

## 5.4 Configuring Billing/TOU

**The TOU battery-backed clock unit is highly recommended in case of using time-scheduled tariff rates, otherwise a long power outage may cause the meter clock to lose time so your tariff counters would not comply with the calendar schedule.**

### Billing Energy Registers

The PM135E/EH 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 PM135E/EH 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:**

1. Link the billing registers to the respective energy sources.
2. 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.
3. Configure the daily tariff schedule using the TOU daily profiles for all types of days and seasons.
4. Configure the season tariff schedule using the TOU calendar.

## Configuring Billing/Tariff Registers

To configure the billing/TOU registers in your meter:

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

Billing/TOU Registers					
Reg.	TOU	Use Profile	Dmd Profile	Sum Profile	Units
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	kWh
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	kWh
3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	kvarh
4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	kvarh
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----
16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	----

  

Register Source List			
No.	Source Input	Multiplier	Target
1	kWh IMPORT	1.000	Reg #1
2	kWh EXPORT	1.000	Reg #2
3	kvarh IMPORT	1.000	Reg #3
4	kvarh EXPORT	1.000	Reg #4
5	----	----	----
6	----	----	----
7	----	----	----
8	----	----	----
9	----	----	----
10	----	----	----
11	----	----	----
12	----	----	----
13	----	----	----
14	----	----	----
15	----	----	----
16	----	----	----

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

- Configure the register options according to the valid parameters shown in Table 18.

Table 18: 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 Import kvarh Export kVAh, DI1-DI12	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.

**PM135 - Energy/TOU Setup**

Billing/TOU Registers | TOU Daily Profiles | TOU Calendar

Daily Tariff Profile		
Season		Day Type
#1		#1
No.	Tariff Start Time	Tariff No.
1	00:00	#3
2	07:00	#2
3	11:00	#1
4	17:00	#2
5	23:00	#3
6	00:00	#1
7	00:00	#1
8	00:00	#1

Open  
Save as...  
Clear  
Clear All  
Print  
Send  
Receive

OK Cancel Apply Help

**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:

1. Select the desired season and day type.
2. Select the start time for each tariff change point and the corresponding active tariff number.
3. 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	----	Sunday	Thursday	July	----	August	----
2	#1	#2	----	Friday	----	July	----	August	----
3	#1	#3	----	Saturday	----	July	----	August	----
4	#2	#1	----	Sunday	Thursday	December	----	February	----
5	#2	#2	----	Friday	----	December	----	February	----
6	#2	#3	----	Saturday	----	December	----	February	----
7	#3	#1	----	Sunday	Thursday	March	----	June	----
8	#3	#2	----	Friday	----	March	----	June	----
9	#3	#3	----	Saturday	----	March	----	June	----
10	#3	#1	----	Sunday	Thursday	September	----	November	----
11	#3	#2	----	Friday	----	September	----	November	----
12	#3	#3	----	Saturday	----	September	----	November	----
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:**

1. In the **Season/Period** box, select the season, and in the **Day Type** box, select a day type for this calendar entry.
2. 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.
3. 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.

# Langkah-langkah Konfigurasi TOU (Time of Use) Secara Mudah

Berikut adalah langkah-langkah sederhana untuk mengonfigurasi sistem TOU pada PM135:

## 1. Persiapan Awal

- ◆ Pastikan meter PM135 terhubung dengan sumber daya listrik dan berfungsi dengan baik.
- ◆ Siapkan informasi tentang tarif yang akan digunakan, termasuk jenis hari dan musim.

## 2. Mengakses Menu Pengaturan

- ◆ Buka Menu Pengaturan Meter:
- ◆ Pilih opsi Energi/TOU dari menu pengaturan yang tersedia di meter.

## 3. Mengonfigurasi Register Billing/TOU

- ◆ Pilih Tab Register Billing/TOU:
  - Di dalam menu Energi/TOU, cari dan pilih tab yang berkaitan dengan register billing/TOU.
- ◆ Atur Opsi Register:
  - Tentukan apakah register akan digunakan untuk totalisasi saja atau juga untuk tarif.
  - Aktifkan opsi untuk pencatatan profil harian jika diperlukan.

## 4. Mengonfigurasi Jadwal Tarif Harian

- ◆ Pilih Tab Profil Harian TOU:
  - Klik pada tab yang menunjukkan profil harian TOU.
- ◆ Atur Profil Harian:
  - Pilih musim dan jenis hari yang diinginkan.
  - Tentukan waktu mulai untuk setiap titik perubahan tarif dan nomor tarif yang aktif.
  - Ulangi langkah ini untuk semua profil aktif yang diperlukan.

## 5. Mengonfigurasi Jadwal Tarif Musim

- ◆ Pilih Tab Kalender TOU:
  - Kembali ke menu Energi/TOU dan pilih tab yang berkaitan dengan kalender TOU.
- ◆ Atur Jadwal Musim:
  - Pilih musim dan jenis hari untuk entri kalender.
  - Tentukan interval waktu untuk jadwal tarif, termasuk hari mulai dan akhir.
  - Untuk hari pengecualian (seperti akhir pekan atau hari libur), tentukan hari tertentu jika diperlukan

## 6. Simpan Konfigurasi

Setelah semua pengaturan selesai, pastikan untuk menyimpan konfigurasi yang telah Anda buat agar dapat diterapkan.

## 7. Verifikasi Pengaturan

Periksa kembali semua pengaturan untuk memastikan bahwa tarif dan jadwal telah diatur dengan benar.

Dengan mengikuti langkah-langkah di atas, Anda dapat dengan mudah mengonfigurasi sistem TOU pada meter PM135 untuk mengelola tarif energi berdasarkan waktu penggunaan.