功率因數調整器
REGULATORS

EPF6T
EPF8T
EPF12T

一般說明

自動功率因數調整器帶有6段及8-12段啟動之微處理器管理,以及總諧波失衡1%調整器,RS232或RS485序列連接埠。

此裝置設計為一種能描述出精確電子數值如:電壓、電流、功率因數、儀器內部溫度及電壓諧波失衡之科技。所有的電子測量值經由波型浮點數的FFT(快速傅立葉轉換)完成分析。

藉由使用可靠的運算法,此調整器得以操作電容器之階數,切換開/關需要調整之無功功率,因此得以大大的減少切換開關次數,於不同階數時也使用同次的方式。

裝置上的四個按鍵使使用者得以瀏覽參數化數值及指定測量值。這些測量透過真RMS值來直接計算電壓及電流間之功率因數。每個電池的設置僅透過簡單的獨立切換每段必須設定之額定值,便能達成簡單明瞭易於解讀的參數。

除了EPF8T-EPF12T PF調整器的這些一般功能外,他能顯示出電力系統狀況,若有訊號顯示高度的扭曲,此調整器會將電容器自電力系統中切斷以達成防護效果;同時它也控制了儀器內部的溫度,若溫度過高,則會連續段開切換進來的電容器;此儀器紀錄警報狀況以及每個電電容器的切換次數,以方便驗證他們的負載。

全部的電容器皆能設定於"固定"模式,代表以一個固定的數值對儀器進行防護,而非以全自動模式操作。

於現今的標準下,此儀器同時確認為中斷以及/或 電壓"洞" 防護電容器.僅在放電瞬變後使其重新活躍。所有的參數及資訊皆可透過RS 232或RS485序列埠取得。

GENERAL DESCRIPTION

Automatic power factor regulator with microprocessor management for 6 and 8-12 steps activation, with THD I% control regulator, RS232 or RS485 serial connector available on the base of the model.

This device has been designed with a technology to elaborate also very distorted signal able to assure an accurate control of plant electrical values like voltage, current, power factor, internal temperature of the equipment, voltage harmonic distortion. All electrical measurements are made by a complete analysis through FFT (Fast Fourier Transformer) of the wave shape with floating-point.

Using a reliable calculation algorithm, the regulator is able to operate the capacitor steps, switching-in/ switching-off the reactive power needed at the fixed aim, reducing drastically the number of switchings and using in an homogenous way the various steps.

Four keys allows access to parameterizations and to the dedicated measures. The measures are made in real effective value (True RMS) calculating the power factor directly between voltage and current.

The setting up of each battery is made simply switching-in independently its rated value, for each step that must be set, allowing an easy comprehension and reading of the set parameters.

Further to the normal functions the EPF8T-EPF12T PF regulator shows the network and in case of a signal highly distorted it protects the capacitor batteries disconnecting them from the network; it controls also the internal temperature of the equipment and in case of too elevated internal temperature, it sequently disconnects the switched-in batteries; it records alarm situations and the number of switchings made by each battery, to be able to verify their wear.

All the batteries can be set in "FIX" mode, that is to say not operated by the device in an automatic mode, but fixed in the line and always protected in case of critical situations.

In the full respect of current standards it also checks eventual micro-interruptions and/or voltage "holes" protecting capacitors, re-energizing them only after discharge transients. All the parameterizations and information, are available on the RS 232 or RS 485 serial connectors.

