

# MODULAR THREE PHASE VFI



## The ideal Modular Three phase UPS

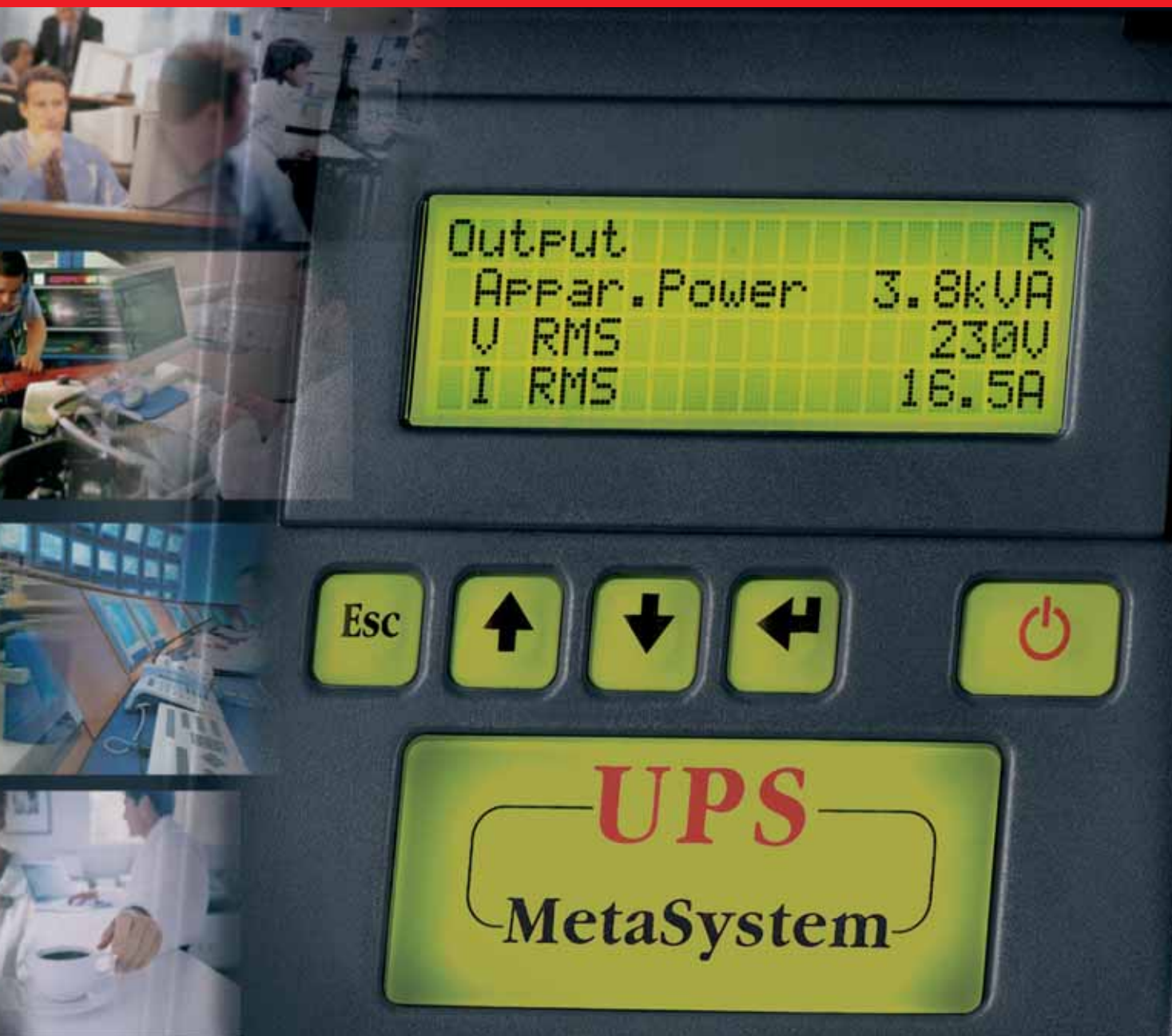
TRIMOD is the new, revolutionary line of UPS by MetaSystem whose ideal features make it the solution you have been looking for the mission-critical applications requiring maximum protection.

