VUMS POWERPRAG

VUMS-POWERPRAG Ltd.

Luzna 2, CZ-160 00 Praha 6, Czech Republic
TEL/FAX: +420 235 366 129 * E-Mail: powerprg@mbox.vol.cz

Power Supplies and Battery Chargers of THF Series on DIN Rail

- **Nominal Output Power 45W, 75W, 120W, 240W & 480W**
- **Rugged for Industrial Use**
- **Small Dimensions and Weight**
- **High Efficiency**
- **Overcurrent, Overvoltage & Overtemperature Protection**

Specification (All parameters measured at 230VAC input, rated load and +25°C ambient temperature, until said otherwise)

Input

Input Voltage	AC or DC - **see TAB 1 and 2**
InputFrequency Range	47-63 Hz (for AC input)
Input Current (for 230VAC)	0.5A for THF45 0.8A for THF75 1.4A for THF120 1.8A for THF240 4.0A for THF480
Inrush Current	60A max
Leakage Current (for 240VAC)	<1mA for THF45 & THF75 <3.5mA for THF120, THF240 & THF480

Output

Output Voltage	**see TAB 1 and 2**
Output Voltage Tolerance	±2% max
Output Voltage Adjustment Range	**see TAB 1**
Line Regulation	±1% max for THF45 ±0.5% for THF75, THF120, THF240 & THF480
Load Regulation	±1% max for THF45 ±0.5% max for all other models
Ripple & Noise	**see TAB 1 and 2**
Output Voltage Temperature Coefficient	±0.03%/°C
Hold-Up Time (at 230VAC input voltage)	50 ms for THF45 & THF75 30 ms for THF120 20 ms for THF240 16 ms for THF480

Protections

Overcurrent Protection (see TAB 2 for Batt. Chargers)	105-150% of rated current, constant current limitation
Overvoltage Protection	115-135% of nominal voltage, switch off (switch off/switch on input line for the recovery)
Overtemperature Protection	switch off, recovery after temperature decrease

General

Efficiency	**see TAB 1 and 2**
Isolation	Input / Output: 3000VAC Input / Earth: 1500VAC Output / Earth: 500VAC
Switching Frequency	100kHz for THF45&240 50/70kHz for THF75&120/480
Dimensions	**see Fig. 2**
Weight	**see TAB 1 and 2**
Reliability (MTBF)	**see TAB 3**

Environmental

Operating Temperature Range and Power Derating	**see Fig. 1** (convection cooled without forced air cooling)
Storage Temperature Range	-20°C to +85°C
Relative Humidity	20-90% RH max, non-condens.
Vibration	10-500Hz, 2G, 10 min/cycle, 60 mins each axis

EMC & Safety

EMC – conducted and radiated emissions	EN55022/55011, Class B, conducted & radiated
ESD Susceptibility	EN61000-4-2, Level 3, Perf. Criteria B
Radiated Susceptibility	EN61000-4-3, 10V/m, Perf. Criteria B
Fast Transients / Burst	EN61000-4-4, Level 3, Perf. Criteria B
Surge	EN61000-4-5, Level 3, Perf. Criteria B
Conducted Susceptibility	EN61000-4-6, 10V rms, Perf. Criteria B
Radiated Magnetics	EN61000-4-8, 30A/m, Perf. Criteria B
Line Harmonics	EN61000-3-2, -3
Safety Approvals (LVD)	EN60950, UL508
Safety Marks	CE, CB, TUV, cULus

