



EPC-12 User Manual



PULSE CONCENTRATOR User Manual EPC-12

WARNING

Ignoring the instructions in this manual may result in serious injuries or death.

- Disconnect all power supply inputs before connecting the device.
- Do not remove the front panel when device is connected to the mains.
- Do not clean the device with solvents alike. Only clean with dry cloth.
- Verify correct terminal connections before energizing the device.
- Contact your authorized reseller in case problems occur with your device.
- Device is only for rail mounting.
- An F Type Fuse must be used and its current limit must be 1 A.



No responsibility is assured by manufacturer or any of its subsidiaries for any consequences arising out of disregard the above precautions.

SECURITY



Read the User Manual entirely before using the device.

①

Warnings

- Connect a button or a circuit breaker between mains and the device.
- Connected button or circuit breaker must be in close proximity of the device.
- Connected button or circuit breaker must be marked to indicate that it disconnects the device from the mains.
- Battery life is 5 years at +45°C storing temperature. It is between 8 and 10 years for typical applications. The battery can only be replaced by ENTES A.Ş. The battery is used to keep the internal real time clock in case of power outages.
- During power outages, the device will not count incoming pulses.

Standards Applied to the Device

EN 61010-1, EN 62053-31, EN 62054-21

WARRANTY

The device has a 2 (two) year warranty. In case of a fault, the device must only be serviced by manufacturing company. Otherwise, the warranty of the device will be void.

②

Index

1. INTRODUCTION.....	4
1.1. APPLICATIONS.....	4
1.2. GENERAL FEATURES.....	4
1.3. FRONT PANEL.....	5
1.4. HARDWARE FEATURES.....	6
2. UTILIZATION OF DEVICE.....	7
2.1. SETTINGS THAT ARE CHANGED FROM THE DEVICE.....	7
2.1.1. RS-485 (Information for communicating with a PC) MENU.....	10
2.1.2. PASSWORD MENU.....	13
2.1.3. ESCAPE MENU.....	17
2.2. SETTINGS THAT ARE CHANGED FROM THE PC.....	18
2.2.1. RS-485 SETTINGS.....	18
2.2.2. GENERAL SETTINGS.....	19
2.2.3. COUNTER SETTINGS.....	19
2.2.4. DATE - TIME SETTINGS.....	22
2.2.5. TARIFF SETTINGS.....	23
2.2.6. DEVICE INFORMATION.....	32
2.2.7. TOTAL COUNTER INDEXES.....	32
2.2.8. COUNTER INDEXES WITH TARIFF.....	36
2.2.9. DEVICE STATUS.....	46
2.3. MEMORY - LOGGING FEATURES.....	48
3. EPC-12 CONFIGURATION (INTERFACE) SOFTWARE.....	48
4. DIMENSIONS.....	49
4.1. CONNECTION DIAGRAM.....	50
5. TECHNICAL DATA.....	55

1. INTRODUCTION

1.1. APPLICATIONS

EPC-12, is a microprocessor-based device that can separately collect incoming pulses from various meters (electricity, water, gas, etc.) connected to its 12 inputs according to 8 tariffs based on time, record them in real time with its internal clock chip and flash memory and transmit data via RS-485 line with Modbus RTU protocol.

1.2. GENERAL FEATURES

Device Features

- 1) Total counter indexes of 12 pulse inputs with tariff and unit information, date and time information and alarm states can be displayed on the 2x12 characters LCD screen automatically with intervals of 5 seconds or manually by pressing up and down buttons,
- 2) Enabling the backlight for 20 seconds by pressing any button to provide easy reading on the screen,
- 3) Data communication with a PC via RS-485 output,
- 4) Storing the contents of each pulse input with tariff information in 1-60 minutes intervals on the 2 MB permanent memory of the device with date and time information,
- 5) Preventing changes to settings by unauthorized users by defining a 4-digit user password.

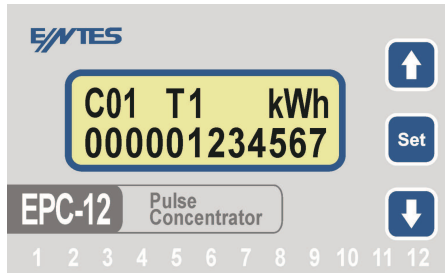
EPC-12 Configuration Software Features

- 1) Transferring stored parameters to a PC and reviewing them,
- 2) Entering different multiplier and denominator coefficients for each pulse input,
- 3) Defining different units for each pulse input,
- 4) Changing date and time settings,
- 5) Changing communication settings,

- 6) Activating password protection and defining a new password,
- 7) Changing the log save period,
- 8) Activating DST(Daylight Savings Time),
- 9) Holiday, saturday, sunday and week day tariffs can be programmed (8 for each)*,
- 10) Monitoring counters with tariff and total counters,
- 11) Resetting counters with tariff and total counters,
- 12) Assigning index to counters with tariff when Counter Set from device menu is activated,
- 13) Monitoring date and time, tariff, next record number to be written and alarm states at that time,

* A tariff between 1 and 8 can be selected but a selected tariff (for example T1) can be selected more than one time as long as its time range doesn't overlap with another tariff.

1.3. FRONT PANEL



⑤

- 1) Up and Down Button : It is used to display total counter indexes of 12 pulse inputs, date and time information and alarm states on the monitoring screen. While in the menu screen, they are used to browse between menu items and to increase/decrease a numerical value.
- 2) Set button : It is used to enter the menu screen when pressed for 3 seconds. It is used to enter a sub-menu or upper-menu, to exit from a menu, to switch the indicator to the right while entering a numerical value and to save the committed change.
- 3) Count (C) : It indicates which pulse input's total counter index is displayed at that moment.
- 4) Tariff Information (T) : It indicates which tariff is active at that moment. If there is a tariff overlap or the clock is faulty, pulses at that moment are saved to T1 tariff and a cautionary flashing will occur on the tariff display. In that case, the user will be informed of the problem's cause in the Alarm section of display (For Example; Wrong Time, No Tariff, etc.). Additionally, the problem can be monitored by using the Alarm section on the Configuration Software.
- 5) Unit : It indicates the unit of the index counted by pulse input displayed at that moment.
- 6) Total Counter Index : It is the total counter index of the pulse input displayed at that moment. It can have a maximum value of 34.359.738.360 (8x2word). Total counters consist of the summation of 8 counters with tariff. Each counter with tariff has a capacity of 2 word which means it can have a maximum value of 4.294.967.295. Each counter with tariff that fills its 2 word capacity is reset to zero automatically and continues to count.
- 7) Pulse LEDs : It is for indicating an incoming pulse to the associated pulse input by flashing.
- 8) 2x12 characters LCD screen.
- 9) Backlight

1.4. HARDWARE FEATURES

- 1) Pulse and Com Inputs (12 pin Pulse Inputs, 4 pin Com Input)
- 2) Supply Input (2 pin)
- 3) RS-485 terminals (4 pin)

⑥

2. UTILIZATION OF DEVICE

For security reasons, only a portion of the settings are permitted to be changed directly from the device. Therefore, device settings will be explained under two headlines as "Changed from the Device" and "Changed via Modbus protocol using PC".