Data Processing Centres increasingly demand absolute security and quality of power supply to eliminate the risk of downtime. Critical industrial processes are also increasingly in need of higher levels of quality and security, as are shops and offices.

In order to offer a solution to this growing demand, MetaSystem has put to use the skills

and experience it has acquired in over 30 years in the industry, applying the latest power electronic technologies resulting in the design of TRIMOD, a line of UPS offering unique and innovative features, along with great benefits:

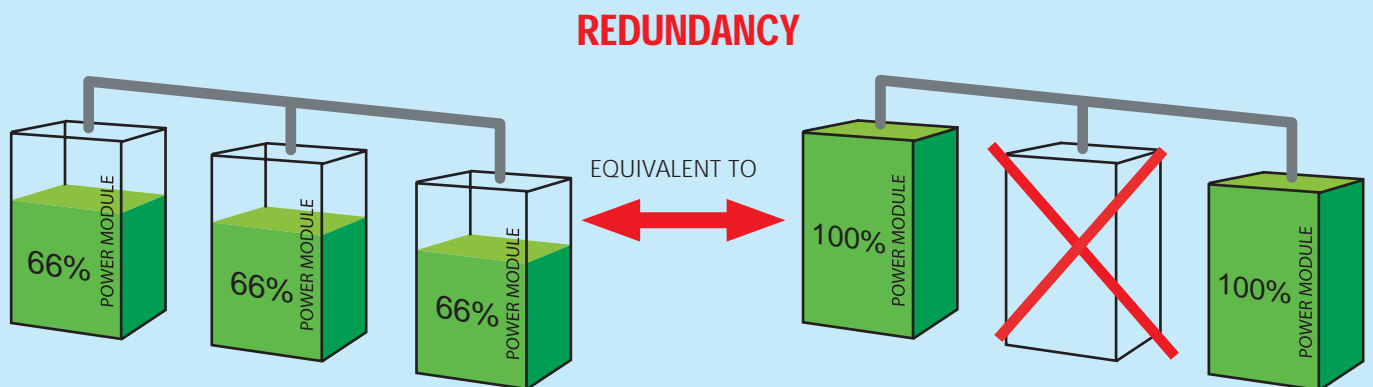
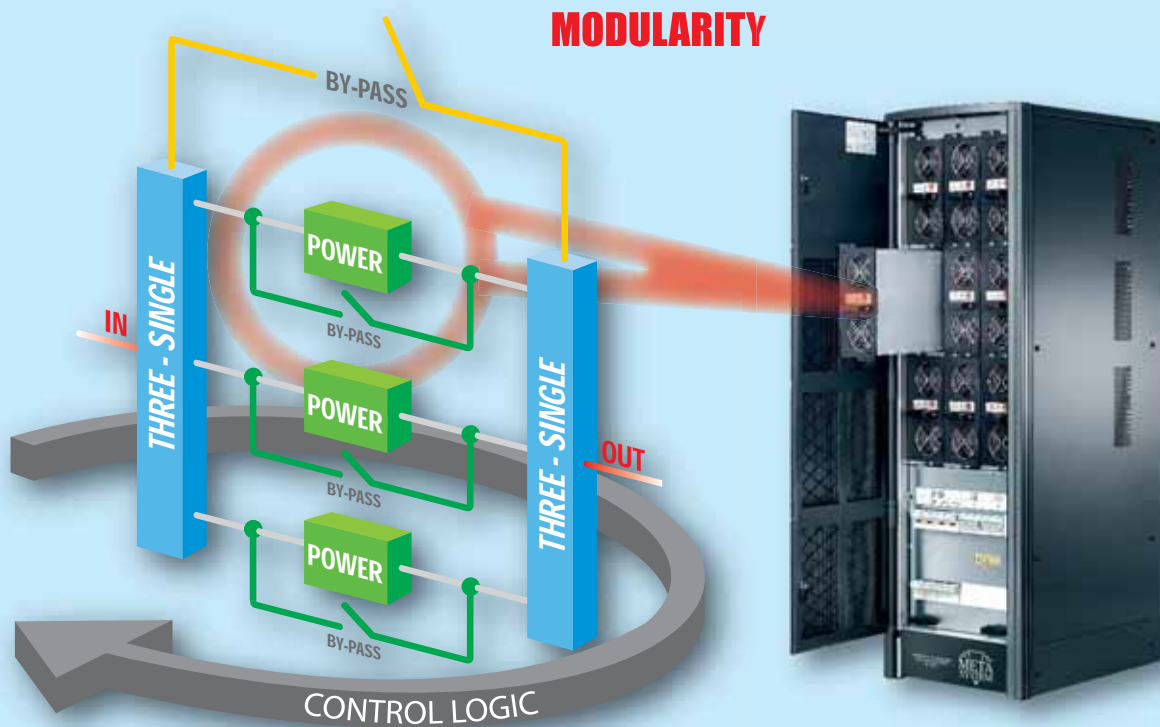
- for end users because it offers maximum reliability, easy scalability, and adapts to any application with very low running and maintenance costs;
- for installers because it is easy to transport and install, and because it is extremely flexible as regards its configuration whatever the site requirements;