TAB 1: THF Series of Power Supplies on DIN Rail from XP Power

Max. Output Power	Type	Input Voltage Range	Output Voltage Range	Output Voltage Adjustment Range	Nominal Maximum Output Cuttent	Output Ripple p-p (max)	Efficiency (typ.)	Dimensions W x H x D (mm)	Weight (kg)
25W	THF45US05	85-264VAC, 120-370VDC	5V	4.75-5.5V	5.0A	100mV	72%	78x93x67	0.30
42W	THF45US12	85-264VAC, 120-370VDC	12V	10.8-13.2V	3.5A	200mV	77%	78x93x67	0.30
42W	THF45US15	85-264VAC, 120-370VDC	15V	13.5-16.5V	2.8A	240mV	77%	78x93x67	0.30
48W	THF45US24	85-264VAC, 120-370VDC	24V	21.6-26.4V	2.0A	480mV	80%	78x93x67	0.30
76W	THF75US12	85-264VAC, 120-370VDC	12V	12.0-14.0V	6.3A	100mV	76%	55.5x125.2x100	0.55
77W	THF75US24	85-264VAC, 120-370VDC	24V	24.0-28.0V	3.2A	150mV	80%	55.5x125.2x100	0.55
77W	THF75US48	85-264VAC, 120-370VDC	48V	48.0-53.0V	1.6A	240mV	81%	55.5x125.2x100	0.55
120W	THF120LS12	88-132VAC, 176-264VAC, 248-370VDC	12V	12.0-14.0V	10A	80mV	80%	65.5x125.2x100	0.65
120W	THF120LS24	88-132VAC, 176-264VAC, 248-370VDC	24V	24.0-28.0V	5.0A	80mV	84%	65.5x125.2x100	0.65
120W	THF120LS48	88-132VAC, 176-264VAC, 248-370VDC	48V	48.0-53.0V	2.5A	100mV	85%	65.5x125.2x100	0.65
240W	THF240PS24	85-264VAC, 120-370VDC	24V	24.0-28.0V	10A	80mV	84%	125.5x125.2x100	1.10
240W	THF240PS48	85-264VAC, 120-370VDC	48V	48.0-53.0V	5.0A	150mV	85%	125.5x125.2x100	1.10
480W	THF480PS24	180-264VAC, 250-370VDC	24V	24.0-28.0V	20A	120mV	89%	227x125.2x100	2.40
480W	THF480PS48	180-264VAC, 250-370VDC	48V	48.0-53.0V	10A	120mV	89%	227x125.2x100	2.40

Application Notes to THF Power Supplies (PS) and Battery Chargers (BC):

- PS and BC are Safety Extra Low Voltage (SELV) power supplies in accordance with EN60950.
- PS and BC are Class I appliances (three wire connection with safety earth wire).
- PS and BC are for building-in within other equipment and must not be operated as a stand alone product.
- PS and BC are equipped with a protective safety cover, cover grade IP20.
- Output voltage is adjustable in the range said in TAB 1 (maximum output power must be observed) with a built-in trimmer, which is accessible without dismantle of the PS. Output voltage of Battery Chargers is set by a producer (see Charging Voltage in TAB 2) and there is recommended not to change the setting.
- Output voltage ripple&noise are measured at 20MHz of bandwith oscilloscope by using a twisted pair-wire terminated with a 0.1uF & a 47 uF parallel capacitors.
- PS and BC are equipped with overcurrent, overvoltage and overtemperature protections. The overcurrent protection is set for the value of Charging Current for Battery Chargers (see TAB 2).
- PS and BC of THF240 and THF480 Series are equipped with a Power Factor Corrector (PFC) circuit for the input voltage line harmoniscs suppression in accordance with EN61000-3-2 standard.
- PS and BC there is possible to feed from a DC voltage (see TAB 1 and TAB 2) too. For a proper function of THF75 Series there is necessary to connect the positive pole on N terminal (AC Neutral) and negative pole on L terminal (AC Line). The polarity of input DC voltage does not matter for all other Series.
- PS and BC are equipped with a screw input and output terminals.
- PS and BC are equipped with a mechanisms for fitting on DIN Rail type of TS-35 wide 35 mm.
- PS and BC operate with natural convection cooling (without forced air cooling) in ambient temperature range according to the derating curves – see Fig. 1.