整體尺寸圖
OVERALL DIMENSION

EPF 6T440

96 · 57 · 96

EPF 8T440
EPF 12T440

144 · 57 · 144

enerlux
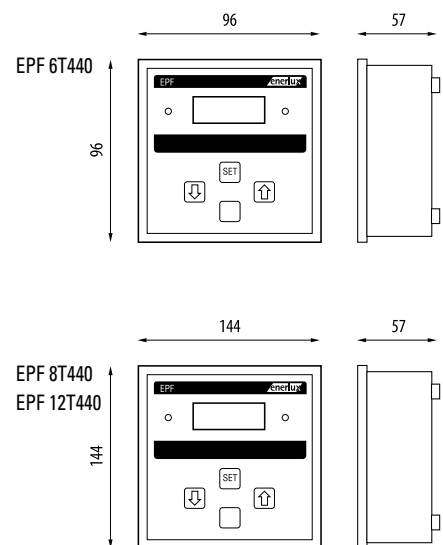
| 技術性資訊		TECHNICAL PARTICULARS
電源電路		**SUPPLY CIRCUIT**
電源電壓及UE控制	220 ÷ 240 Vac (須特別要求 - *on request*) 415 ÷ 440 Vac	*supply voltage and UE control*
頻率	(50/60Hz 或自動 - *or automatic*)	*line frequency*
吸收功率	3,5VA (EPF6T) - 5VA (EPF8T-EPF12T)	*absorbed power*
電流電路		**AMPEROMETRIC CIRCUIT**
額定電流 le	5 A	*rated current le*
操作範圍	da 6% al 110% della nominale del TA *from 6% to 110% of the CT rated one*	*operating range*
過補償	20le per 10ms - *20le -10ms long*	*overcharge peak*
量測與控制		**MEASUREMENTS AND CONTROL**
設定功率因數	從 0,85 Ind 到 0,95 Cap - *from 0,85 Ind to 0,95 Cap*	*Setting of power factor*
電壓量測範圍	- 15% + 15% Un (EPF6T) 80 a 525 V (EPF8 e EPF12)	*voltage measurement range*
電流量測範圍	2.5% ÷110% In	*current measurement range*
每階的跳脫敏感度	da 5 a 300s - *from 5 to 300s*	*tripping sensivity for each step*
同一階的重新連接時間	da 5s a 240s - *from 5s to 240s*	*re-connection time of the same step*
溫度測量範圍	da 0°C a 150°C (EPF8T-EPF12T)	*temperature measurement range*
於電容器之 電流諧波失衡量測範圍	0-250% (EPF8T-EPF12T)	*current harmonic distortion measurement range on capacitors*
輸出電驛		**OUTPUT RELAYS**
六段式	6	*for type at 6 batteries*
八段式	8	*for type at 8 batteries*
十二段式	12	*for type at 12 batteries*
接觸電容	8A 250VAC (AC1)	*contacts capacitance*
切換電壓	440 VAC	*switching voltage*
普通內部接線端子組成	無 - *NO*	*contact composition with common wire internally connectedd*
警示接點之電驛或通風	1 x NA/NC (settabile) - *1 x NO/NC (settable)*	*relay for alarm contact or ventilation*
序列埠		**SERIAL INTERFACE**
串行連接器	RS232 o RS485	*serial connector*
協定	MODBUS RTU	*protocol*
外殼		**CASE**
ABS 自熄嵌入	L96xH96xP57mm (EPF6T)	*ABS self-extinguishing embedding*
ABS 自熄嵌入	L144xH144xP57mm (EPF8T-EPF12T)	*ABS self-extinguishing embedding*
防護等級	IP41(IP54 a richiesta - *on request*)	*degree of protection*
背光LCD高對比顯示	16 caratteri 2 righe - *16 types 2 lines* (EPF6T) 16 caratteri 4 righe - *16 types 4 lines* (EPF8T, EPF12T)	*backlighted LCD display at high contrast*
重量	400 gr (EPF6T); 600 gr (EPF8T-EPF12T)	*weight*
條件		**CONDIZIONI**
操作溫度	da -20°C +60°C - *from -20°C +60°C*	*operation temperature*
儲存溫度	da -30°C +80°C - *from -30°C +80°C*	*stocking temperature*
連接器		**CONNECTORS**
可提取之端子版		*extractible terminal board*
導體截面	0.2÷2.5mmq	*conductors cross-section*
符合		**CONFORMITY**
歐洲指令	CEE 72/23 e 93/68 bassa tensione - *low voltage* CEE 89/336 e 93/68 (EMC)	*European directives*
歐洲標準	EN 50081 ; EN 61000-6-2 ; EN 60240-1	*European standards*

