR
EMERGENCY LIGHTING
APPLICATIONS**



EXPANDABILITY

Flexus can work in parallel up to 6 units to increase the power availability and the reliability. The single module or the parallel system can be expanded at any time to suit additional power requirements without influencing the initial investment. Thanks to the peculiarity of the "Hot System Expansion" feature, the new UPS can be connected in parallel while the other units are on-line and supplying regular power to the load. When the UPS is connected it will be updated automatically from the other UPS on line. To increase the flexibility of the Flexus system, on each unit a second input is available for a synchronization with the external source other than the bypass mains. The parallel configuration may be with single or common battery.

Example of parallel card assembly



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Technical data

Three-phase or single-phase input

Single-phase output

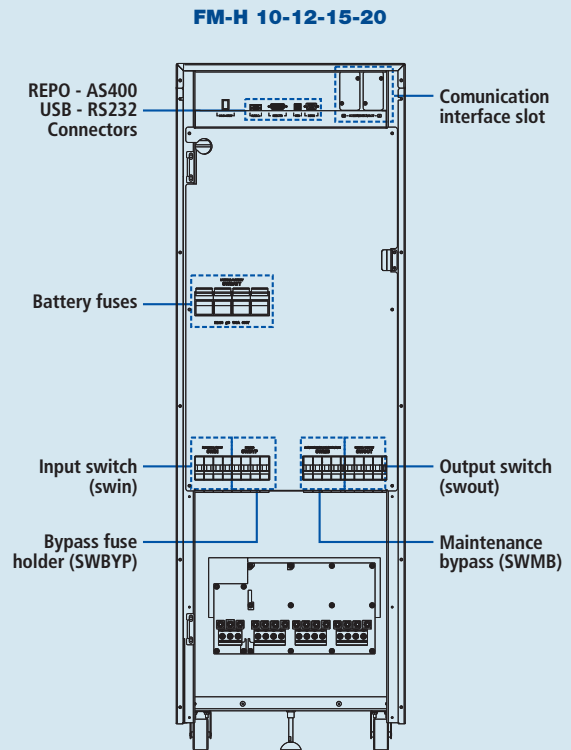
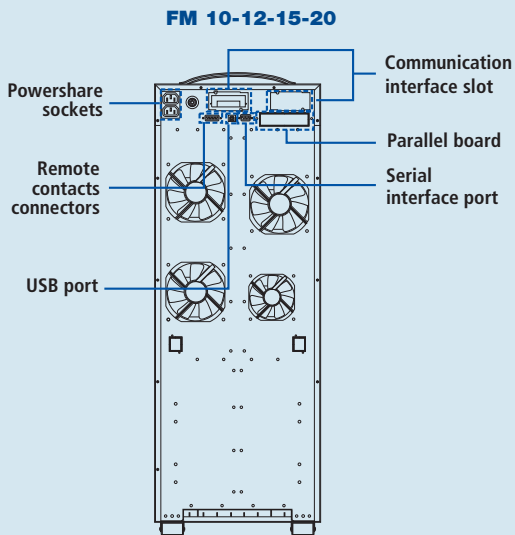
Models	FM 10	FM 12	FM 15	FM 20
Power (kVA)	10	12	15	20
Input				
Rated voltage	380- 400-415 Vac three-phase with Neutral / 220-230-240Vac single-phase			
Rated frequency	50/60 Hz			
Frequency tolerance	40 ÷ 72 Hz			
Power factor at full load	0.99			
Current distortion	THDI ≤ 3%			
By pass				
Rated voltage	220-230-240 Vac			
Number of phases	1			
Voltage tolerance	180 ÷ 264V (selectable)			
Rated frequency	50 or 60 Hz (selectable)			
Frequency tolerance	±5 (selectable)			
Output				
Rated power (kVA)	10	12	15	20
Active power with load PF from 0,8 cap. to 0,8 ind.	8	9.6	12	16
Output power factor	0.8			
Number of phases	1			
Rated voltage	220-230-240 Vac (selectable)			
Static variation	± 1%			
Dynamic variation	± 3%			
Crest factor (I _{peak} /I _{rms})	3 : 1			
Voltage distortion	≤ 1% with linear load / ≤ 3% with non-linear load			
Frequency	50/60 Hz			
Frequency stability on battery mode	0.01%			
Overload at Pf 0.8	110% for 10 minutes, 133% for 1 minute, 150% for 5 seconds			
Batteries				
Type	VRLA AGM/GEL			
Recharge time	6 h			

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Three-phase or single-phase input
Single-phase output