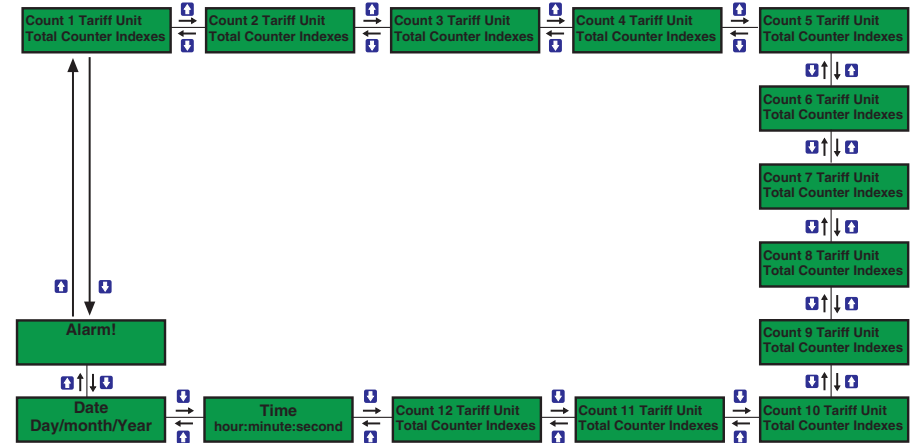
2.1. Settings that are changed from the device

After you connected the device as described in the connection diagram, energize the device. In order for your measurements and applications to be accurate, make the necessary adjustments by using the menus.

Monitoring Screen

The display changes automatically in 5 second intervals on the monitoring screen. You can also browse between displays by using up and down buttons. Total counter indexes, tariffs and unit information of all counters from 1st to 12th, clock, date and alarm information is displayed on this screen and after alarm display, it shows the 1st counter again.

7



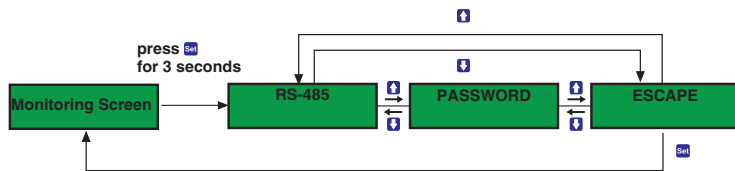
8

Main Menus

There are 3 main menus on the device. These menus are RS-485, PASSWORD and ESCAPE. When SET button is pressed for 3 seconds on the monitoring screen, main menu is accessed. Sub-menus are accessed while on any main menu by pressing set button. If the password protection feature is active, a password* will be asked before entering the main menu when set button is pressed for 3 seconds. * Factory setting for password is 1234. Enter your password with Up, Down and Set buttons. Finally, main menu will appear when you press the Set button. By using Up and Down buttons, you can browse main menu options. The device does not get blocked when the password is entered incorrectly. Committed changes are saved to device memory and do not get lost in case of a power outage. If none of the buttons are pressed for 20 seconds while on the menu, monitoring screen is displayed. Any committed change will be discarded.



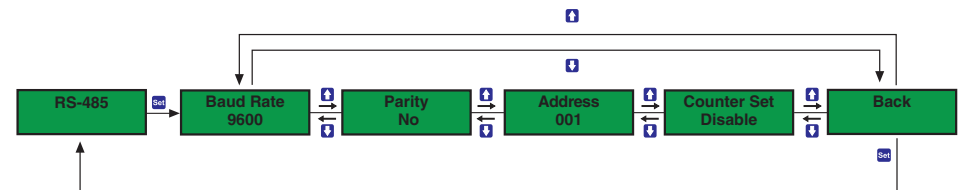
In order for a change that you made in the menu to take effect, you must approve the Save query. Otherwise, committed changes will not take effect..



9

2.1.1. RS-485 (Information for communicating with a PC) Menu

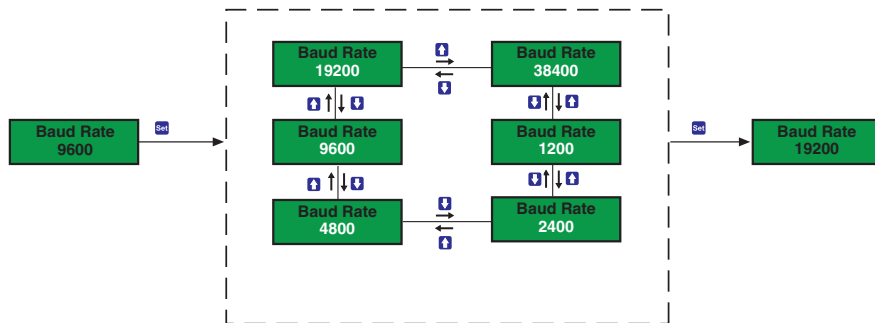
The device has MODBUS RTU communication protocol. All measured values can be transferred to a PC by using the EPC-12 configuration software. Also, you can adjust all the settings that you can adjust directly from the device except "Counter Set" by using this configuration software on a PC. In order for the communication with a PC to occur; Baud Rate, Parity, Address values must be entered on the device.



10

Selecting Baud Rate value

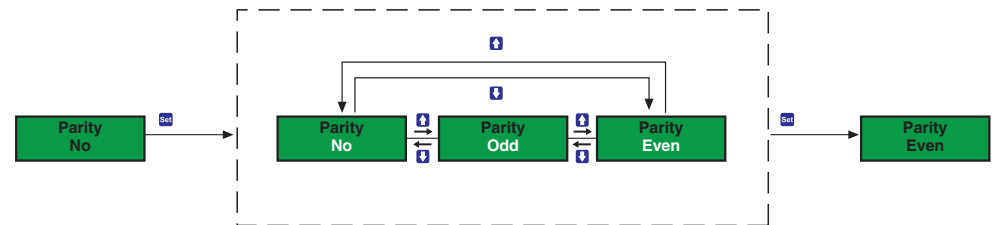
You can select Baud Rate value as 1200, 2400, 4800, 9600, 19200 or 38400 bps.



