

# THOR Modular

Modular UPS system

**NEU / NEW**

Online double-conversion  
Scalable  
Decentralized  
Parallel  
Modular  
10, 20, 30, 40kVA modules  
10 - 520kVA systems



## Description

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.

We offer the THOR Modular in three system series:

THOR Modular T1		
Output power range*	Possible module size	Max. no. of modules*
10-40kVA	10kVA	4
20-60kVA	20kVA	3 (+1)**
20-100kVA	20kVA	5
20-200kVA	20kVA	10

THOR Modular T2		
Output power range*	Possible module size	Max. no. of modules*
30-90kVA	30kVA	3 (+1)**
30-150kVA	30kVA	5
30-300kVA	30kVA	10

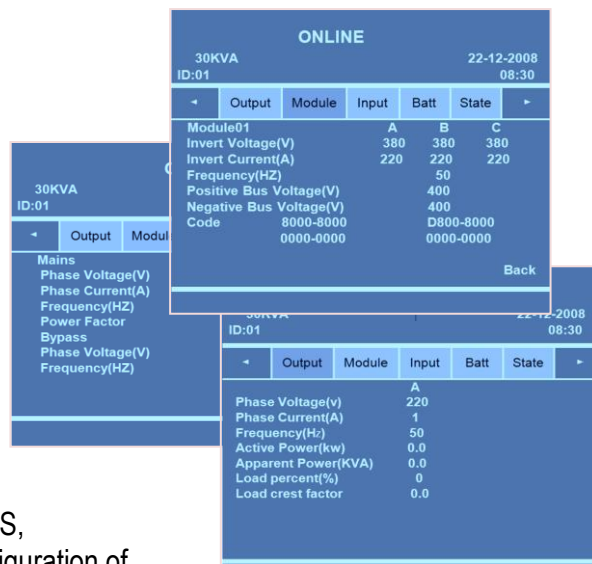
THOR Modular T3		
Output power range*	Possible module size	Max. no. of modules*
40-200kVA	40kVA	5
40-320kVA	40kVA	8
40-520kVA	40kVA	13

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

\*\*Fourth module exclusively for redundancy

## Properties

- UPS classification VFI-SS-111 in accordance with IEC 62040-3
- Online double conversion with sinusoidal output THDI <5%
- Large input voltage window
- Excellent power factor of 0.9
- High efficiency (up to 95%)  
switchable to ECO mode (> 98%, line-interactive)
- High input power factor up to 1 (0.99)
- Compact module design (3U)
- 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 (32, 34, 36, 38 or 40 x 12V batteries)  
Thus also can be used for many present battery systems
- 100% suitable for load imbalances
- Programmable "service indicator"
- 12 months warranty



Via the central control panel with touch screen the status of the UPS, individual modules and warning messages are displayed. The configuration of the UPS modules and their tests can be performed from here too.

The THOR Modular is a scalable online double-conversion UPS system and can be configured with modules on the output power range of 10 up to 520kVA\*.

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.

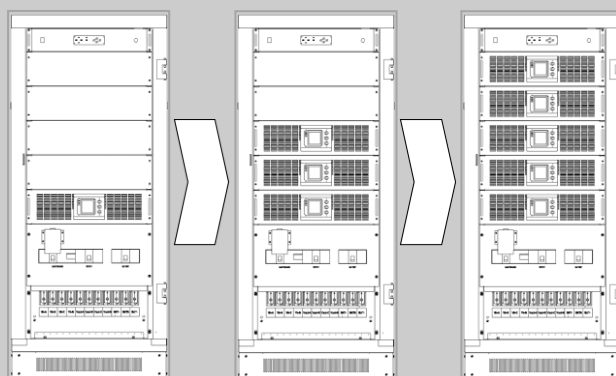
In case of faults or to general maintenance the modules can be removed during operation and / or replaced by new ones.

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.