TAB 2: Battery Chargers on DIN Rail based on THF Series of Power Supplies from XP Power

- **suitable for charging of the maintenance-free sealed lead-acid batteries**
- **rectangular constant current-constant voltage charging characteristic curve**

Max. Output Power	Type	Input Voltage Range	Charging		Output Ripple p-p (max)	Efficiency (typ.)	Dimensions W x H x D (mm)	Weight (kgs)
			Voltage	Current				
42W	THF45US12-BC	85-264VAC, 120-370VDC	13.8V	3.0A	200mV	77%	78x93x67	0.30
48W	THF45US24-BC	85-264VAC, 120-370VDC	27.2V	1.7A	480mV	80%	78x93x67	0.30
76W	THF75US12-BC	85-264VAC, 120-370VDC	13.8V	5.5A	100mV	76%	55.5x125.2x100	0.55
77W	THF75US24-BC	85-264VAC, 120-370VDC	27.2V	2.8A	150mV	80%	55.5x125.2x100	0.55
77W	THF75US48-BC	85-264VAC, 120-370VDC	54.0V	1.4A	240mV	81%	55.5x125.2x100	0.55
120W	THF120LS12-BC	88-132VAC, 176-264VAC, 248-370VDC	13.8V	8.7A	80mV	80%	65.5x125.2x100	0.65
120W	THF120LS24-BC	88-132VAC, 176-264VAC, 248-370VDC	27.2V	4.4A	80mV	84%	65.5x125.2x100	0.65
120W	THF120LS48-BC	88-132VAC, 176-264VAC, 248-370VDC	54.0V	2.2A	100mV	85%	65.5x125.2x100	0.65
240W	THF240PS24-BC	85-264VAC, 120-370VDC	27.2V	8.8A	80mV	84%	125.5x125.2x100	1.10
240W	THF240PS48-BC	85-264VAC, 120-370VDC	54.0V	4.4A	150mV	85%	125.5x125.2x100	1.10
480W	THF480PS24-BC	180-264VAC, 250-370VDC	27.2V	17.6A	120mV	89%	227x125.2x100	2.40
480W	THF480PS48-BC	180-264VAC, 250-370VDC	54.0V	8.8A	120mV	89%	227x125.2x100	2.40

Fig. 1 Operating Temperature Range and Derating Curve

(convection cooled without forced air cooling)