11

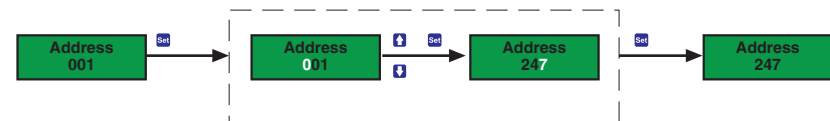
Selecting Parity value

You can select Parity option as No, Odd or Even.



Entering Address information

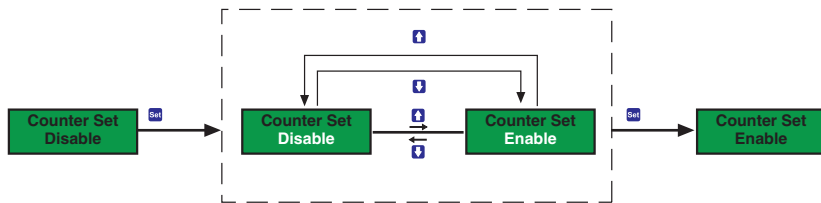
Address information can be entered between 1 and 247.



12

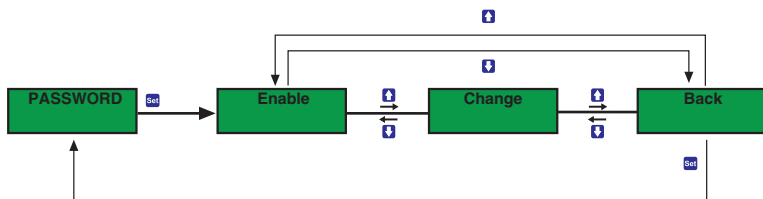
Counter Set Setting (Activating index writing to counters with tariff)

If Counter Set menu is set as Disable, no other value than 0 is allowed to be written to counters with tariffs with the configuration software. However; if Counter Set menu is set as Enable, you can write index between 0 and 4.294.967.295 (2 word) to counters with tariff.



2.1.2. PASSWORD Menu

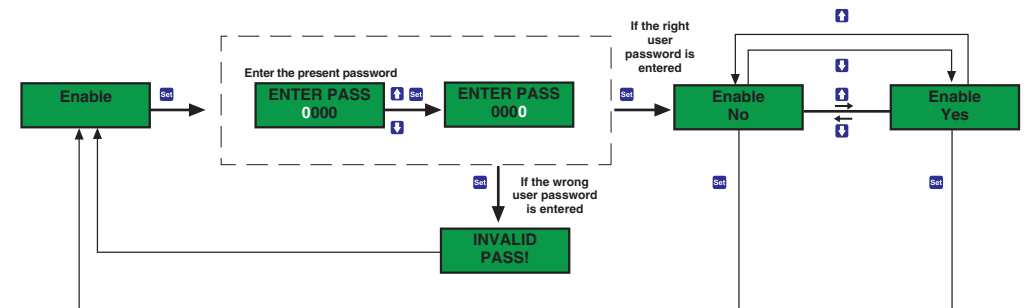
User password is defined and activated in this menu. In order to prevent changes to device settings by unauthorized users, you must define a 4-digit password in this menu and activate it.



13

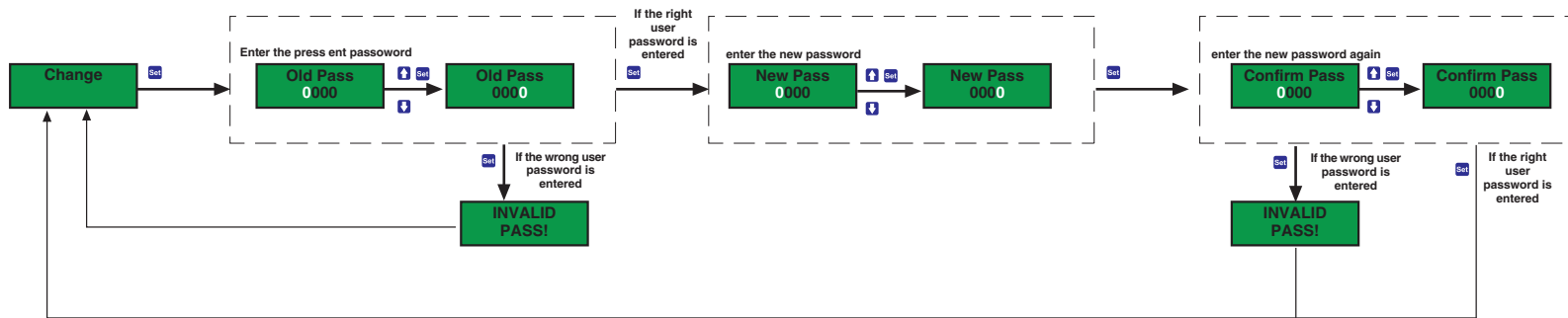
Enable (Activating user password protection)

Password protection is activated or deactivated in this menu.



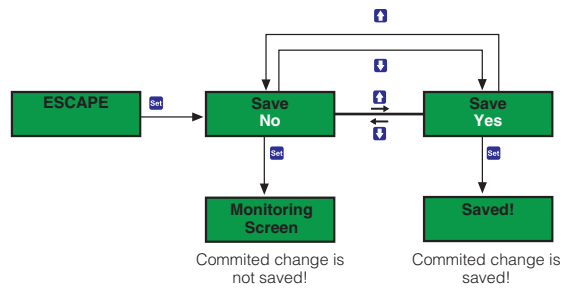
14

Change (Changing user password)
User password is changed in this menu.



2.1.3. ESCAPE Menu

It is used to exit from the main menu. An approval is asked to save any changes that has been made in the main menus. If no change has been made, monitoring menu is displayed directly.



2.2. Settings that are changed from the PC

2.2.1. RS-485 Settings

You can change RS-485 settings that you can change from the device such as Baud Rate, Parity and Address by using the configuration software. When you change EPC-12 RS-485 settings, communication between device and PC will be disconnected. You can establish communications by setting the RS-485 Settings of the device and PC the same and you can continue to adjust settings from the PC.

