

*Working in
Electronic Power*



MUST 30-120

3 Phase Modular UPS

Finally the benefits of Modular UPS are for all

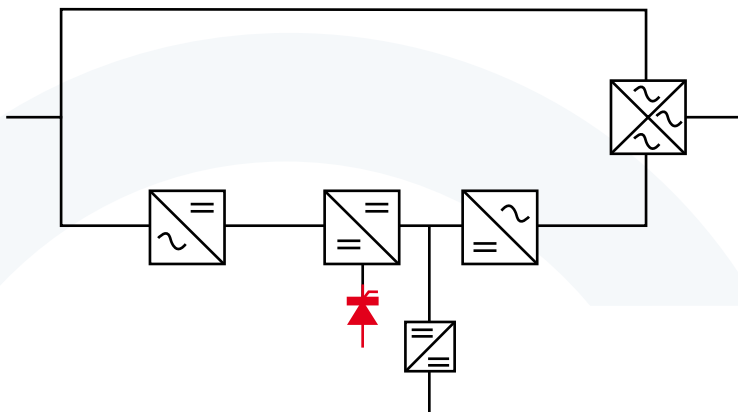
MUST 30-120

The **MUST 30/120** is an uninterruptible power supply, three phase input/output, ranging from 15 kVA to 120 kVA (equipped with 15 kVA UPS modules), a double conversion system, provided of DSP technology, designed to work for redundant applications (N+1).



EACH MODULE IS A COMPLETE AND INDEPENDENT UPS:

- Three phase rectifier
- Battery charger
- IGBT inverter
- Static switch
- DSP control logic



A very powerful **DSP** of **last generation**.
That reduces the number of the external components

SYSTEM ADVANTAGES

1. Highest reliability (MTBF of the suppling chain 100 times more than the stand alone UPS)
2. Replacement of the fault module, with no supply interruption, (Hot swap)
3. Time to replace the module < 3 min
4. Power increasing simply by adding a module unit
5. Very low maintenance costs
6. Each module is a complete and independent Uninterruptible Power Supply

UPS FRONT PANEL



MENÙ:

1. System on
2. System stand-by
3. Temperature
4. Command
5. History
6. Diagnostic
7. Configuartion

THE HIGHEST CLASS PERFORMANCES TO SUPPLY THE MOST CRITICAL LOADS

- LOCAL AREA NETWORKS (LAN)
- SERVERS
- INTERNET CENTERS (ISP/ASP/POP)
- DATA CENTERS
- HOSPITAL
- BANKS
- EMERGENCY DEVICES
- TELECOMMUNICATIONS DEVICES
- MILITAR APPLICATION
- INDUSTRIAL PLC
- ALARM SYSTEM
- TRANSPORTATION

The MUST system

1. MINI MUST 30

MINI MUST is the Entry Level to the MUST Family. It is the ideal solution to supply a medium load that requires the redundancy or the possibility to expand the power in the future. Its advantages win against any stand alone UPS solution. The solution is very compact and with the possibility to expand also the autonomy adding up to 3 battery banks in the same cabinet. Power ranging from 15 kVA to 30 kVA (2 modules), 19" rack mounted with the internal battery pack.



mini MUST 30 kVA

2. MUST 60

Modular UPS three phase system ranging from 15 kVA to 60 kVA, 19" rack mounted with the internal battery pack. This solution can include 4 modules 15 kVA providing the following back up time at 75% of nominal load.

Max back up time with internal battery pack			
Nr power modules	kVA	kW at 75% of the rated load	backup time (min)
1	15	9	75
2	30	18	32
3	45	27	16
4	60	36	12

If redundancy is requested (N+1 modules) the max output power will be 45 kVA



MUST 60 kVA

3. MUST 120

Modular UPS three phase system ranging from 15 kVA to 120 kVA, 19" rack mounted, designed for external battery cabinet. The max output power of the MUST cabinet is 120 kVA (8 modules 15 kVA/each). The battery pack are included in the external cabinet. If redundancy is requested (N+1 modules) the max output power is 105 kVA.



MUST 120 kVA

4. MODULAR BATTERY CABINET (2000x1000x800 HxDxW)

It is designed to include up to 40 x 100 Ah battery blocks. This battery pack, with a 75% of the max load, allows a standard autonomy of 20 minutes. Longer back up time is possible simply adding battery cabinets, working in parallel or using other battery packs in shelves.



BATTERY CABINET

User interface

Communication board RS 232, RS 485 => STANDARD

Remote UPS monitoring for alarms, status, measures, historical data.