System	FM 10	FM 12	FM 15	FM 20
Weight with internal batteries (kg)	180	182	190	195
Dimensions (wdh) (mm)	320x840x930 (440x850x1320 Version FM-H)			
Communication	3 communication interface slots/RS232/USB			
Operating temperature	0°C - 40°C			
Relative humidity	90% non condensing			
Colour	Dark grey (RAL 7016)			
Noise	< 52 dBA at 1 m			
Protection rating	IP20			
Efficiency Smart Mode	≥ 98% in Economy mode			
Compliance	European Directives: L V 2006/95/EC Low voltage directive EMC 2004/108/EC Electromagnetic compatibility directive Standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2 Classification according to IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111			

Details



Flexus

Technical data

Three-phase input
Three-phase output

Models	FT 10	FT 12	FT 15	FT 20	FT-H 30	FT-H 40	FT100	FT120
Power (kVA)	10	12	15	20	30	40	100	120
Input								
Rated voltage	380- 400-415 Vac three-phase +N							
Rated frequency	50/60 Hz							
Frequency tolerance	40 ÷ 72 Hz							
Power factor at full load	0.99							
Current distortion	THDI ≤ 3%							
By pass								
Rated voltage	380-400-415 Vac three-phase +N							
Number of phases	3 + N							
Voltage tolerance	180 ÷ 264V (selectable)							
Rated frequency	50 or 60 Hz (selectable)							
Frequency tolerance	±5 (selectable)							
Output								
Rated power (kVA)	10	12	15	20	30	40	100	120
Active power with load PF from 0,9 cap. to 0,9 ind.	9	10.8	13.5	18	27	36	90	108
Output power factor	0.9							
Number of phases	3 + N							
Rated voltage	380-400-415 Vac (selectable)							
Static variation	± 1%							
Dynamic variation	± 3%							
Crest factor (I _{peak} /I _{rms})	3 : 1							
Voltage distortion	≤ 1% with linear load / ≤ 3% with non-linear load							
Frequency	50/60 Hz							
Frequency stability on battery mode	0.01%							
Overload at Pf 0.8	115% unlimited, 125% for 10 minutes, 150% for 1 minute, 168% for 5 seconds							
Batteries								
Type	VRLA AGM/GEL							
Recharge time	6 h							

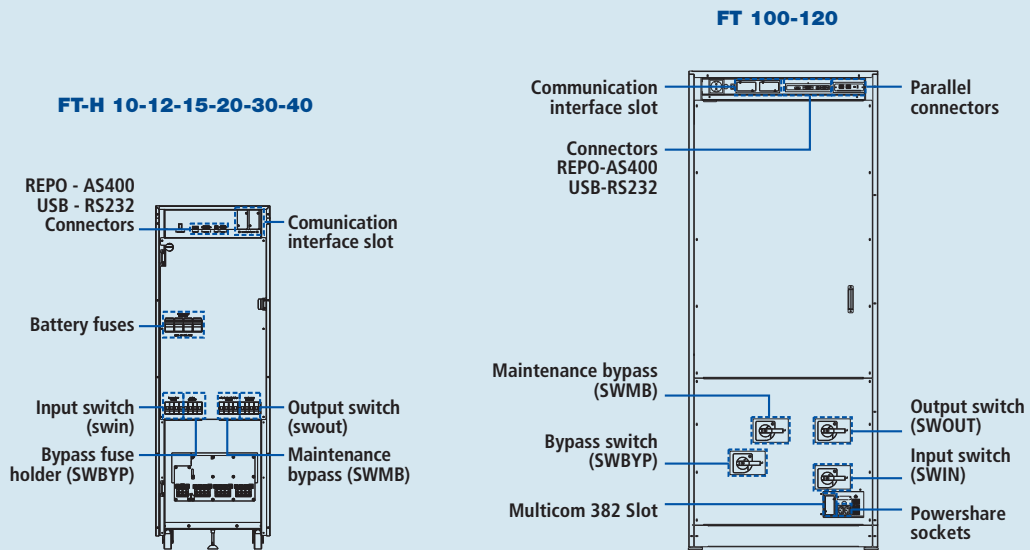
Flexus

Three-phase input
Three-phase output

System	FT 10	FT 12	FT 15	FT 20	FT-H 30	FT-H 40	FT100	FT120
Weight with internal batteries (kg)	180	182	190	195	335	350	460*	480*
Dimensions (wdh) (mm)	320x840x930 (440x850x1320 FT-H version)				440x850x1320		750x855x1900	
Communication	3 communication interface slots/RS232/USB							
Operating temperature	0°C - 40°C							
Relative humidity	90% non condensing							
Colour	Dark grey (RAL 7016)							
Noise	< 52 dBA at 1 m				< 48 dBA at 1 m		< 65 dBA at 1 m	
Protection rating	IP20							
Efficiency Smart Mode	up to 99%							
Compliance	European Directives: L V 2006/95/EC Low voltage directive EMC 2004/108/EC Electromagnetic compatibility directive Standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2 Classification according to IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111							

*weight without batteries

Details



For the FT details please refer to the FM range, p.57