RS-485 SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32768	8000	BAUD RATE	R/W	0-5	unsigned int
	32769	8001	PARITY	R/W	0-2	unsigned int
	32770	8002	COMMUNICATION ADDRESS	R/W	1-247	unsigned int

BAUD RATE:
 0 = 1200 bps
 1 = 2400 bps
 2 = 4800 bps
 3 = 9600 bps
 4 = 19200 bps
 5 = 38400 bps

PARITY:
 0 = No
 1 = Odd
 2 = Even

2.2.2. General Settings

Under general settings, you can do password defining (changing) and password activating/deactivating operations which you can do from the device too. Additionally, you can define how often (in minutes) you want to receive log records and you can activate/deactivate DST (Daylight Savings Time) option. When you activate DST, the clock of the device is moved forward 1 hour from 3:00 AM to 4:00 AM on the last sunday of March and is moved backward 1 hour from 4:00 AM to 3:00 AM on the last sunday of October.

GENERAL SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32771	8003	PASSWORD	R/W	0-9999	unsigned int
	32772	8004	PASSWORD ACTIVATION	R/W	0-1	unsigned int
	32773	8005	LOG RECORD PERIOD	R/W	1-60	unsigned int
	32774	8006	DAYLIGHT SAVINGS TIME	R/W	0-1	unsigned int

PASSWORD ACTIVATION: DAYLIGHT SAVINGS TIME:
 0 = Inactive 0 = Inactive
 1 = Active 1 = Active

2.2.3. Counter Settings

Under counter settings, you can specify multiplier and denominator coefficients separately for each pulse input and you can define the unit of the pulse that you measure. For example; if a multiplier of 5, a denominator of 2 and a unit of Wh is entered for 1st pulse input and 4 pulses arrive at 1st pulse input, the measurement of the device will be $4 \times 5 : 2 = 10 \text{ Wh}$.

COUNTER SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32775	8007	IN1 MULTIPLIER	R/W	0-65535	unsigned int
	32776	8008	IN2 MULTIPLIER	R/W	0-65535	unsigned int
	32777	8009	IN3 MULTIPLIER	R/W	0-65535	unsigned int
	32778	800A	IN4 MULTIPLIER	R/W	0-65535	unsigned int
	32779	800B	IN5 MULTIPLIER	R/W	0-65535	unsigned int
	32780	800C	IN6 MULTIPLIER	R/W	0-65535	unsigned int
	32781	800D	IN7 MULTIPLIER	R/W	0-65535	unsigned int
	32782	800E	IN8 MULTIPLIER	R/W	0-65535	unsigned int
	32783	800F	IN9 MULTIPLIER	R/W	0-65535	unsigned int
	32784	8010	IN10 MULTIPLIER	R/W	0-65535	unsigned int
	32785	8011	IN11 MULTIPLIER	R/W	0-65535	unsigned int
	32786	8012	IN12 MULTIPLIER	R/W	0-65535	unsigned int
	32787	8013	IN1 DENOMINATOR	R/W	1-65535	unsigned int
	32788	8014	IN2 DENOMINATOR	R/W	1-65535	unsigned int
	32789	8015	IN3 DENOMINATOR	R/W	1-65535	unsigned int
	32790	8016	IN4 DENOMINATOR	R/W	1-65535	unsigned int
	32791	8017	IN5 DENOMINATOR	R/W	1-65535	unsigned int

COUNTER SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32792	8018	IN6 DENOMINATOR	R/W	1-65535	unsigned int
	32793	8019	IN7 DENOMINATOR	R/W	1-65535	unsigned int
	32794	801A	IN8 DENOMINATOR	R/W	1-65535	unsigned int
	32795	801B	IN9 DENOMINATOR	R/W	1-65535	unsigned int
	32796	801C	IN10 DENOMINATOR	R/W	1-65535	unsigned int
	32797	801D	IN11 DENOMINATOR	R/W	1-65535	unsigned int
	32798	801E	IN12 DENOMINATOR	R/W	1-65535	unsigned int
	32799	801F	IN1 UNIT	R/W	0-54	unsigned int
	32800	8020	IN2 UNIT	R/W	0-54	unsigned int
	32801	8021	IN3 UNIT	R/W	0-54	unsigned int
	32802	8022	IN4 UNIT	R/W	0-54	unsigned int
	32803	8023	IN5 UNIT	R/W	0-54	unsigned int
	32804	8024	IN6 UNIT	R/W	0-54	unsigned int
	32805	8025	IN7 UNIT	R/W	0-54	unsigned int
	32806	8026	IN8 UNIT	R/W	0-54	unsigned int
32807	8027	IN9 UNIT	R/W	0-54	unsigned int	
32808	8028	IN10 UNIT	R/W	0-54	unsigned int	
32809	8029	IN11 UNIT	R/W	0-54	unsigned int	
32810	802A	IN12 UNIT	R/W	0-54	unsigned int	

UNIT:

0 = No Unit	9 = IVArh	18 = kcal	28 = yd ³	37 = t	46 = in
1 = Wh	10 = CVAr	19 = BTU	29 = gal	38 = GTN	47 = ft
2 = VAh	11 = ImkWh	20 = TEP	30 = bbl	39 = lb	48 = yd
3 = VArh	12 = ExkWh	21 = erg	31 = gi	40 = oz	49 = mi
4 = kWh	13 = lkVArh	23 = m ³	32 = pk	41 = qrtr	50 = nmi
5 = kVAh	14 = CkVArh	24 = ml	33 = pt	42 = mm	51 = s
6 = kVArh	15 = J	25 = cl	34 = qt	43 = cm	52 = min
7 = ImWh	16 = kJ	26 = in ³	35 = g	44 = m	53 = h
8 = ExWh	17 = cal	27 = ft ³	36 = kg	45 = km	54 = d

2.2.4. Date-Time Settings

While EPC-12 date and time is adjusted, date and time control is done automatically. Thereby, the user is not permitted to enter a nonexisting date and time. For example; February 30 2012, February 29 2013, April 31, 24:00:00, 23:60:60, etc. are not permitted to be entered. Since the day of the week will be automatically set when you entered the date, the user is not permitted to adjust the day of the week.