- for our distribution partners because its extreme flexibility allows to minimize the number of units in stock and speeds up delivery lead times.

With its extensive range of power ratings and configuration options and the rich offer of accessories, the TRIMOD is able to meet the demands of any application, providing total protection and perfect power supply quality for any three phase or single phase load.





#### Total Reliability

Thanks to its innovative modular structure, combined with MetaSystem's excellent engineering and production quality, the TRIMOD guarantees a level of reliability that is practically absolute.

Modularity means the UPS is designed with separate, fully independent power modules that work in parallel and automatically share the output power so that it meets the load requirements.

The control logic coordinates and supervises the performance of the power modules at all times, promptly signalling any anomaly.

This modular approach has two great advantages, increasing the reliability of the system:

- the UPS can be given a redundant configuration, whereby the number of power modules exceeds the nominal load so that the system's performance will not be affected even if one module develops a fault because the remaining modules are able to continue supplying the load with full power;
- should a fault develop, the individual power module is completely isolated, so it can be simply hot-swapped without having to shut down the UPS, using a minimum intervention time to recover the fault, with the problem generally being solved on the first service call.



### **Total peace of mind when planning your investment**

A UPS represents a considerable investment for our customers. Experience has shown that traditional UPS are generally oversized to accommodate future expansion that has to be planned for when a system is being first set up, demanding decisions to be taken right at the start. Often, the result is higher set-up costs or future complications if you top the capacity you originally envisaged. Moreover, two identical UPS are often put in place, working in parallel to increase reliability by way of the redundancy of the complete uninterruptible power

supply. Whatever the reason for this, the result is a more complex and more expensive system.

The TRIMOD addresses all of these issues with its modular concept: given its extremely limited footprint and ease of installation, the UPS can grow in line with the actual needs of the customer by simply adding power modules and battery drawers as and when they are become necessary. And without any need to sacrifice the absolute reliability guaranteed by the redundancy which, with TRIMOD, is created simply and cost-effectively at the power module level rather than at full system level.



### Maximum savings in running costs

How much electricity we use is has become an increasingly important issue in recent years. Today, it is estimated that over one third of the Total Cost of Ownership (TCO) of a UPS system is the cost of wasted electricity as a result of inadequate levels of conversion efficiency. The electrical efficiency of the TRIMOD is unrivalled in the market. This means less electricity is needed for it to work. Moreover, thanks to the complete input current power factor correction, the TRIMOD helps eliminate costs related to the absorption of reactive power. Hence, huge energy savings in both running and system costs.

### Maximum savings in ownership cost

An important part of the TCO of any UPS system is the cost for replacing its batteries, which are typically changed every 3 to 4 years. The TRIMOD uses high-performance, long-life Panasonic batteries. Moreover, thanks to its exclusive "Smart Charger" function, the battery is equalized and balanced at all times, guaranteeing a longer working life, even in excess of five years, resulting in great savings in maintenance costs.