EPF6T
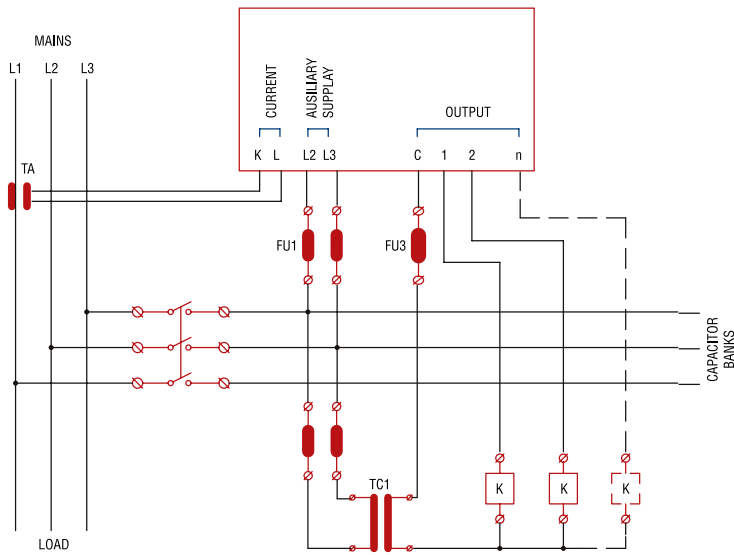
EPF8T - EPF12T

功能

- 電壓及電流真RMS量測值,以及周遭溫度
- 設定插入模式(二或四象限, 於汽電共生情況)
- 超過或缺少無功功率之量測
- 於電流電壓間功率因數值上設定cosφ
- 設定接線種類(單相/三相)
- 設定每階之跳脫敏感度
- 量測THD I%, RMS值, 基波電流,諧波剩餘值
- 設定THD I%跳脫警鈴(Threm THD)以及共振頻率(高THD)
- 紀錄下列最大數值:電源,電壓,電流, THD I% 溫度
- 每周之平均 cosφ
- 外部變比器之接線設定
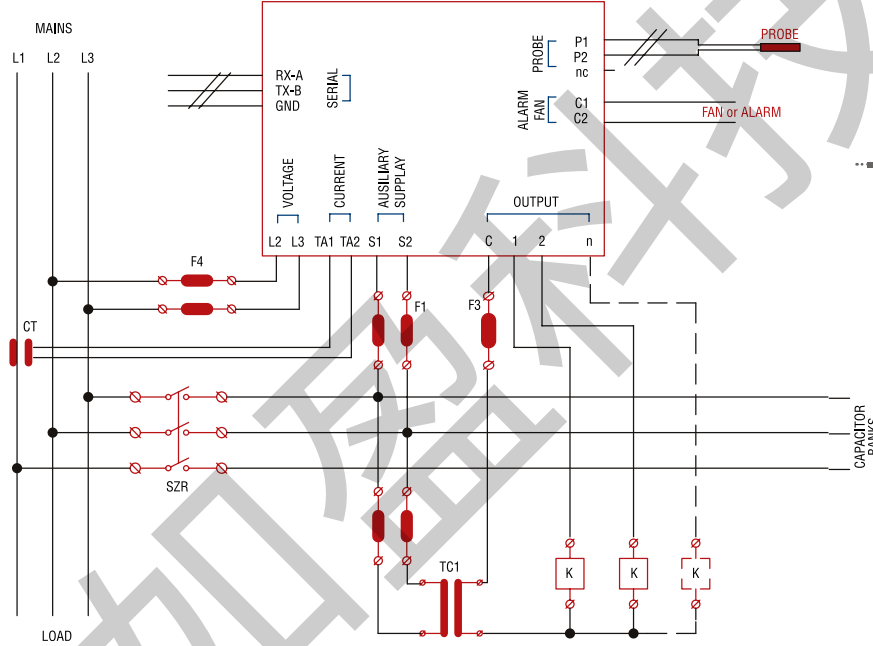
FUNCTIONS

- *Voltage and current measurement at true efficient value (true RMS) and ambient temperature*
- *Setting of insertion mode (2 or 4 quadrants on co-generation)*
- *Exceeding and defecting reactive power measurement.*
- *Setting of the cosφ on the power factor value of the fundamental between current and voltage*
- *Setting of line type (single-phase or three-phase)*
- *Setting of tripping sensivity for each step.*
- *Measurements of THD I%, RMS Current, Fundamental Current, Harmonic Residual*
- *Setting of THDI% alarm tripping (Threm THD) and resonance frequency (High THD)*
- *Record of the maximum values of: Power, Voltage, Current, THD I% Temperature*
- *Average weekly cosφ*
- *Setting of the external transformer connected in line*

種類 *TYPE*	接點 *CONTACTORS*	電容間比率 *RATIO BETWEEN BATTERIES*						
EPF6T440	6	1 1 1	1 2 2	1 2 4	1 2 4	1 2 4	1 2 4	
EPF8T440	8	1 1 1	1 2 2	1 2 2	1 2 4	1 2 4	1 2 4	1 2 4
EPF12T440	12	與前者使用方式同 *Same method used for previous ones*						