\* See table on the left - for N + 1 redundancy in addition to the required total power another module is needed

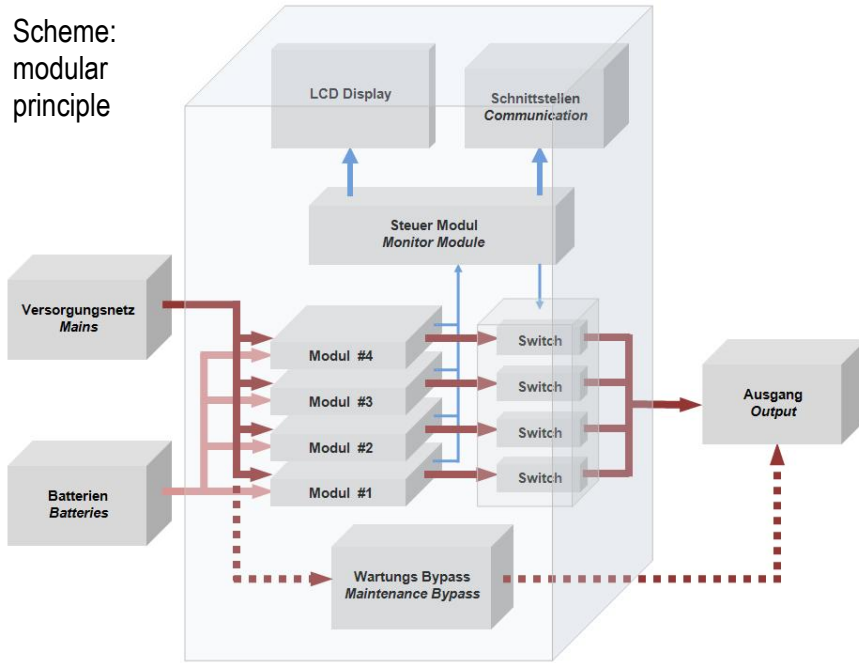


Above: The UPS grows with your power requirements.

Below: additional cabinet with batteries



Scheme:  
modular  
principle

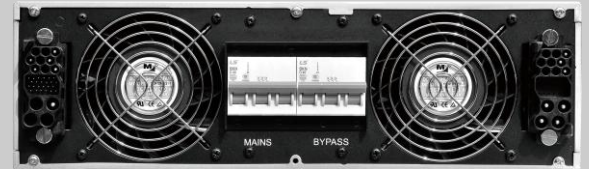


The THOR Modular can be equipped with modules 10 to 40kVA depending on the system series (see table below).

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.

Right: single power module  
Bottom right: back view



Features of the Module Electronics:

- Low THDI <5%
- Large input voltage window
- Each module with its own mains and bypass to reduce possible error-concentration on individual system components
- Modular N + X parallel redundancy
- Compact modular design (3U)

The following table shows the possible cabinet - module configurations:

THOR Modular T1				
Output power range*	Maximum possible power at N+1 redundancy	Possible module size	Maximum number of modules*	UPS cabinet size HxWxD in mm
10-40kVA	30kVA	10kVA	4	1400x600x840
20-60kVA	60kVA	20kVA	4 (3+1 redundant)	1400x600x840
20-100kVA	80kVA	20kVA	5	1400x600x840
20-200kVA	180kVA	20kVA	10	2000x600x1100

THOR Modular T2				
Output power range*	Maximum possible power at N+1 redundancy	Possible module size	Maximum number of modules*	UPS cabinet size HxWxD in mm
30-90kVA	90kVA	30kVA	4 (3+1 redundant)	1400x600x840
30-150kVA	120kVA	30kVA	5	1400x600x840
30-300kVA	270kVA	30kVA	10	2000x600x1100

THOR Modular T3				
Output power range*	Maximum possible power at N+1 redundancy	Possible module size	Maximum number of modules*	UPS cabinet size HxWxD in mm
40-200kVA	160kVA	40kVA	5	1600x600x860
40-320kVA	280kVA	40kVA	8	2000x600x860
40-520kVA	480kVA	40kVA	13	2000x1200x860

\*For N+1 redundancy in addition to the desired total power one further module is needed.

Battery modules and matching cabinets we will calculate for you on request according to your needs.

General data			THOR T1 10-40kVA	THOR T1 20-60kVA	THOR T1 20-100kVA	THOR T1 20-200kVA
Model						
<b>Mechanical</b>	Dimensions (HxWxD mm)	UPS	1400x600x840	1400x600x840	1400x600x840	2000x600x1100
		Modules	131x 443x580			
	Weight in kg	UPS	170	170	170	270
		Modules	26 (10kVA)	31 (20kVA)	31 (20kVA)	31 (20kVA)
	Operating temperature		0 ~ 40°C			
	Protection		IP20			
	Storage temperature		-25 ~ 55°C			
	Humidity		0~95% non condensing			
	Altitude		< 1500m			
	Audible noise		< 60dB @ 1m			
<b>Communi- cation</b>	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			
<b>Interfaces</b>			RS232, RS485, Intelligent slot x 2, Dry Contact, SNMP			