DATE - TIME SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32811	802B	DAY	R/W	1-31	unsigned int
	32812	802C	MONTH	R/W	1-12	unsigned int
	32813	802D	YEAR	R/W	0-99	unsigned int
	32814	802E	HOUR	R/W	0-23	unsigned int
	32815	802F	MINUTE	R/W	0-59	unsigned int
	32816	8030	SECOND	R/W	0-59	unsigned int
	32817	8031	DAY OF THE WEEK	R	0-6	unsigned int

DAY OF THE WEEK:

- 0 = Sunday
- 1 = Monday
- 2 = Tuesday
- 3 = Wednesday
- 4 = Thursday
- 5 = Friday
- 6 = Saturday

2.2.5. Tariff Settings

Holiday, saturday, sunday and week day tariffs can be programmed (8 for each) under tariff settings. You can name your set tariffs as numbers from 1 to 8. A selected tariff (for example T1) can be selected more than one time as long as its time range doesn't overlap with another tariff. When you set the tariff as 0, it means that tariff range is deactivated. In this case, the device saves the incoming pulses to T1 tariff. If all tariffs are set to 0 and deactivated to make the device operate without any tariffs, T1 tariff indexes will be equal to total counter indexes.

Tariffs set as holiday have priority over tariffs set as saturday, sunday and week day tariffs. For example; if the 5th day of June is set as holiday tariff at T7, the holidaytariff will be activated on the 5th day of June. Any other tariffs set as saturday, sunday or week day in this time slot will be deactivated for that day.

If there are overlapping tariffs or if the device lost its hour settings, T1 tariff will be active for security reasons. Then, the tariff indicator on the device display will start to flash and the cause of the problem will be reported to the user on the ALARM screen. Additionally, the user can see the cause of the problem on the PC from address 249.

Holiday Tariff Settings

Starting year, starting month, starting day, starting hour and ending year, ending month, ending day, ending hour values and finally, the number of the tariff that will be active in that time interval are entered in that order under holiday tariff settings.

Since starting year/month, starting day/hour, ending year/month, ending day/hour settings requires the user to enter two information into the same address; the information have to be entered by using the following mathematical formula.

STARTING YEAR / MONTH: Year (between 0 - 99), Month (between 1 - 12) can be entered.*
Value to be written = Year x 256 + Month

STARTING DAY / HOUR: Day (between 1 - 31), Hour (between 0 - 23) can be entered.*
Value to be written = Day x 256 + Hour

ENDING YEAR / MONTH: Year (between 0 - 99), Month (between 1 - 12) can be entered.*
Value to be entered = Year x 256 + Month

ENDING DAY / HOUR: Day (between 1 - 31), Hour (between 0 - 24) can be entered.*
Value to be entered = Day x 256 + Hour

* The date you adjust must really exist. Date control is done in tariff settings just like in date-time settings. For example, it is not permitted to enter a date like February 30 because there is no such date. Additionally, since your tariff settings will not function if your starting dates are bigger than your ending dates or they are each the same these kinds of adjustments are also automatically not permitted.

HOLIDAY TARIFF SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32848	8050	STARTING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32849	8051	STARTING DAY / HOUR	R/W	1-31 0-23	unsigned int
	32850	8052	ENDING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32851	8053	ENDING DAY / HOUR	R/W	1-31 0-24	unsigned int
	32852	8054	TARIFF	R/W	0-8	unsigned int
	32853	8055	STARTING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32854	8056	STARTING DAY / HOUR	R/W	1-31 0-23	unsigned int
	32855	8057	ENDING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32856	8058	ENDING DAY / HOUR	R/W	1-31 0-24	unsigned int
	32857	8059	TARIFF	R/W	0-8	unsigned int
	32858	805A	STARTING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32859	805B	STARTING DAY / HOUR	R/W	1-31 0-23	unsigned int
	32860	805C	ENDING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32861	805D	ENDING DAY / HOUR	R/W	1-31 0-24	unsigned int
	32862	805E	TARIFF	R/W	0-8	unsigned int
	32863	805F	STARTING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32864	8060	STARTING DAY / HOUR	R/W	1-31 0-23	unsigned int
	32865	8061	ENDING YEAR / MONTH	R/W	0-99 1-12	unsigned int
32866	8062	ENDING DAY / HOUR	R/W	1-31 0-24	unsigned int	
32867	8063	TARIFF	R/W	0-8	unsigned int	

HOLIDAY TARIFF SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32868	8064	STARTING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32869	8065	STARTING DAY / HOUR	R/W	1-31 0-23	unsigned int
	32870	8066	ENDING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32871	8067	ENDING DAY / HOUR	R/W	1-31 0-24	unsigned int
	32872	8068	TARIFF	R/W	0-8	unsigned int
	32873	8069	STARTING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32874	806A	STARTING DAY / HOUR	R/W	1-31 0-23	unsigned int
	32875	806B	ENDING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32876	806C	ENDING DAY / HOUR	R/W	1-31 0-24	unsigned int
	32877	806D	TARIFF	R/W	0-8	unsigned int
	32878	806E	STARTING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32879	806F	STARTING DAY / HOUR	R/W	1-31 0-23	unsigned int
	32880	8070	ENDING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32881	8071	ENDING DAY / HOUR	R/W	1-31 0-24	unsigned int
	32882	8072	TARIFF	R/W	0-8	unsigned int
	32883	8073	STARTING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32884	8074	STARTING DAY / HOUR	R/W	1-31 0-23	unsigned int
	32885	8075	ENDING YEAR / MONTH	R/W	0-99 1-12	unsigned int
	32886	8076	ENDING DAY / HOUR	R/W	1-31 0-24	unsigned int
	32887	8077	TARIFF	R/W	0-8	unsigned int

Saturday – Sunday – Week Day Tariff Settings

Additional to the holiday tariff setting, the device also has tariff settings that repeat each week. A tariff set as a Saturday tariff will be active every Saturday. Same goes for Sunday and Week Day tariffs. Starting year, starting month, starting day, starting hour and ending year, ending month, ending day, ending hour values and finally, the number of the tariff that will be active in that time interval are entered in that order under Saturday, Sunday and Week Day tariff settings. Since starting hour/minute, ending hour/minute settings require the user to enter two information into the same address; the information have to be entered by using the following mathematical formula.

