






TECHNICAL COMPARISON X3M / FLASH / FAST

<i>Model</i>	X3M 96 X3M 96 H	X3M D6 X3M D6 H	Flash 96 N Flash 96 N H	Flash D6 Flash D6 H	Fast D6 H
					
<i>Type</i>	ENERGY & HARMONICS DATA MANAGER		ENERGY & HARMONICS ANALYZER		TRANSDUCER / ANALYZER & HARM.

Readings

Voltage (V)	$U_{1-N}, U_{2-N}, U_{3-N}, U_{1-2}, U_{2-3}, U_{3-1}, U_{LL\Sigma}, U_{LN\Sigma}$				
Current (A)	$I_1, I_2, I_3, I_{\Sigma}, I_{neutral}$				
Power Factor	$PF_1, PF_2, PF_3, PF_{\Sigma}$				
Frequency (Hz)	f				
Life Time (h)	Hours, cents/hour				
Voltage THD (%)	THD- $U_1, THD-U_2, THD-U_3, THD-U_{\Sigma}$				
Current THD (%)	THD- $I_1, THD-I_2, THD-I_3, THD-I_{\Sigma}$				
Powers	<i>Instantaneous</i>	$P_1, P_2, P_3, P_{\Sigma} - Q_1, Q_2, Q_3, Q_{\Sigma} - S_1, S_2, S_3, S_{\Sigma}$			
	<i>Rolling Average</i>	$Pm_{\Sigma}, Qm_{\Sigma}(ind), Qm_{\Sigma}(cap), Sm_{\Sigma} (import); Pm_{\Sigma}, Qm_{\Sigma}(ind), Qm_{\Sigma}(cap), Sm_{\Sigma} (export)$			
	<i>Maximum Demand</i>	$Pmd_{\Sigma}, Qmd_{\Sigma}(ind), Qmd_{\Sigma}(cap) Smd_{\Sigma} (import); Pmd_{\Sigma}, Qmd_{\Sigma}(ind), Qmd_{\Sigma}(cap), Smd_{\Sigma} (export)$			
Energies	<i>Active (Wh)</i>	$E_a (import); E_a (export)$			
	<i>Reactive (varh)</i>	$E_r (ind), E_r (cap) (import); E_r (ind), E_r (cap) (export)$			
	<i>Apparent (VAh)</i>	$E_s (import); E_s (export)$			
<i>TOU tariff energy tariff MD</i>	E_a, E_r, E_s $Pmd_{\Sigma}, Qmd_{\Sigma}(ind), Qmd_{\Sigma}(cap) Smd_{\Sigma}$ (up to 8 different tariffs with 8 counters each tariff) (TOU calendar upload required)	not available	not available	not available	not available
Events (data logging to built-in memory)	<i>Short duration events (min. 1 cycle resolution):</i> peaks, sags, dips <i>Long duration events (min. 1 second resolution)</i> Voltage: interruption, under and over-voltage, Current: over-current and direction <i>Absolute instant. values:</i> $U_{max}, U_{min}, I_{max}, P_{max}$	not available	not available	not available	not available
Harmonics (FFT) (only for "H" models)	$H_{U1}, H_{U2}, H_{U3} (1 - 31^{st} \text{ order})$ $H_{I1}, H_{I2}, H_{I3} (1 - 31^{st} \text{ order})$ Active Power and direction (1 - 31 st order)				

Electrical characteristics

Connection	3-phase (3-wires and 4-wires), bi-phase, single-phase, LV and HV				
Voltage inputs	Direct three-phase 20-500V phase-phase (max 300V if bi-phase) (max 1,7 crest factor) Direct single-phase and bi-phase 20-300V phase-neutral or phase-phase (max 1,7 crest factor) Via external VTs (max 400 KV primary rating) Overload max. 900 Vrms (peak 1 sec)				
Current inputs	Via external CTs (max. 10 kA primary; ..5 A secondary) Overload max 100 Arms (peak 1 sec.) Input burden on CT < 0,5 VA				
Frequency	45 ÷ 65 Hz				
Power Supply	85÷265 Vac, /100÷374 Vdc (optional 24 Vac /18-60Vdc)		85÷265 Vac, /100÷374 Vdc		
Self consumption	5 VA				

Front panel

Display:	Type	LCD(STN) 256 segm.	LCD(STN), dot-matrix	LCD(STN) 256 segm.	LCD(STN), dot-matrix	No display
	Size	63 x 65 mm.	16 x 65 mm.	63 x 65 mm.	16 x 65 mm.	
	Backlighting	White Led	White Led	White Led	White Led	
Calibration led	on front panel					on front panel
Keyboard	9 keys with explicit function recall					

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Functional characteristics

Measurement	True-RMS up to 31 st harmonic				
Quadrants	2 (import) or 4 (import/export) user programmable				
Accuracy	Class 1 on energy complying with IEC EN 61036 standards				
Sampling	Continuous sampling of current and voltage waveforms				
Compensation	Automatic compensation of the amplifiers offset				
Scale change	Automatic scale change on current inputs (2 scales)				
Isolation	Galvanic isolation on all inputs and outputs				
Standards	Safety: IEC EN 61010 cl.2 E.M.C.: IEC EN 61326-1A Accuracy: IEC EN 61036				
Data memory	2 Mbyte flash disk				
Memory capacity	60 days' load profiles - over 50,000 logs				
Calendar/clock	RTC + automatic time zone & DST				
Battery support	20 years				

