REVERSE POWER FLOW MONITORING AND TRIP

- Reverse power flow Monitoring and trip
- Ideally suited for grid connected solar plants
- Provide alarm and trip on reverse power flow
- Avoid penalties on reverse power flow to grid
- Very economical solution

REVERSE POWER FLOW MONITORING

There is increasing use of grid connected small and medium solar power plants. Some distribution companies allow solar power to be used only for self consump-tion and do not allow power flow from solar plant to grid. Heavy penalties may be imposed if power flows from plant to grid.

It required to monitor power flow to/ from the plant at grid interface point. Alarm should be generated if reverse power flow condition (power being injected to grid).

**Image show for description purpose only*

REVERSE POWER ALARM AND TRIP SYSTEM

The system is based on SATEC intelligent MFT EM133 with expansion I/O module is perfectly suited for this application (see figure-1 below).

SATEC four quadrant MFT EM133 with four digital inputs and two relay outputs mod-ule is used in the system. Satec EM133 is installed to monitor plant grid interface electrical parameters.

EM133 has internal PLC with sixteen set points. Each set point can be set inde-pendently. These set points are configured to operate alarm and trip output relays at set Export KW.

Alarm relay outputs is used to operate alarm hooter and alarm indicator.

Trip relay output is used to isolate the plant from grid via available isolator.

The complete system is housed in wall mounted enclosure.

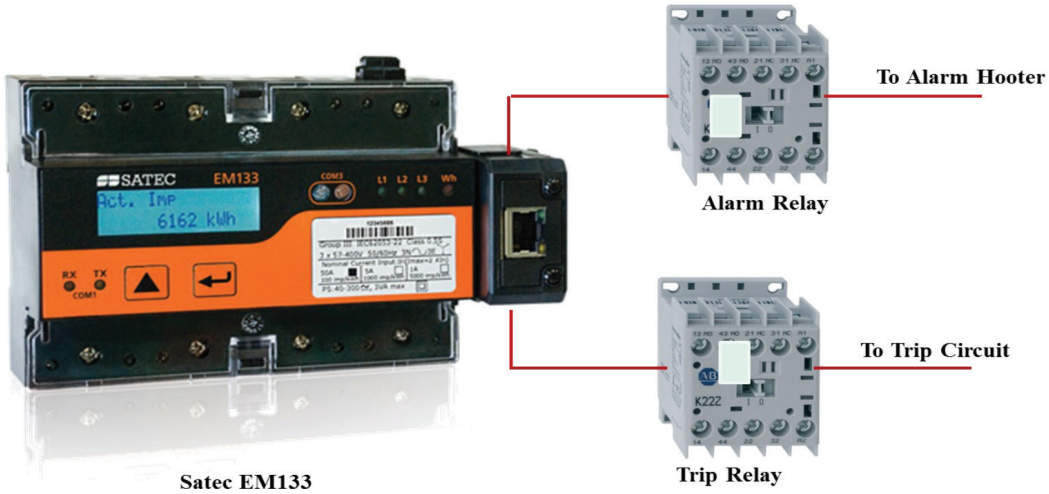

Figure-1 : Reverse power flow alarm and monitoring system

REVERSE POWER ALARM AND TRIP SYSTEM (CONT.)

Set point configuration for EM133 is shown in figure-2.

Set point-1 is set to operate relay –1 (alarm relay). Output relay-1 will operate if export KWH exceeds 6KW and will reset is the same goes below 4KW. This output relay is used for alarm oper-ation. The alarm output contactor relay is operated in latching mode. This relay is reset on pressing the 'Reset Alarm PB'.

Set point-2 is set to operate relay –2 (trip relay). Output relay-2 will operate if export KWH exceeds 5KW and will reset is the same goes below 4KW. , this relay is used to isolate (trip) the plant from the grid.

Operate delay and release delay time is set to avoid alarm or trip due to transients.

The above set-point values can be configured as desired.

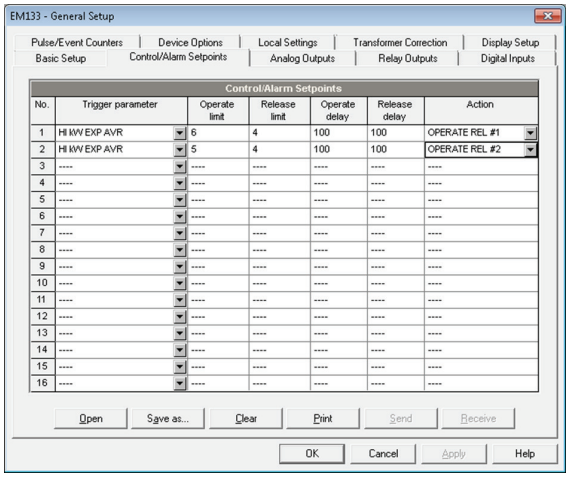

Figure-2 : Set point configuration for EM133

SATEC INTELIGENT EM133 - TECHNICAL SPECIFICATIONS

Intelligent features for EM133

- Direct voltage input up to 690VAC (Line to line) or via PT
- Current input via CT input via CT or 63A direct.
- Configurable CT primary and PT ratio
- Four quadrant measurement.
- All parameters updated on cycle to cycle basis
- Sampling rate128 samples per cycle.
- Input frequency: 45-65 Hz.
- Accuracy class 02S and 0.5S as per IEC-62053-22:2003.
- Front panel LED for calibration check .
- Digital inputs –2
- Relay Output –1
- Isolated RS485 serial communication port
- Ambient operating temperature: -20 to 60ºC.
- Ambient operating humidity: 0 to 95% non-condensing.
- Operating power supply: 40- 260V DC/AC

SATEC EM133

INFORMATION REQUEST

Please provide following information while submitting your request for proposal :

- CT Rating at site
- Available voltage input
- Minimum reverse KW flow set point required

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