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

Electrical data			THOR T1 10-40kVA	THOR T1 20-60kVA	THOR T1 20-100kVA	THOR T1 20-200kVA
Model						
<b>Capacity</b>	UPS		10-40kVA 9-36kW	20-60kVA 18-54kW	20-100kVA 18-90kW	20-200kVA 18-180kW
	Module		10kVA 9kW	20kVA 18kW	20kVA 18kW	20kVA 18kW
<b>Input</b>	Terminals		L1, L2, L3, N, PE			
	Rated Voltage		380/400/415VAC			
	Voltage Range		208~478VAC			
	Frequency Range		40 Hz-70Hz			
	Power Factor		≥0.99			
	THDi		≤3% (100% / non linear load)			
	Voltage Range Bypass		Max.voltage: +15% (optional +5%,+10%,+25% ) Min. voltage: -45% (optional -20%,-30%) Frequency protection range: ±10%			
	Generator input		supported			
<b>Output</b>	Terminals		L1, L2, L3, N, PE			
	Rated Voltage		380/400/415VAC			
	Power Factor		0.9			
	Voltage Regulation		±2%			
	Frequency	Utility mode	±5% of the rated frequency			
		Battery mode	50/60Hz ±0,2%			
	Crest Factor		3:1			
	THD		≤2% (linear load) / ≤5% (non linear load)			
Waveform		Pure Sinewave				
<b>Efficiency</b>			≥93,7% in normal mode (optional 95%)			
<b>Batteries</b>	Voltage		±192, ±204, ±216, ±228, ±240VDC; depending on the battery set			
	Charging current	UPS	Max 24A	Max 18A	Max 30A	Max. 60A
		Module	Max. 6A			
The charge current can be set according to the battery capacity						
<b>Transfer time</b>			Normal mode to Battery mode: 0 ms; Normal mode to Bypass: 0 ms			
<b>Protection</b>	Overload	Utility mode	≤110% for 60min, ≤125% for 10min, ≤150% for 1min, ≥150% switch to Bypass			
		Battery mode	≤110% for 10min, ≤125% for 1min, ≤150% for 15sec, ≥150% shut down UPS immediately			
		Bypass mode	Module breaker: 10 kVA @ 20A, 20kVA @ 40A, 30kVA @ 63A			
	Self-diagnostics		Upon Power On and Software Control			
	EPO		Shut down UPS immediately			
Battery		Advanced Battery Management				
<b>Regulations / standards</b>	Safety		EN 62040-1			
	EMC		EN 62040-2 Class C3			
	Certifications		CE			

General data					
Model		THOR T1 30-90kVA	THOR T1 30-150kVA	THOR T1 30-300kVA	
<b>Mechanical</b>	Dimensions (HxWxD mm)	UPS	1400x600x840	1400x600x840	2000x600x1100
		Modules	131x443x580		
	Weight in kg	UPS	149	152	0970
		Modules	32	32	32
	Protection	IP20			
	Operating temperature	0 ~ 40°C			
	Storage temperature	-25 ~ 55°C			
	Humidity	0~95% non condensing			
	Altitude	< 1500m			
	Audible noise	< 60dB @ 1m			
<b>Communi- cation</b>	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			
<b>Interfaces</b>	RS232, RS485, Intelligent slot x 2, Dry Contact, SNMP				

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

Electrical data					
Model		THOR T1 30-90kVA	THOR T1 30-150kVA	THOR T1 30-300kVA	
<b>Capacity</b>	UPS	30-90kVA 27-81kW	30-150kVA 27-135kW	30-300kVA 27-270kW	
	Module	30 kVA / 27kW			
<b>Input</b>	Terminals	L1, L2, L3, N, PE			
	Rated Voltage	380/400/415VAC			
	Voltage Range	208~478VAC			
	Frequency Range	40 Hz-70Hz			
	Power Factor	≥0.99			
	THDi	≤3% (100% / non linear load)			
	Voltage Range Bypass	Max.voltage: +15% (optional +5%,+10%,+25% ) Min. voltage: -45% (optional -20%,-30%) Frequency protection range: ±10%			
	Generator input	supported			
<b>Output</b>	Terminals	L1, L2, L3, N, PE			
	Rated Voltage	380/400/415VAC			
	Power Factor	0.9			
	Voltage Regulation	±2%			
	Frequency	Utility mode	±5% of the rated frequency		
		Battery mode	50/60Hz ±0,2%		
	Crest Factor	3:1			
	THD	≤2% (linear load) / ≤5% (non linear load)			
Waveform	Pure Sinewave				
<b>Efficiency</b>	≥93,7% in normal mode (optional 95%)				
<b>Batteries</b>	Voltage	±192, ±204, ±216, ±228, ±240VDC; depending on the battery set			
	Charging current	UPS	Max. 30A	Max. 50A	Max. 100A
		Module	Max. 10A		
The charge current can be set according to the battery capacity					
<b>Transfer time</b>	Normal mode to Battery mode: 0 ms; Normal mode to Bypass: 0 ms				
<b>Protection</b>	Overload	Utility mode	≤110% for 60min, ≤125% for 10min, ≤150% for 1min, ≥150% switch to Bypass		
		Battery mode	≤110% for 10min, ≤125% for 1min, ≤150% for 15sec, ≥150% shut down UPS immediately		
		Bypass mode	Module breaker: 10 kVA @ 20A, 20kVA @ 40A, 30kVA @ 63A		
	Self-diagnostics	Upon Power On and Software Control			
	EPO	Shut down UPS immediately			
Battery	Advanced Battery Management				
<b>Regulations / standards</b>	Safety	EN 62040-1			
	EMC	EN 62040-2 Class C3			
	Certifications	CE			