**MetaSystem**

TEAM ENERGIZED

**Panasonic**



#### Maximum simplicity for transport and installation

MetaSystem is always looking into new ways to make the installer's job easier and simpler. The TRIMOD enjoys the benefits of MetaSystem's cutting edge electronics technology, making it one of the most compact and manageable products available on the market today.

Just one person is needed to transport it using a normal van, and the same person can easily move it to its final position inside the building and install it in full confidence and safety, with the maximum of ease and in a minimum of time. This is because MetaSystem has placed particular focus on preventing the presence of potentially dangerous voltages, even when the various power modules or battery drawers are taken out of the system.





The **8 / 10 kVA TRIMOD** is made up of three 2.7 / 3.4 kVA power modules and can accommodate up to 12 battery drawers. Extra battery cabinets can be connected up in case long backup times are required.



The **16 / 20 kVA TRIMOD** is made up of six 2.7 / 3.4 kVA power modules and can accommodate up to 8 battery drawers. Extra battery cabinets can be connected up in case long backup times are required.



The **30 kVA TRIMOD** is made up of one power cabinet, which houses nine 3.4 kVA power modules, and one battery cabinet. Additional battery cabinets can be connected up in case long backup times are required.



The system used to connect the power modules together makes it quick and easy to set up the configuration required. Just a few simple steps are all that's needed for the installer to set up a TRIMOD with either single phase or three phase inputs and outputs. The connections terminal board is easy to access by opening positioned at the bottom front of the UPS.

## Modular Scalable Redundant



The TRIMOD UPS has a modular structure, meaning it is made up of electronic power modules (each one is 2.7 kVA or 3.4 kVA), which are interchangeable and can be connected in parallel. The power modules are fitted with control and diagnostic circuits making it easier to identify a faulty module should a fault develop. Its modular structure makes it extremely easy to set up the TRIMOD as a redundant N + X system.



The batteries are also housed in interchangeable drawers; once these have been placed inside the unit, they are automatically connected in series/parallel so as to obtain the voltage and backup time needed for it to operate correctly. Each battery drawer holds five batteries, each with the rated voltage of 12 volt, connected so as to produce two series: a 24 volt series (two batteries) and a 36 volt series (three batteries), so that the installer or the end-user is not exposed to dangerous voltages when handling the drawer.



TRIMOD accessories	Description	Part number
2.7 kVA Power Module	Power upgrade	P4235
3.4 kVA Power Module	Power upgrade	P4236
TRIMOD Battery	Extra battery cabinet, with drawer system	P4501Z
7.2Ah Battery Drawer	Runtime extension kit, to be inserted in multiples of four	P4231
9Ah Battery Drawer	Runtime extension kit, to be inserted in multiples of four	P4232
TRIMOD Transformer	3-ph/3-ph, 10 kVA Isolation transformer	P4245A
TRIMOD Transformer	3-ph/3-ph, 16 kVA Isolation transformer	P4245B
TRIMOD Transformer	3-ph/3-ph, 20 kVA Isolation transformer	P4245C
TRIMOD Transformer	3-ph/3-ph, 30 kVA Isolation transformer	P4245D
TRIMOD Transformer	1-ph/1-ph, 10 kVA Isolation transformer	P4246A
TRIMOD Transformer	1-ph/1-ph, 16 kVA Isolation transformer	P4246B
TRIMOD Transformer	1-ph/1-ph, 20 kVA Isolation transformer	P4246C

