

## 5.4 Configuring Billing/TOU

### Billing Energy Registers

The EM13X Series has 4 fully programmable billing energy registers that can be linked to any internal energy source or to an external pulse source that delivers pulses through the meter digital inputs.

Any energy register can provide either a single-tariff energy accumulation or be individually linked to the TOU system providing both total and multi-tariff energy billing.

### Tariff Rates

The meter tariff structure supports 8 different tariff rates using an arbitrary tariff schedule. A total of 4 types of days and 4 seasons are supported with up to eight tariff changes per day.

### Maximum Demand Registers

Any of billing energy registers can be individually linked to the maximum demand register providing the same demand tariff structure as you selected for energy registers.

### Recording Billing Data and Load Profiling

The EM13X Series can provide automatic recording of the daily energy and maximum demand profile to a data log file. Maximum demand profiling can be individually configured for every register.

See [Factory Preset Data Log Files](#) in Chapter 5 and [Billing Profile Log File](#) in Appendix E for more information on the file layout and contents.

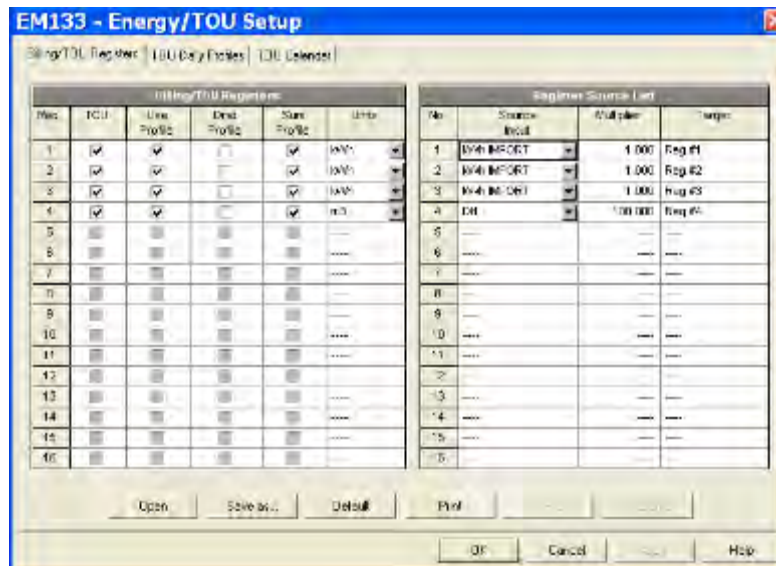
#### To configure the billing registers and the tariff system in your meter:

- Link the billing registers to the respective energy sources.
- Configure the options for the registers to whether the only totalization or both total and tariff registers would be used, and whether daily profiling should be enabled for the energy usage and maximum demand registers.
- Configure the daily tariff schedule using the TOU daily profiles for all types of days and seasons.
- Configure the season tariff schedule using the TOU calendar.

### Configuring Billing/Tariff Registers

To configure the billing/TOU registers in your meter:

- Select **Energy/TOU** from the **Meter Setup** menu.

**Figure 5-16: Energy/TOU Setup Dialog Box – Billing/TOU Registers tab**

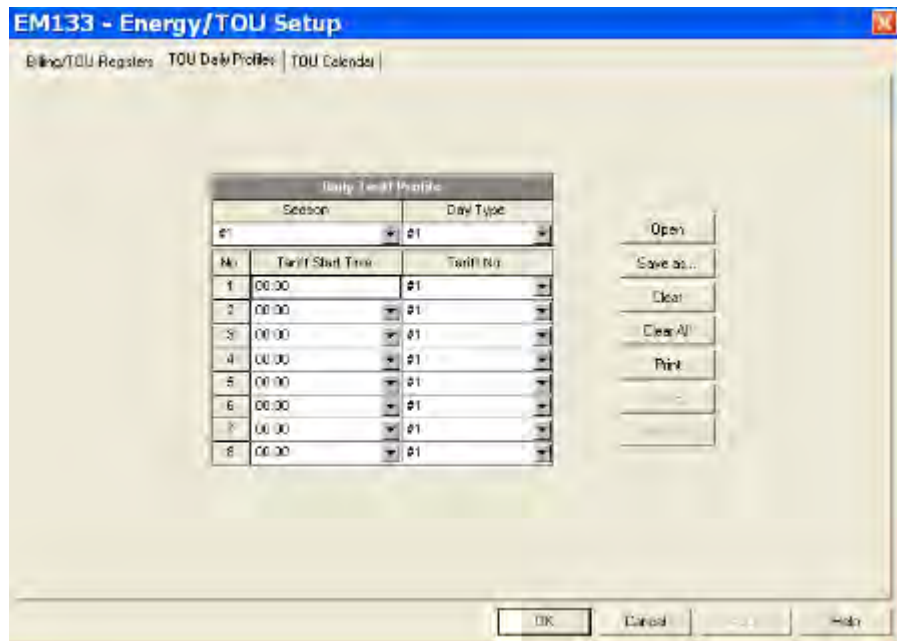
- Configure the register options according to the valid parameters shown in Table 19.