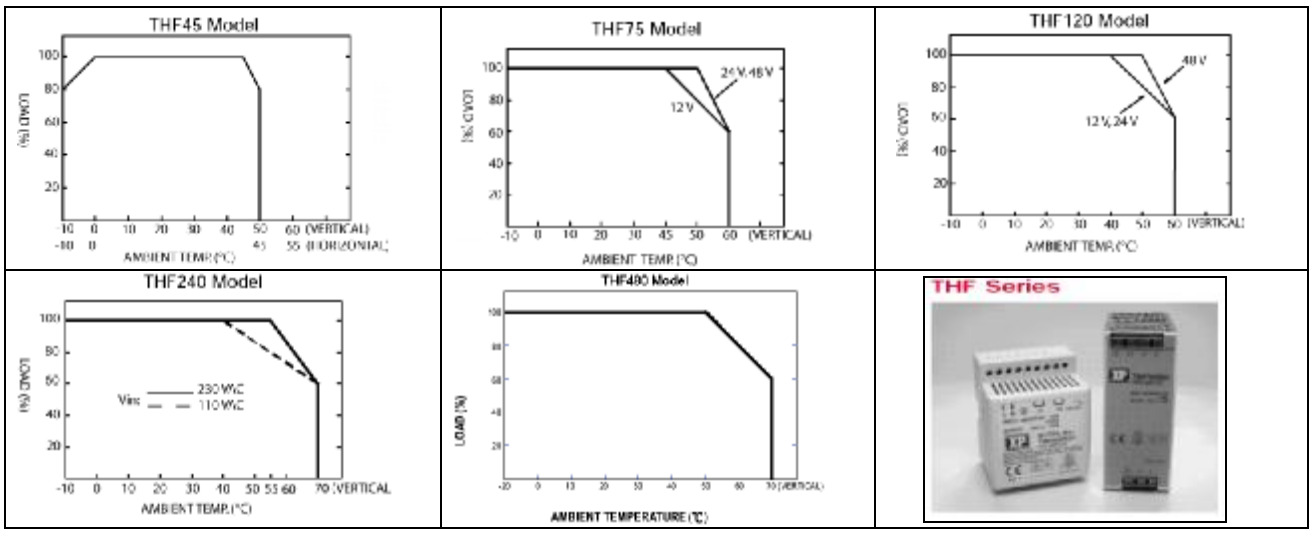
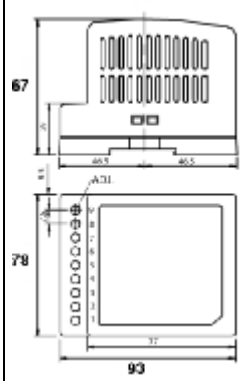
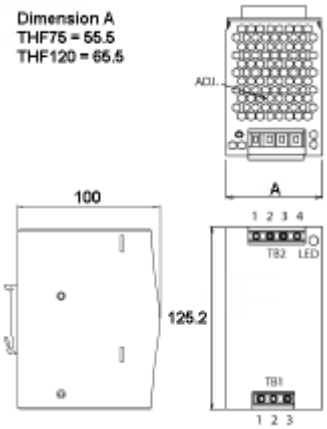
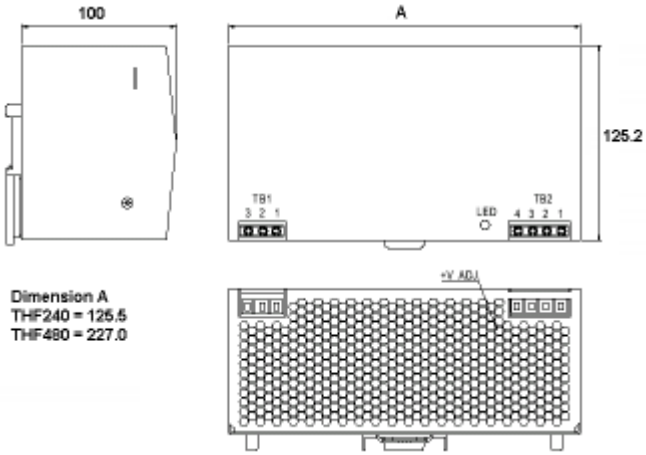


Fig. 2 Mechanical Specification (all dimensions in mm)

THF45	THF75 & THF120	THF240 & THF480
		

Terminals (screw terminals, wire cross-section 0.5-2.5 mm^2 for THF45, 0.5-4 mm^2 for all other type)

THF45

Pin No.	Symbol
1	L
2	N
3	⏚
4, 5	-V
6, 7	+V
8	LED
9	ADJ

THF75 & 120 & 240

Pin No.	Symbol
TB1 / 1	⏚
TB1 / 2	N
TB1 / 3	L
TB2 / 1	+V
TB2 / 2	+V
TB2 / 3	-V
TB2 / 4	-V

THF480

Pin No.	Symbol
TB1 / 1	L
TB1 / 2	N
TB1 / 3	⏚
TB2 / 1	+V
TB2 / 2	+V
TB2 / 3	-V
TB2 / 4	-V

LEGEND:

L = AC Line, N = AC neutral, ⏚ = safety earth, +V = + (positive) output, -V = - (negative) output, LED = green LED function indication, ADJ = output voltage adjustment

TAB 3: Reliability (MTBF in accordace with MIL-HDBK-217F at amb. temperature 25 °C)

TYPE	THF45	THF75	THF120	THF240	THF480
MTBF	364600 hours	123100 hours	136800 hours	105500 hours	180900 hours

VUMS-POWERPRAG Ltd.
Luzna 2
CZ-160 00 Praha 6
Czech Republic

TEL/FAX: +420 235 366 129
powerprg@mbox.vol.cz
www.vums-powerprag.cz

Authorized Distributor of
XP Power