

Modular UPS system

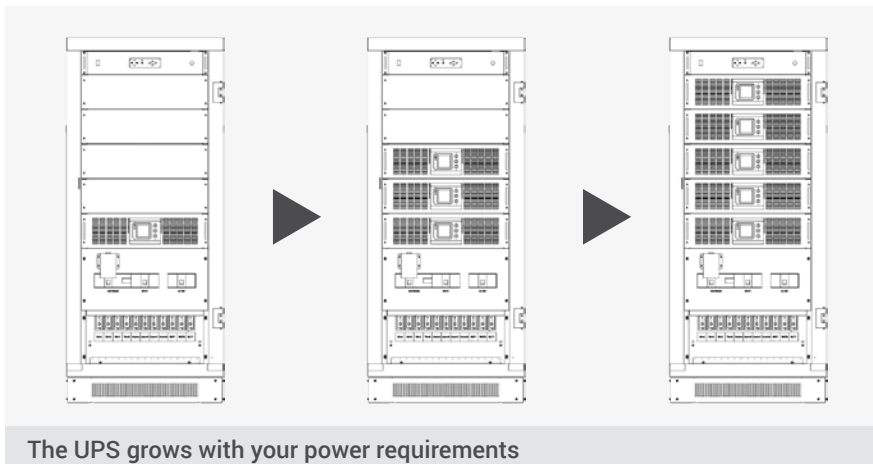
THOR Modular

THOR Modular is EFFEKTA's new scalable online double-conversion UPS system with 3-phase in- and output. The system is available with a output power range of 10 up to 520kVA and can be equipped with modules from 10 up to 40kVA.

Further including up to 4 of these systems can be operated in parallel.



■ Details



The UPS grows with your power requirements



Cabinet with batteries

Options for extended communication and maximum availability:

- SNMP/web or relay card for monitoring in network environments
- Additional battery modules to provide an uninterruptible power supply for up to several hours
- External manual bypass for planned UPS maintenance work or replacement of the UPS unit without shutting it down
- Extended warranty arrangements
- Customer-oriented individual service and maintenance contracts

■ Characteristics

- UPS classification VFI-SS-111 (IEC 62040-3)
- Online double conversion with sinusoidal output
- Large input voltage range
- Excellent power factor of 0,9
- Power factor 1,0 at 10/20kVA/kW modules
- High input power factor up to 1 (0.99)
- High efficiency (up to 95%)
- Switchable to ECO mode (up to 98%, line-interactive)
- Modular N + X parallel redundancy
- Parallel operation for up to 13 modules per cabinet
- High power density (up to 520kVA/cabinet)
- Monitoring and control via touch screen LCD panel
- EPO (remote shutdown)
- Extensive communication interfaces
- Management software for all common OS
- Battery voltage adjustable
- 100% suitable for load imbalances
- Temperature-compensated battery charge
- Programmable „service indicator“
- 24 months warranty

■ Power module



Single power module

The THOR Modular can be equipped with modules 10 to 40kVA depending on the system series (see table on the next page).

The modules are extremely compact (only 3U) and provide high power density. Each module contains its own charger and remains independent operational even in case of failure of the control unit. They can be replaced during operation with little effort, maintained or can be extended by additional modules.



Back view (module 10/20kVA)

- Very wide input voltage range
- Low THDI <3%
- Output power factor 1 (10/20kVA modules) or ≥ 0.99 (30/40kVA modules)
- Large input voltage window
- Each module with its own mains and bypass
- Modular N + X parallel redundancy
- Compact modular design (3U)

The modular and redundant design of the THOR system ensures high reliability and availability. When configuring N + X parallel-redundancy, the load is immediately redistributed without interruption on the remaining modules if one module fails.