Outputs






Outputs	2 digitals (programmable for pulse, alarm or remotes output)				
Output rated	27Vdc - 27mA (DIN43864)				
Hardware expansion	2 ports for the connection of external expansion modules (see options)				
Optional modules	RS-232, RS-485, 2x4-20 mA, 2DI-2RO, Yocto net				
Optional functions	FFT Harmonics Analyses (see add-on functions)				<i>Already included</i>

Mechanical end Environmental characteristics

Working temperature	-20/+60 °C	-20/+60 °C	-20/+60 °C	-20/+60 °C	-20/+60 °C
Humidity	90% R.H. non cond.	90% R.H. non cond.	90% R.H. non cond.	90% R.H. non cond.	90% R.H. non cond.
	Plastica autoestinguente classe V0				
Protection degree	IP51 (front panel)	IP40 (front panel)	IP51 (front panel)	IP40 (front panel)	IP40 (front panel)
	IP20 (terminals side)	IP20 (terminals side)	IP20 (terminals side)	IP20 (terminals side)	IP20 (terminals side)
Size (mm)	96 x 96	6 DIN (105 mm.)	96 x 96	6 DIN (105 mm.)	6 DIN (105 mm.)
Mount	Flush mount	DIN rail	Flush mount	DIN rail	DIN rail
Terminals	Plug-in type	Screw connector	Plug-in type	Screw connector	Screw connector
Max wire section	4 mm ²	4 mm ²	4 mm ²	4 mm ²	4 mm ²
Weights	410 g.	260 g.	380 g.	260 g.	240 g.
Ordering Code	See product data sheet				

Options

(Optional module with plug-in cable – Powered by meter)

Type					
RS485	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals plug-in 3-pole Mount - Weight rear fitting - 40 g. Ordering code <i>PFE420-00</i>	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals screw 3-pole Mount - Weight 2 DIN - 75 g. Ordering code <i>PFE830-00</i>	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals plug-in 3-pole Mount - Weight rear fitting - 40 g. Ordering code <i>PFE420-00</i>	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals screw 3-pole Mount - Weight 2 DIN - 75 g. Ordering code <i>PFE830-00</i>	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals screw 3-pole Mount - Weight 2 DIN - 75 g. Ordering code <i>PFE830-00</i>
RS232	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals 9-pole (D-sub9) Mount - Weight rear fitting - 45 g. Ordering code <i>PFE421-00</i>	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals screw 6-pole Mount - Weight 2 DIN - 80 g. Ordering code <i>PFE825-00</i>	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals 9-pole (D-sub9) Mount - Weight rear fitting -- 45 g. Ordering code <i>PFE421-00</i>	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals screw 6-pole Mount - Weight 2 DIN - 80 g. Ordering code <i>PFE825-00</i>	MODBUS (RTU, ASCII) 2.400 - 38.400 bps Terminals screw 6-pole Mount - Weight 2 DIN - 80 g. Ordering code <i>PFE825-00</i>
2A 0-20mA	2 outputs (4-20mA) Terminals plug-in 3-pole Mount - Weight rear fitting - 45 g. Ordering code <i>PFE422-00</i>	2 outputs (4-20mA) Terminals screw 3-pole Mount - Weight 2 DIN - 75 g. Ordering code <i>PFE835-00</i>	2 outputs (4-20mA) Terminals plug-in 3-pole Mount - Weight rear fitting - 45 g. Ordering code <i>PFE422-00</i>	2 outputs (4-20mA) Terminals screw 3-pole Mount - Weight 2 DIN - 75 g. Ordering code <i>PFE835-00</i>	2 outputs (4-20mA) Terminals screw 3-pole Mount - Weight 2 DIN - 75 g. Ordering code <i>PFE835-00</i>
2DI 2RO	2 inputs - 2 outputs Terminals plug-in 3x3pole Mount - Weight rear fitting - 45 g. Ordering code <i>PFE425-00</i>	2 inputs - 2 outputs Terminals plug-in 3x3pole Mount - Weight rear fitting - 45 g. Ordering code <i>PFE425-00</i> + <i>PCACL00-00</i>	2 inputs - 2 outputs Terminals plug-in 3x3pole Mount - Weight rear fitting - 45 g. Ordering code <i>PFE425-00</i>	2 inputs - 2 outputs Terminals plug-in 3x3pole Mount - Weight rear fitting - 45 g. Ordering code <i>PFE425-00</i> + <i>PCACL00-00</i>	2 inputs - 2 outputs Terminals plug-in 3x3pole Mount - Weight rear fitting - 45 g. Ordering code <i>PFE425-00</i> + <i>PCACL00-00</i>

Additional functions

FFT Armoniche	Instrument upgrade to include FFT harmonics analyses.				<i>Already included</i>
Upgrade method	Performed by simple PUK code entry operated via instrument keyboard.				
Effect	Converts X3M, X3M-D into ".....H" model.		Converts Flash-N, Flash-D into ".....H" model.		
Ordering code	<i>PFSW399-00</i>				