Model	TRIMOD 8	TRIMOD 10	TRIMOD 16	TRIMOD 20	TRIMOD 30
<b>Specifications</b>					
Nominal Power [kVA]	8	10	16	20	30
Active Power [kW]	6.4	8	12.8	16	24
Technology	On line double conversion (VFI)				
Input/Output Configuration	3/3 - 3/1 - 1/1 - 1/3 (user selectable during installation)				3/3
UPS Architecture	Modular, Scalable, Redundant N+X with 2700 VA and 3400 VA power modules, contained in a cabinet				
<b>Input</b>					
Input Voltage [V]	230 (single-phase) / 400 (three-phase + N)				400 (three-phase+ N)
Input Voltage Range [V]	230 + 15% - 20% / 400 +15% - 20%				400 +15% - 20%
Input Current THD	3%				
Input Power Factor	> 0.99				
Input Frequency [Hz]	50 / 60 ± 2% autosensing				
<b>Output</b>					
Output Voltage [V]	230 ± 1% / 400 ± 1%				400 ± 1%
Output Frequency [Hz]	50 / 60 synchronized				
Wave form	Sinusoidal				
Crest Factor	3.5 : 1				
Efficiency - on mains (AC/AC on line) - on mains (AC/AC eco mode) - on battery (DC/AC)	93% max 98% 93% max				
Overload capacity	125% for 5 min - 150% for 30 s				
<b>Batteries</b>					
Runtime	Refer to extended runtime table				
Runtime Extendibility	Yes				
<b>General Specifications</b>					
Bypass	Static and electromechanical on each module, independent of each other Genelar automatic Manual (maintenance)				
Signals and Alarms	Wide 4-line alphanumeric display with real time monitoring of UPS status Multicolour status indicator Acoustic signalling				
Communication Ports	N. 2 RS232 ports N. 1 Logic level port N. 4 Dry contacts ports (relay contacts, NC / NO selectable) N.1 Slot for SNMP adapter connection				
Software	Download free of charge from the website ( <a href="http://www.metasystem.it">www.metasystem.it</a> )				
Protection	Electronic protection against overloads, short circuits and excessive battery discharge Operation blocked at end of runtime Inrush limitation when switching on EPO contact (emergency power off)				
Input/Output Connectivity	Terminal board				
Isolation Transformer	On request				
<b>Mechanical Specifications</b>					
Power Modules Installed	3		6		9
Battery Drawers Installed	Refer to extended runtime table				
Net Weight [Kg]	110		130		154
Dimensions (W x H x D) [mm]	414 x 1345 x 628				2 x (414 x 1345 x 628)
<b>Environmental Data</b>					
Working Temperature [°C]	0 ÷ 40				
Relative Humidity	20% ÷ 80% non condensing				
Acoustic Noise @ 1 m [dBA]	42 ÷ 46				
<b>Standards</b>					
Standards	EN 62040-1-1, EN 50091-2, EN 62040-3				
<b>Guarantee</b>					
Guarantee	2 year				

Model	Nominal Power [kVA]	Nominal Power [kW]	Runtime @ 80% load [min]	Cabinet Total Number	Part number	Net Weight [Kg]
TRIMOD 8	8	6.4	0	1	P45010	111
			10	1	P45010A	165
			15	1	P45010B	165
			20	1	P45010C	219
			30	1	P45010D	219
			45	1	P45010E	273
			60	2	P45010F	417
TRIMOD 10	10	8	0	1	P45020	111
			8	1	P45020A	165
			15	1	P45020B	219
			25	1	P45020C	273
			35	1	P45020D	273
			45	2	P45020E	471
			60	2	P45020F	471
TRIMOD 16	16	12.8	0	1	P45030	136
			10	1	P45030A	244
			15	1	P45030B	244
			20	2	P45030C	442
			33	2	P45030D	550
			40	2	P45030E	550
			53	3	P45030F	802
75	4	P45030G	1054			
TRIMOD 20	20	16	0	1	P45040	136
			6	1	P45040A	244
			9	2	P45040B	298
			15	2	P45040C	442
			25	2	P45040D	550
			35	2	P45040E	550
			45	3	P45040F	802
60	4	P45040G	1054			
TRIMOD 30	30	24	0	1	P45050	162
			9	2	P45050A	468
			15	3	P45050B	666
			25	4	P45050C	918
			35	4	P45050D	1080
			45	5	P45050E	1332
			60	6	P45050F	1584
80	6	P45050G	1584			

\* The above configurations are based on battery cabinets WITH DRAWERS



You can download the **UPS Configurator** free of charge from our website: [www.metasystem.it](http://www.metasystem.it). It will help you determine the right size of UPS based on your needs. The modular structure of MetaSystem UPS gives you the option of a wide choice of different runtimes. We have listed the most common runtimes in our table: for any other runtimes, we suggest using the **UPS Configurator** software.