General data			THOR T1 40-200kVA	THOR T1 40-320kVA	THOR T1 40-520kVA
<b>Model</b>					
<b>Mechanical</b>	Dimensions (HxWxD mm)	UPS	1600x600x860	2000x600x860	2000x1200x860
		Modules	131x 443x580		
	Weight in kg	UPS	205	310	450
		Modules	34		
	Operating temperature		0 ~ 40°C		
	Protection		IP20		
	Storage temperature		-25 ~ 55°C		
	Humidity		0~95% non condensing		
	Altitude		< 1500m		
Audible noise		< 60dB @ 1m			
<b>Communi- cation</b>	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		
<b>Interfaces</b>			RS232, RS485, Intelligent slot x 2, Dry Contact, SNMP		

## Specifications Series T1 (40-200kVA, 40kVA modules)

Electrical data			THOR T1 40-200kVA	THOR T1 40-320kVA	THOR T1 40-520kVA
<b>Model</b>					
<b>Capacity</b>	UPS		40-200 kVA 36-180 kW	40-320 kVA 36-288 kW	40-520 kVA 36-468 kW
	Module		40 kVA / 36 kW		
<b>Input</b>	Terminals		L1, L2, L3, N, PE		
	Rated Voltage		380/400/415VAC		
	Voltage Range		208~478VAC		
	Frequency Range		40 Hz-70Hz		
	Power Factor		≥0.99		
	THDi		≤3% (100% / non linear load)		
	Voltage Range Bypass		Max.voltage: +15% (optional +5%,+10%,+25% ) Min. voltage: -45% (optional -20%,-30%) Frequency protection range: ±10%		
	Generator input		supported		
<b>Output</b>	Terminals		L1, L2, L3, N, PE		
	Rated Voltage		380/400/415VAC		
	Power Factor		0.9		
	Voltage Regulation		±2%		
	Frequency	Utility mode	±5% of the rated frequency		
		Battery mode	50/60Hz ±0,2%		
	Crest Factor		3:1		
	THD		≤2% (linear load) / ≤5% (non linear load)		
Waveform		Pure Sinewave			
<b>Efficiency</b>			≥93,7% in normal mode (optional 95%)		
<b>Batteries</b>	Voltage		±192, ±204, ±216, ±228, ±240VDC; depending on the battery set		
	Charging current	UPS	Max 50 A	Max 80 A	Max 130 A
		Module	Max. 10 A		
The charge current can be set according to the battery capacity					
<b>Transfer time</b>			Normal mode to Battery mode: 0 ms; Normal mode to Bypass: 0 ms		
<b>Protection</b>	Overload	Utility mode	≤110% for 60min, ≤125% for 10min, ≤150% for 1min, ≥150% switch to Bypass		
		Battery mode	≤110% for 10min, ≤125% for 1min, ≤150% for 15sec, ≥150% shut down UPS immediately		
		Bypass mode	Module breaker: 10 kVA @ 20A, 20kVA @ 40A, 30kVA @ 63A		
	Self-diagnostics		Upon Power On and Software Control		
	EPO		Shut down UPS immediately		
<b>Regulations / standards</b>			Advanced Battery Management		
<b>Regulations / standards</b>	Safety		EN 62040-1		
	EMC		EN 62040-2 Class C3		
	Certifications		CE		