In case of faults or to general maintenance the modules can be removed during operation and / or replaced by new ones. As well as all THOR Modular systems can be extended on the fly without much effort with additional modules. Because of this

„hot-swappable“ feature any reduction in the current operation of your consumer is avoided. This helps you to improve efficiency and avoid costs. The modules of the EFFEKTA THOR® Modular meet the highest technical standards of reliability and efficiency. The only 3 U high modules preserve sensitive loads from power blackouts, line noise, voltage and current peaks, frequency interference and disturbances caused by switching on the power grid and other risks.

■ Cabinet module configurations

THOR Modular T1**				
Output power range*	Maximum power at N+1 redundancy	Possible module size	Max. no. of modules*	UPS cabinet size HxBxT in mm
10-40 kVA	30 kVA	10 kVA	4	1400 x 600 x 840
20-60 kVA	60 kVA	20 kVA	4 (3+1 redundant)	1400 x 600 x 840
20-100 kVA	80 kVA	20 kVA	5	1400 x 600 x 840
20-200 kVA	180 kVA	20 kVA	10	2000 x 600 x 1100

THOR Modular T2				
Output power range*	Maximum power at N+1 redundancy	Possible module size	Max. no. of modules*	UPS cabinet size HxBxT in mm
30-90 kVA	90 kVA	30 kVA	4 (3+1 redundant)	1400 x 600 x 840
30-150 kVA	120 kVA	30 kVA	5	1400 x 600 x 840
30-300 kVA	270 kVA	30 kVA	10	2000 x 600 x 1100

THOR Modular T3				
Output power range*	Maximum power at N+1 redundancy	Possible module size	Max. no. of modules*	UPS cabinet size HxBxT in mm
40-200 kVA	160 kVA	40 kVA	5	1600 x 600 x 860
40-320 kVA	280 kVA	40 kVA	8	2000 x 600 x 860
40-520 kVA	480 kVA	40 kVA	13	2000 x 1200 x 860

* For N +1 redundancy in addition to the required total power another module is needed.

** At 10/20kVA/kW modules kVA=kW (Power factor 1.0)

On request, we shall be pleased to calculate the battery modules and appropriate cabinets best suited to your needs.

Specifications T1 (10-200 kVA/kW, 10/20 kVA/kW modules)

THOR T1		10-40 kVA	20-60 kVA	20-100 kVA	20-200 kVA
Power	Power in kVA / kW	10-40 kVA/kW	20-60 kVA/kW	20-100 kVA/kW	20-200 kVA/kW
	Power per module	10 kVA/kW	20 kVA/kW	20 kVA/kW	20 kVA/kW
Autonomy time	THOR T1 UPS system	Can be configured to suit size and number of modules			
Technology	Online double conversion	n+x technology scalable / VFI-SS-111 in accordance with IEC 62040-3			
Phase	Input / Output	3-phase / 3-phase			
Input	Nominal voltage	380/400/415 VAC			
	Input voltage range	208-478 VAC			
	Input frequency range	50/60 Hz (Auto-Sensing)			
	Circuit feedback THDI	< 3%			
Output	Output voltage	380/400/415 VAC			
	Voltage Regulation	±1%			
	Power factor	1			
	Frequency Range	50 Hz or 60 Hz ± 5%			
	Transfer time	none			
	Overload Capability (Line Mode)	< 125%: 10 min. / < 150%: 1 min.			
	Voltage form	sine wave			
Efficiency	Normal mode / ECO mode	max. 95 % / 98 %			
Battery	Type	Maintenance free lead-acid battery			
	Life time	10 years			
	Charging current (max)	6 A per module			
	Recharging time	depending on the number of modules and accumulator capacity			
Communication	Interface	RS232, RS485, EPO button, REPO, parallel port, Temp. sensor contact			
	Communication cards	Optional relay contacts or SNMP card			
	Slot for communication cards	2			
	Display	multi language LC-Display			
	Parallel switching	Max. 4 systems for redundancy or to boost performance			
Dimensions / Weight	Dimensions UPS (H x W x D in mm)	1400 x 600 x 840			2000 x 600 x 1100
	Weight UPS (without modules and accumulators)	170 kg			270 kg
	Weight UPS module	26 kg (10 kW)	31 kg (20 kW)		
	Dimensions battery cabinet with standard configuration (H x W x D in mm)	2000 x 600 x 1100			
Terminals	Protection	IP 20 (optionally higher protection class possible)			
	Input	Fixed connection on terminals			
	Output	Fixed connection on terminals			
Environmental conditions	Temperature	0°C – 40°C, 20°C recommended			
	Humidity	0-90 % RH @ 0- 40°C (non condensing)			
Safety / Enclosure	Safety	EN 62040-1			
	EMC	EN 62040-2, class C3			
	Certifications	CE			