STARTING HOUR / MINUTE: Hour (between 0 - 23), Minute (between 0 - 59) can be entered.
Value to be written = Hour x 256 + Minute

ENDING HOUR / MINUTE: Hour (between 0 - 24), Minute (between 0 - 59) can be entered.
Value to be written = Hour x 256 + Minute

SATURDAY TARIFF SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32888	8078	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32889	8079	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32890	807A	TARIFF	R/W	0-8	unsigned int
	32891	807B	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32892	807C	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32893	807D	TARIFF	R/W	0-8	unsigned int
	32894	807E	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32895	807F	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32896	8080	TARIFF	R/W	0-8	unsigned int
	32897	8081	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32898	8082	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32899	8083	TARIFF	R/W	0-8	unsigned int
	32900	8084	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32901	8085	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32902	8086	TARIFF	R/W	0-8	unsigned int
32903	8087	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int	
32904	8088	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int	
32905	8089	TARIFF	R/W	0-8	unsigned int	
32906	808A	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int	
32907	808B	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int	

SATURDAY TARIFF SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32908	808C	TARIFF	R/W	0-8	unsigned int
	32909	808D	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32910	808E	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32911	808F	TARIFF	R/W	0-8	unsigned int

SUNDAY TARIFF SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32912	8090	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32913	8091	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32914	8092	TARIFF	R/W	0-8	unsigned int
	32915	8093	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32916	8094	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32917	8095	TARIFF	R/W	0-8	unsigned int
	32918	8096	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32919	8097	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32920	8098	TARIFF	R/W	0-8	unsigned int
	32921	8099	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32922	809A	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32923	809B	TARIFF	R/W	0-8	unsigned int
	32924	809C	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int

SUNDAY TARIFF SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32925	809D	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32926	809E	TARIFF	R/W	0-8	unsigned int
	32927	809F	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32928	80A0	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32929	80A1	TARIFF	R/W	0-8	unsigned int
	32930	80A2	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32931	80A3	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32932	80A4	TARIFF	R/W	0-8	unsigned int
	32933	80A5	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32934	80A6	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32935	80A7	TARIFF	R/W	0-8	unsigned int

WEEKDAY TARIFF SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32936	80A8	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32937	80A9	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32938	80AA	TARIFF	R/W	0-8	unsigned int
	32939	80AB	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32940	80AC	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32941	80AD	TARIFF	R/W	0-8	unsigned int

WEEKDAY TARIFF SETTINGS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32942	80AE	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32943	80AF	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32944	80B0	TARIFF	R/W	0-8	unsigned int
	32945	80B1	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32946	80B2	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32947	80B3	TARIFF	R/W	0-8	unsigned int
	32948	80B4	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32949	80B5	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32950	80B6	TARIFF	R/W	0-8	unsigned int
	32951	80B7	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32952	80B8	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32953	80B9	TARIFF	R/W	0-8	unsigned int
	32954	80BA	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int
	32955	80BB	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int
	32956	80BC	TARIFF	R/W	0-8	unsigned int
32957	80BD	STARTING HOUR / MINUTE	R/W	0-23 0-59	unsigned int	
32958	80BE	ENDING HOUR / MINUTE	R/W	0-24 0-59	unsigned int	
32959	80BF	TARIFF	R/W	0-8	unsigned int	

2.2.6. Device Information

These are information that can only be read and not changed by the user. Device ID/version and serial number is assigned to the device internally during manufacturing. This way, you can report your device from the device information addresses and request help when there is a problem with your device.

DEVICE INFORMATION	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	60416	EC00	DEVICE ID	R	0XD201	unsigned int
	60417	EC01	DEVICE ID / VERSION NO	R	0X0111 - 0X01FF	unsigned int
	60418	EC02	SERIAL NO	R	0X0000 - 0XFFFF	unsigned int
	60419	EC03		R	0X0001 - 0XFFFF	unsigned int

2.2.7. Total Counter Indexes

Total counter indexes state the summation of 8 counter indexes with tariff. No other value than 0 is allowed to be written to total counters. When total counters are reset, all counter indexes with tariff in relevance to the pulse input will be reset. The index value that you will write to counters with tariff will change the total counter indexes as much.

TOTAL COUNTER INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	0	0	IN1 TOTAL COUNTER	R/W	0	unsigned long long int
	1	1				
	2	2				
	3	3				
	4	4	IN2 TOTAL COUNTER	R/W	0	unsigned long long int
	5	5				
	6	6				
	7	7				
	8	8	IN3 TOTAL COUNTER	R/W	0	unsigned long long int
	9	9				
	10	A				
	11	B				
	12	C	IN4 TOTAL COUNTER	R/W	0	unsigned long long int
	13	D				
	14	E				
15	F					

TOTAL COUNTER INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	16	10	IN5 TOTAL COUNTER	R/W	0	unsigned long long int
	17	11				
	18	12				
	19	13				
	20	14	IN6 TOTAL COUNTER	R/W	0	unsigned long long int
	21	15				
	22	16				
	23	17				
	24	18	IN7 TOTAL COUNTER	R/W	0	unsigned long long int
	25	19				
	26	1A				
	27	1B				
	28	1C	IN8 TOTAL COUNTER	R/W	0	unsigned long long int
	29	1D				
	30	1E				
31	1F					

TOTAL COUNTER INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	32	20	IN9 TOTAL COUNTER	R/W	0	unsigned long long int
	33	21				
	34	22				
	35	23				
	36	24	IN10 TOTAL COUNTER	R/W	0	unsigned long long int
	37	25				
	38	26				
	39	27				
	40	28	IN11 TOTAL COUNTER	R/W	0	unsigned long long int
	41	29				
	42	2A				
	43	2B				
	44	2C	IN12 TOTAL COUNTER	R/W	0	unsigned long long int
	45	2D				
	46	2E				
47	2F					

2.2.8. Counter Indexes with Tariff

In order to change index values, "Counter Set" menü on the EPC-12 device has to set as "Enable".

