

Peak Shaving



Combining X-Meter or X-RWU Gold to XM18 function and the optional hardware XM15, it's possible to carry out complex logics for releasing the loads in order to avoid excess of contracted power with the energy supplier.

This is possible by means of a refined algorithm which progressively pilots opening and closing of a set of loads, after programmed a series of priorities which can be managed. Technically, X-Meter or X-RWU Gold must measure the general power on the delivery point. This can be made using two different modalities: or by reading the pulses sent by a meter (fiscal or not), or by measuring the direct power on the delivery point downstream voltage transducers (TV) or current transducers (TA); this modality is possible only with X-Meter. The operation for setting thresholds and priorities allows to activate singly one of the four instrument's outputs which pilot XM15 module. This module contains 4 relay with two exchange-switches which act to cut off and reinsert the 4 connected loads.

If the loads are more than 4, it's possible using further instruments connected among them. All these instruments, such as the first, measure the power on the delivery point and front time to time they are enabled for cutting off further loads when the interruption of the previous loads hasn't been enough to avoid the overcoming of power.

One can select the integration time from 1 to 60 minutes (default is 15) and the management of the loads will be carried out always in base at the average value calculated on the selected time of integration. The average value may be steady or floating, it depends by the meter: if it sends or not the synchronous signal in the zone.

Operating parameters

Measure selection	Active Bidir
Integration period (m)	1
Work time (m)	1
Cycle time (s)	0
Type of projection	Fixed average
Point of projection	0
Initial insensibility%	0
Safety margin T1 %	0
Safety margin T2 %	0
Safety margin T3 %	0
Safety margin T4 %	0
Default power (W)	0
Default tariff	T1
Turn on at start of QH	<input type="checkbox"/>
Turn on when under margin	<input type="checkbox"/>
Slave mode	<input type="checkbox"/>
Master mode	<input type="checkbox"/>

Programming window.

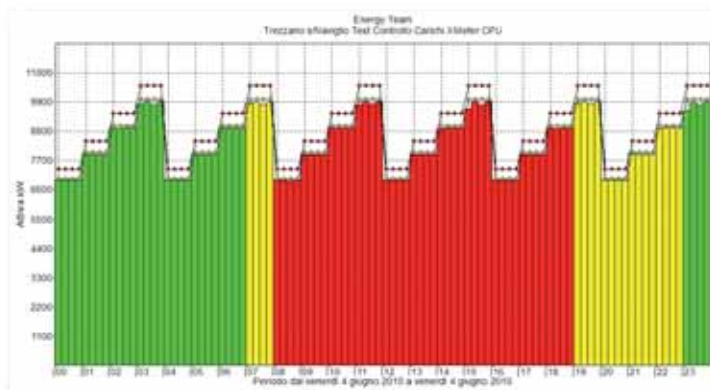
There are other configurable detailed parameters as: working time, cycle time, initial insensibility, safety margin, Power/Tariff of default, minimum operating, minimum rest time, priority, Job, Force-ON; Force-OFF. This detailed parameterization allows the best configuration of every situation and can satisfy all requirements. A specific application in Excel allows to prepare, save and send particular profiles of the equipment.



Configurator for Excel profiles.

Load management is carried out using the "method of forecasting". The interruption is piloted when the expectation about total of consumption in the integration time, obtained by projecting the actual absorption-curve to the end of the time, goes over the set limit. The particular algorithm allows to use at maximum the available energy within integration time, penalizing at the minimum the enabled loads which may be cut off. The interruption of the load is carried out as late as possible, considering also the quantity of energy that may be recovered by cutting it off, based also on the "weight" of the load.

The advantage of this methodology is to avoid troublesome releases and reboots of the load in short times, which might occur if the hysteresis of each load isn't considered. In order to avoid dangerous peaks in energy absorption, due to simultaneous restart of more loads, the systems foresees a method for inserting gradually the loads. The systems allows also to check the loads which ask particular conditions of the plant for being released or restarted. For these loads, the action of the device may be inhibited if digital inputs don't allow it (it's essential for managing the consumers whose working depends by determined working phases).



Graph showing the trend of the power with load management.