**Table 19: Billing/TOU Register Options**

Parameter	Options	Default	Description
<b>Billing/TOU Registers</b>			
TOU	Unchecked Checked	Unchecked	Links tariff registers to the selected energy source
Use Profile	Unchecked Checked	Checked	Enables recording energy registers in a daily billing profile file (both total and tariff registers if TOU is enabled).
Dmd Profile	Unchecked Checked	Unchecked	Enables recording maximum demand registers in a daily billing profile file (both total and tariff registers if TOU is enabled)
Sum Profile	Unchecked Checked	Checked	Enables recording total (summary) registers in a daily billing profile file.
Units	kWh, kvarh, kVAh, m <sup>3</sup> , CF (cubic foot), CCF (hundred cubic feet)	None	The register measurement units. When a register is linked to an internal energy source, it is set automatically. When an external pulse source is used, the user can select a measurement unit for the register.
<b>Register Source List</b>			
Source Input	None kWh Import kWh Export kvarh Export kvarh Q1-Q4 kVAh Total kVAh Import kVAh Export kWh L1 Import kWh L2 Import kWh L3 Import DI1-DI14	None	Links an energy source to the register
Multiplier	0.001 to 100.000	1.000	The multiplication factor for the energy source. Unchangeable for internal energy sources.
Target	Reg#1 - Reg#4	None	Defines the target billing register for the energy source. It is set automatically.

## Configuring the Daily Tariff Schedule

To configure your daily tariff schedule, select **Energy/TOU** from the **Meter Setup** menu, and then click on the **TOU Daily Profiles** tab.



**Figure 5-17: Energy/TOU Setup Dialog Box – TOU Daily Profiles Tab**

The daily profile setup allows you to specify the daily tariff change points with a 15-minute resolution for 4 seasons using 4 different daily schedules for each season.

### To configure your daily profiles:

- Select the desired season and day type.
- Select the start time for each tariff change point and the corresponding active tariff number.
- Repeat the setup for all active profiles.
- The first tariff change point is fixed at 00:00 hours, and the last tariff change you specified will be in use until 00:00 hours on the next day.

### NOTE

The billing daily profile log file is automatically configured for the number of active tariffs you defined in the meter TOU daily profiles.

## Configuring the Season Tariff Schedule

To configure your season tariff schedule, select **Energy/TOU** from the **Meter Setup** menu, and then click on the **TOU Calendar** tab.

No.	Season/Period	Day Type	Week of Month	Weekday	Till Weekday	Month	Day	Till Month	Till Day
1	#1	#1	----	Monday	Friday	----	----	----	----
2	#1	#2	----	Saturday	Sunday	----	----	----	----
3	#1	#2	----	----	----	January	1	----	----
4	#1	#2	Last	Monday	----	May	----	----	----
5	#1	#2	----	----	----	July	4	----	----
6	#1	#2	First	Monday	----	September	----	----	----
7	#1	#2	Fourth	Thursday	----	November	----	----	----
8	#1	#2	----	----	----	December	25	----	----
9	----	----	----	----	----	----	----	----	----
10	----	----	----	----	----	----	----	----	----
11	----	----	----	----	----	----	----	----	----
12	----	----	----	----	----	----	----	----	----
13	----	----	----	----	----	----	----	----	----
14	----	----	----	----	----	----	----	----	----
15	----	----	----	----	----	----	----	----	----
16	----	----	----	----	----	----	----	----	----

**Figure 5-18: TOU Calendar Setup Dialog Box – TOU Calendar Tab**

The meter TOU calendar allows you to configure any tariff schedule based on any possible utility regulation. The calendar provides 32 entries that allow you to specify profiles for working days and holidays through all seasons in any order that is convenient for you, based on simple intuitive rules.