General data: THOR T1		10-40 kVA	20-60 kVA	20-100 kVA	20-200 kVA	
Mechanical	Dimensions (H x W x D mm)	UPS	1400 x 600 x 840			2000 x 600 x 1100
		Modules	131 x 443 x 580			
	Weight in kg	UPS	170	170	170	270
		Modules	26 (10 kVA/kW)	31 (20 kVA/kW)	31 (20 kVA/kW)	31 (20 kVA/kW)
	Protection	IP20				
Audible noise	< 60 dB @ 1 m					
Communication	Status LED & LCD	Line mode, eco mode, bypass mode, battery low, battery bad, Overload & UPS Fault				
	LCD display	Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage & Inner Temperature				
	Alarm (optical & acoustical)	Line failure, battery low, overload, system fault				
Interfaces	RS232, 2 x RS485, 2 x intelligent slot (SNMP or relay-option)					

Specifications T2 (30-300 kVA, 30 kVA modules)

THOR T2		30-90 kVA	30-150 kVA	30-300 kVA
Power	Power in kVA	30-90	30-150	30-300
	Power in kW	27-81	27-135	27-270
	Power per module	30 kVA / 27 kW		
Autonomy time	THOR T2 UPS system	Can be configured to suit size and number of modules		
Technology	Online double conversion	n+x technology scalable / VFI-SS-111 in accordance with IEC 62040-3		
Phase	Input / Output	3-phase / 3-phase		
Input	Rated Voltage configurable	380/400/415 VAC		
	Input voltage range	208-478 VAC		
	Input frequency range	50/60 Hz (Auto-Sensing)		
	Circuit feedback THDI	< 3%		
Output	Output voltage	380/400/415 VAC		
	Voltage Regulation	±1%		
	Power factor	0,9		
	Frequency Range	50 Hz or 60 Hz ± 5%		
	Transfer time	-		
	Overload Capability (Line Mode)	< 125%: 10 min. / < 150%: 1 min.		
	Voltage form	sine wave		
Efficiency	Normal mode / ECO mode	max. 95 % / 98 %		
Battery	Type	Maintenance free lead-acid battery		
	Life time	10 years		
	Charging current (max)	10 A per module		
	Recharging time	depending on the number of modules and battery capacity		
Communication	Interface	RS232, RS485, EPO button, REPO, parallel port, Temp. sensor contact		
	Communication cards	Optional relay contacts or SNMP card		
	Slot for communication cards	2		
	Display	multi language LC-Display		
Dimensions / Weight	Parallel switching	Max. 4 systems for redundancy or to boost performance		
	Dimensions UPS (H x W x D in mm)	1400 x 600 x 840		2000 x 600 x 1100
	Weight UPS (without modules and accumulators)	149 kg	152 kg	290 kg
	Weight UPS module	32 kg		
	Dimensions battery cabinet with standard configuration (H x W x D in mm)	2000 x 600 x 1100		
Terminals	Protection	IP 20 (optionally higher protection class possible)		
	Input	Fixed connection on terminals		
	Output	Fixed connection on terminals		
Environmental conditions	Temperature	0°C – 40°C, 20°C recommended		
	Humidity	0-90 % RH @ 0- 40°C (non condensing)		
Safety / Enclosure	Safety	EN 62040-1		
	EMC	EN 62040-2, class C3		
	Certifications	CE		