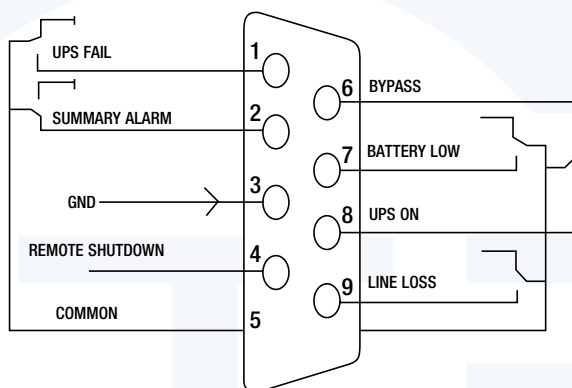
Communication board SNMP, relay card => OPTIONAL



SNMP Board



Free contacts circuit board

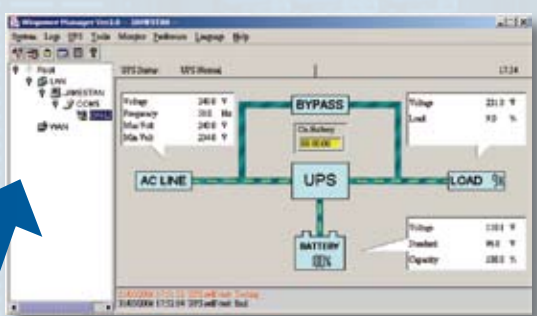


Pin #	Description	I/O
1	UPS Fail	Output
2	Summary Alarm	Output
3	GND	Input
1	Remote Shutdown	Input
5	Common	Input
6	Bypass	Output
7	Battery Low	Output
8	UPS ON	Output
9	Line Loss	Output

Communication interface card AS 400/dry contact.

A very Complete Communication

WinPower Manager



UPS Control Parameters

The UPS Control Parameters dialog box contains several sections of settings:

- Input Frequency Range:** Low Lim (40.0 - 41.0) Hz, High Lim (51.0 - 50.0) Hz.
- Voltage Range on Bypass:** Low Lim (100 - 210) V, High Lim (220 - 230) V.
- Fan Control:** Allow Off-Flow to Exist (On/Off), Warning When UPS Values on Bypass (Yes/No), Allow On-Flow to Exist (On/Off), Warning When UPS Values on Battery Mode (Yes/No).
- Acoustic Warning:** Bypass Acoustic Warning (On/Off), Battery Mode Acoustic Warning (On/Off).
- Operation Option:** Work On Bypass When UPS Turned Off (Yes/No), Auto Reboot UPS When AC Input Restored (Yes/No).

Event Log

The Event Log dialog box displays a list of events with their respective icons and descriptions:

- UPS Battery Low
- UPS Battery Time Exhaust
- UPS Fail
- UPS Output Overload
- Communication Lost
- AC Fail
- On Bypass
- Bypass without output
- Self-test Fail
- Phase sequence incorrect in Bypass
- Battery switch not engaged
- Load unbalance
- Load too high
- Internal warning
- Maintain cover is opened
- Bypass not available
- AC Restore
- Communication Create

There are also checkboxes for Record, Broadcast, Email, Send SMS, and Send Pager, each with a corresponding Setting button.

Shutdown Parameters

The Shutdown Parameters dialog box contains the following settings:

- Shutdown Options:** Mode set to ON-LINE.
- Battery Backup Time:** 10 min.
- Begin Shutdown Immediately while Battery Low:** System (Shutdown/Respond).
- System shutdown need time:** 2 min.
- Run Command File before Shutdown:** Browse button.
- Shutdown Alarm Parameters:** Shutdown Alarm Interval (1 min), Start Warning before Scheduled Shutdown (10 min).

MUST 30-120

TECHNICAL SPECIFICATIONS	
MODEL	MUST 30-120
Nominal power	from 15kVA to 120kVA
INPUT	
Voltage	380V/400V/415V, 3 phases 4 wires
Voltage tolerance	294Vac to 520Vac
Frequency	50/60 ± 4Hz
Power Factor	≥ 0.99
THDi %	< 5%
BYPASS	
Voltage	380V/400V/415V, 3 phases 4 wires
Voltage tolerance	305Vac to 457Vac (selectable)
OUTPUT	
Voltage	380V/400V/415V, 3 phases 4 wires
Static voltage stability	≤ 1.5%
Frequency	50Hz / 60Hz ± 0,05% (battery)
Power factor	0,8
Overload protection	Load < 105% no transfer to bypass; 105% ≤ load < 115% transfer to bypass after 5 min; 115% ≤ load < 125% transfer to bypass after 1 min; load ≥ 125 % transfer after 1 sec.
MODULE	
Nominal power	15kVA / 12kW
Efficiency	> 91% at full load
BATTERY	
Battery nominal voltage	480 Vcc
Battery connections	3 wires (positive / neutral / negative)
Charger output voltage	273 ± 1% Vdc
Type	VRLA sealed
Max load current	4,5A for each module (selectable by LCD display)
MECHANICAL	
Acustical Noise (at 1 mt from the UPS with 8 modules)	≤ 62dB
Ambient operative temperature	0°C - 40°C
Relative umidity (Max)	90% (non condensing)
Ambient store temperature	-15°C - +55°C
Module weight	35kg
Module dimensions (mm)	440(W) x 700(D) x 131(H)
Mini Must Dimension (mm)	600(W) x 1000(D) x 1500(H)
Cabinet Dimensions / Must 60 (mm)	600(W) x 1000(D) x 2000(H)
Cabinet Dimensions / Must 120 (mm)	600(W) x 1000(D) x 2000(H)
STANDARD NORMS	
Safety	EN50091-1-1/EN62040-1-1
Emc	IEC 61000-4-2(L3); IEC 610004-3(L3); IEC 61000-4-4(L3); IEC 61000-4-5(L4); EN 50091-2(>25A) Class A

Note: UPS specification and data may subject to change for improvement without prior notice

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