### To configure your season tariff schedule:

In the **Season/Period** box, select the season, and in the **Day Type** box, select a day type for this calendar entry.

Define the time interval when this daily tariff schedule is effective, based on the start and end weekdays and, for a multi-season schedule, on the start and end month for the selected season. It does not matter which order of weekdays or months you select: the meter recognizes the correct order.

For exception days like weekends and designated holidays, define a specific day either by a month and a month day, or by selecting a month, a week and a weekday within the month.

There are no limitations on how to build your schedule. A common recommendation is to use minimum time constraints and only when it is needed to avoid ambiguity. You need not to define month days if a daily schedule is effective all days of the month, or to define the start and end months if it is effective through all the year. If you wish to define a specific period within a month using the start and end days, put this entry before allocating the remaining days to another daily schedule without specified month days, so it would be checked first for a match.

The above picture shows a typical single-season tariff schedule with two daily tariff profiles configured for working days, and weekends and the designated U.S.A. holidays.

# Tahapan Konfigurasi TOU SATEC EM133

Berikut adalah langkah-langkah untuk mengonfigurasi sistem TOU pada SATEC EM133 berdasarkan dokumen yang disediakan:

## 1. Mengonfigurasi Register Billing dan Sistem Tarif

Langkah 1: Hubungkan register billing ke sumber energi yang sesuai.

Langkah 2: Konfigurasikan opsi untuk register:

- Tentukan apakah hanya totalisasi yang akan digunakan atau baik total dan register tarif.
- Aktifkan profiling harian untuk penggunaan energi dan register permintaan maksimum jika diperlukan.

Langkah 3: Konfigurasikan jadwal tarif harian menggunakan profil harian TOU untuk semua jenis hari dan musim.

Langkah 4: Konfigurasikan jadwal tarif musim menggunakan kalender TOU.

## 2. Mengonfigurasi Register Billing/TOU

Langkah 1: Pilih Energi/TOU dari menu Pengaturan Meter.

Langkah 2: Konfigurasikan opsi register sesuai dengan parameter yang valid:

- Billing/TOU Registers: Pilih untuk menghubungkan register tarif ke sumber energi yang dipilih.
- Use Profile: Aktifkan untuk merekam register energi dalam file profil billing harian.
- Dmd Profile: Aktifkan untuk merekam register permintaan maksimum dalam file profil billing harian.
- Sum Profile: Aktifkan untuk merekam register total (ringkasan) dalam file profil billing harian.
- Units: Pilih unit pengukuran yang sesuai (kWh, kvarh, dll.).
- Register Source: Pilih sumber energi yang akan dihubungkan ke register.
- Multiplier: Atur faktor pengali untuk sumber energi.
- Target: Tentukan register billing target untuk sumber energi.

## 3. Mengonfigurasi Jadwal Tarif Harian

Langkah 1: Pilih Energi/TOU dari menu Pengaturan Meter, lalu klik pada tab Profil Harian TOU.

Langkah 2: Atur profil harian:

- Pilih musim dan jenis hari yang diinginkan.
- Tentukan waktu mulai untuk setiap titik perubahan tarif dan nomor tarif aktif yang sesuai.
- Ulangi pengaturan untuk semua profil aktif.

## 4. Mengonfigurasi Jadwal Tarif Musim

Langkah 1: Pilih Energi/TOU dari menu Pengaturan Meter, lalu klik pada tab Kalender TOU.

Langkah 2: Atur jadwal musim:

- Di kotak Musim/Periode, pilih musim dan jenis hari untuk entri kalender ini.
- Tentukan interval waktu untuk jadwal tarif berdasarkan hari mulai dan akhir.
- Untuk hari pengecualian seperti akhir pekan dan hari libur, tentukan hari tertentu jika diperlukan.

## 5. Simpan dan Verifikasi Pengaturan

Langkah 1: Pastikan semua pengaturan disimpan agar dapat diterapkan.

Langkah 2: Periksa kembali semua pengaturan untuk memastikan tarif dan jadwal telah diatur dengan benar.

- Dengan mengikuti tahapan di atas, Anda dapat mengonfigurasi sistem TOU pada SATEC EM133 sesuai dengan panduan yang terdapat dalam dokumen.