General data: THOR T2		30-90 kVA	30-150 kVA	30-300 kVA	
Mechanical	Dimensions (H x W x D mm)	UPS	1400x600x840	1400x600x840	1400x600x840
		Modules	131x443x580		
	Weight in kg	UPS	149	152	290
		Modules	32		
	Protection	IP20			
Audible noise	< 60 dB @ 1 m				
Communication	Status LED & LCD	Line mode, eco mode, bypass mode, battery low, battery bad, Overload & UPS Fault			
	LCD display	Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage & Inner Temperature			
	Alarm (optical & acoustical)	Line failure, battery low, overload, system fault			
Interfaces	RS232, 2 x RS485, 2 x intelligent slot (SNMP or relay-option)				

Specifications T3 (40-520 kVA, 40 kVA modules)

THOR T3		40-200 kVA	40-320 kVA	40-520 kVA
Power	Power in kVA	40-200	40-320	40-520
	Power in kW	36-180	36-288	36-468
	Power per module	40 kVA / 36 kW		
Autonomy time	THOR T2 UPS system	Can be configured to suit size and number of modules		
Technology	Online double conversion	n+x technology scalable / VFI-SS-111 in accordance with IEC 62040-3		
Phase	Input / Output	3-phase / 3-phase		
Input	Nominal voltage	380/400/415 VAC		
	Input voltage range	208-478 VAC		
	Input frequency range	50/60 Hz (Auto-Sensing)		
	Circuit feedback THDI	< 3%		
Output	Output voltage	380/400/415 VAC		
	Voltage Regulation	±1%		
	Power factor	0,9		
	Frequency Range	50 Hz or 60 Hz ± 5%		
	Transfer time	none		
	Overload Capability (Line Mode)	< 125%: 10 min. / < 150%: 1 min.		
	Voltage form	sine wave		
Efficiency	Normal mode / ECO mode	max. 95 % / 98 %		
Battery	Type	Maintenance free lead-acid battery		
	Life time	10 years		
	Charging current (max)	10 A per module		
	Recharging time	depending on the number of modules and battery capacity		
Communication	Interface	RS232, RS485, EPO button, REPO, parallel port, Temp. sensor contact		
	Communication cards	Optional relay contacts or SNMP card		
	Slot for communication cards	2		
	Display	multi language LC-Display		
	Parallel switching	Max. 4 systems for redundancy or to boost performance		
Dimensions / Weight	Dimensions UPS (H x W x D in mm)	1600 x 600 x 860	2000 x 600 x 860	2000 x 1200 x 860
	Weight UPS (without modules and accumulators)	205 kg	310 kg	450 kg
	Weight UPS module	34 kg		
	Dimensions battery cabinet with standard configuration (H x W x D in mm)	2000 x 600 x 1100		
Terminals	Protection	IP 20 (optionally higher protection class possible)		
	Input	Fixed connection on terminals		
Environmental conditions	Output	Fixed connection on terminals		
	Temperature	0°C – 40°C, 20°C recommended		
Safety / Enclosure	Humidity	0-90 % RH @ 0- 40°C (non condensing)		
	Safety	EN 62040-1		
	EMC	EN 62040-2, class C3		
	Certifications	CE		

General data: THOR T3		40-200 kVA	40-320 kVA	40-520 kVA	
Mechanical	Dimensions (H x W x D mm)	UPS	1600 x 600 x 860	2000 x 600 x 860	2000 x 1200 x 860
		Modules	131 x 443 x 580		
	Weight in kg	UPS	205	310	450
		Modules	34		
	Protection	IP20			
Communication	Audible noise	< 60 dB @ 1 m			
	Status LED & LCD	Line mode, eco mode, bypass mode, battery low, battery bad, Overload & UPS Fault			
	LCD Anzeige	Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage & Inner Temperature			
	Alarm (optisch & akkustisch)	Strom-Ausfall, Batterie schwach, Überlast, Systemfehler			
Interfaces	RS232, 2 x RS485, 2 x intelligent slot (SNMP or relay-option)				