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	48	30	IN1 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	49	31			0-65535	unsigned int
	50	32	IN2 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	51	33			0-65535	unsigned int
	52	34	IN3 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	53	35			0-65535	unsigned int
	54	36	IN4 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	55	37			0-65535	unsigned int
	56	38	IN5 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	57	39			0-65535	unsigned int
	58	3A	IN6 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	59	3B			0-65535	unsigned int
	60	3C	IN7 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	61	3D			0-65535	unsigned int
	62	3E	IN8 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
63	3F	0-65535			unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	64	40	IN9 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	65	41			0-65535	unsigned int
	66	42	IN10 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	67	43			0-65535	unsigned int
	68	44	IN11 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	69	45			0-65535	unsigned int
	70	46	IN12 T1 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	71	47			0-65535	unsigned int
	72	48	IN1 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	73	49			0-65535	unsigned int
	74	4A	IN2 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	75	4B			0-65535	unsigned int
	76	4C	IN3 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	77	4D			0-65535	unsigned int
	78	4E	IN4 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
79	4F	0-65535			unsigned int	
80	50	IN5 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int	
81	51			0-65535	unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	82	52	IN6 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	83	53			0-65535	unsigned int
	84	54	IN7 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	85	55			0-65535	unsigned int
	86	56	IN8 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	87	57			0-65535	unsigned int
	88	58	IN9 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	89	59			0-65535	unsigned int
	90	5A	IN10 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	91	5B			0-65535	unsigned int
	92	5C	IN11 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	93	5D			0-65535	unsigned int
	94	5E	IN12 T2 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	95	5F			0-65535	unsigned int
	96	60	IN1 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
97	61	0-65535			unsigned int	
98	62	IN2 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int	
99	63			0-65535	unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	100	64	IN3 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	101	65			0-65535	unsigned int
	102	66	IN4 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	103	67			0-65535	unsigned int
	104	68	IN5 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	105	69			0-65535	unsigned int
	106	6A	IN6 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	107	6B			0-65535	unsigned int
	108	6C	IN7 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	109	6D			0-65535	unsigned int
	110	6E	IN8 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	111	6F			0-65535	unsigned int
	112	70	IN9 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	113	71			0-65535	unsigned int
	114	72	IN10 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
115	73	0-65535			unsigned int	
116	74	IN11 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int	
117	75			0-65535	unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	118	76	IN12 T3 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	119	77			0-65535	unsigned int
	120	78	IN1 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	121	79			0-65535	unsigned int
	122	7A	IN2 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	123	7B			0-65535	unsigned int
	124	7C	IN3 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	125	7D			0-65535	unsigned int
	126	7E	IN4 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	127	7F			0-65535	unsigned int
	128	80	IN5 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	129	81			0-65535	unsigned int
	130	82	IN6 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	131	83			0-65535	unsigned int
	132	84	IN7 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
133	85	0-65535			unsigned int	
134	86	IN8 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int	
135	87			0-65535	unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	136	88	IN9 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	137	89			0-65535	unsigned int
	138	8A	IN10 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	139	8B			0-65535	unsigned int
	140	8C	IN11 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	141	8D			0-65535	unsigned int
	142	8E	IN12 T4 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	143	8F			0-65535	unsigned int
	144	90	IN1 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	145	91			0-65535	unsigned int
	146	92	IN2 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	147	93			0-65535	unsigned int
	148	94	IN3 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	149	95			0-65535	unsigned int
	150	96	IN4 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
151	97	0-65535			unsigned int	
152	98	IN5 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int	
153	99			0-65535	unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	154	9A	IN6 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	155	9B			0-65535	unsigned int
	156	9C	IN7 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	157	9D			0-65535	unsigned int
	158	9E	IN8 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	159	9F			0-65535	unsigned int
	160	A0	IN9 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	161	A1			0-65535	unsigned int
	162	A2	IN10 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	163	A3			0-65535	unsigned int
	164	A4	IN11 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	165	A5			0-65535	unsigned int
	166	A6	IN12 T5 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	167	A7			0-65535	unsigned int
	168	A8	IN1 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
169	A9	0-65535			unsigned int	
170	AA	IN2 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int	
171	AB			0-65535	unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	172	AC	IN3 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	173	AD			0-65535	unsigned int
	174	AE	IN4 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	175	AF			0-65535	unsigned int
	176	B0	IN5 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	177	B1			0-65535	unsigned int
	178	B2	IN6 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	179	B3			0-65535	unsigned int
	180	B4	IN7 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	181	B5			0-65535	unsigned int
	182	B6	IN8 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	183	B7			0-65535	unsigned int
	184	B8	IN9 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	185	B9			0-65535	unsigned int
	186	BA	IN10 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
187	BB	0-65535			unsigned int	
188	BC	IN11 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int	
189	BD			0-65535	unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	190	BE	IN12 T6 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	191	BF			0-65535	unsigned int
	192	C0	IN1 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	193	C1			0-65535	unsigned int
	194	C2	IN2 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	195	C3			0-65535	unsigned int
	196	C4	IN3 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	197	C5			0-65535	unsigned int
	198	C6	IN4 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	199	C7			0-65535	unsigned int
	200	C8	IN5 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	201	C9			0-65535	unsigned int
	202	CA	IN6 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	203	CB			0-65535	unsigned int
	204	CC	IN7 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
205	CD	0-65535			unsigned int	
206	CE	IN8 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int	
207	CF			0-65535	unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	208	D0	IN9 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	209	D1			0-65535	unsigned int
	210	D2	IN10 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	211	D3			0-65535	unsigned int
	212	D4	IN11 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	213	D5			0-65535	unsigned int
	214	D6	IN12 T7 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	215	D7			0-65535	unsigned int
	216	D8	IN1 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	217	D9			0-65535	unsigned int
	218	DA	IN2 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	219	DB			0-65535	unsigned int
	220	DC	IN3 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	221	DD			0-65535	unsigned int
	222	DE	IN4 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
223	DF	0-65535			unsigned int	
224	E0	IN5 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int	
225	E1			0-65535	unsigned int	

COUNTER WITH TARIFF INDEXES	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	226	D0	IN6 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	227	D1			0-65535	unsigned int
	228	D2	IN7 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	229	D3			0-65535	unsigned int
	230	D4	IN8 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	231	D5			0-65535	unsigned int
	232	D6	IN9 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	233	D7			0-65535	unsigned int
	234	D8	IN10 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	235	D9			0-65535	unsigned int
	236	DA	IN11 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	237	DB			0-65535	unsigned int
	238	DC	IN12 T8 COUNTER WITH TARIFF	R/W	0-65535	unsigned int
	239	DD			0-65535	unsigned int

2.2.9. Device Status

Hour, date and tariff at that moment; the next record number to be written and alarm states are reported to the user under device state menu.

In how many minutes the next record number will increase by one is determined by the set log record period setting of the device.

DEVICE STATUS	ADDRESS	ADDRESS (HEX)	REGISTER	R/W	RANGE	FORMAT
	240	F0	DAY	R	1-31	unsigned int
	241	F1	MONTH	R	1-12	unsigned int
	242	F2	YEAR	R	0-99	unsigned int
	243	F3	HOUR	R	0-23	unsigned int
	244	F4	MINUTE	R	0-59	unsigned int
	245	F5	SECOND	R	0-59	unsigned int
	246	F6	DAY OF THE WEEK	R	0-6	unsigned int
	247	F7	TARIFF	R	1-8	unsigned int
	248	F8	RECORD NO TO BE WRITTEN NEXT	R	0-16383	unsigned int
249	F9	ALARM	R	0-7	unsigned int	

ALARM:

- 0 = Normal
- 1 = Wrong Time
- 2 = Wrong Date
- 3 = Wrong Date
- 4 = No Tariff
- 5 = No Tariff
- 6 = No Tariff
- 7 = No Tariff

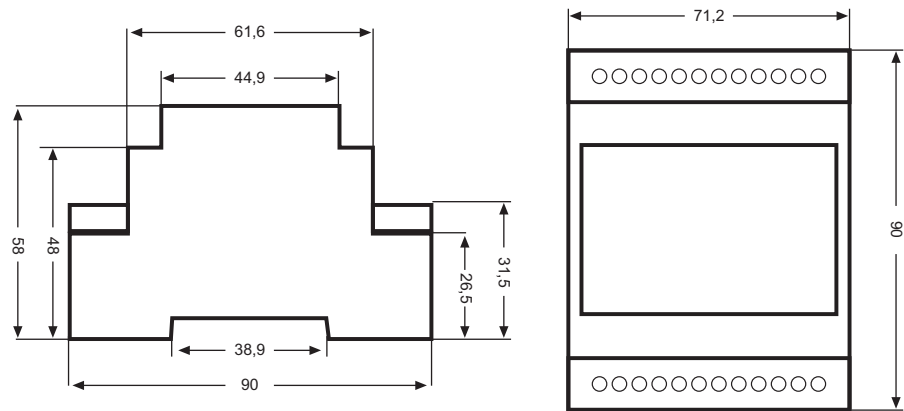
2.3. Memory – Logging Features :

The 2MB flash memory stores data with programmable intervals between 1 and 60 minutes. This memory consists of 32 sectors. Each sector contains 65536 byte. Each record occupies 128 byte sized blocks on the flash memory. Each sector holds 512 block records. 16384 block savings can be accomplished on the 2MB flash memory. When the flash memory becomes full, 0th sector is cleaned and records start to be saved from the start to the flash memory. During data logging before the last record of a sector (511st record, including 0) is saved, the next sector is completely deleted. The user can monitor which record the device will log from address 248 on Modbus.

3. EPC-12 CONFIGURATION (INTERFACE) SOFTWARE

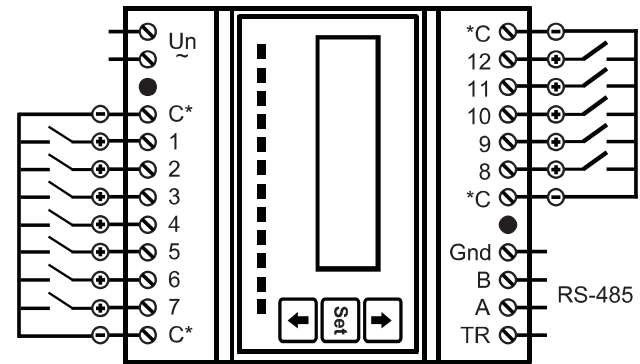
A User Interface Software has been prepared for settings that are done from a PC. The purpose of this software is an easier and faster way when changing the settings which has to be done from a PC. You can access the interface software and its manual from the included CD. Details on how to use the interface software are available in the Interface Software User Manual.

4.DIMENSIONS



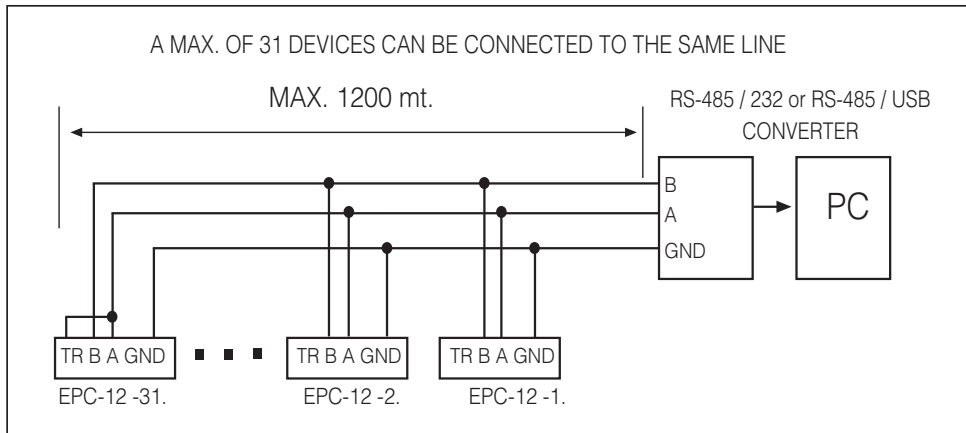
Dimensions are in millimeters.

4.1.CONNECTION DIAGRAM



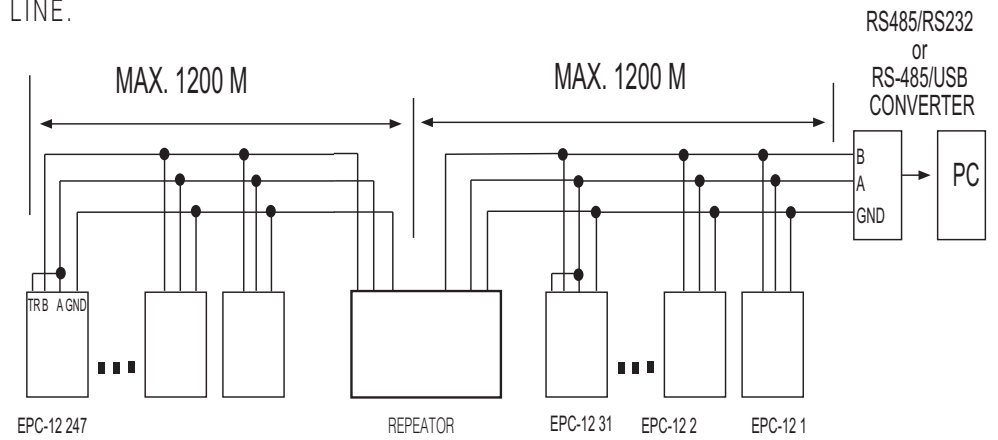
* Common Lead (Using any one of them will suffice.)

When a counter with NPN output is connected to EPC-12, collector lead is connected to In (+) input and emitter lead is connected to Com (-) input. When a counter with PNP output is connected to EPC-12, emitter lead is connected to In (+) input and collector lead is connected to Com (-) input.

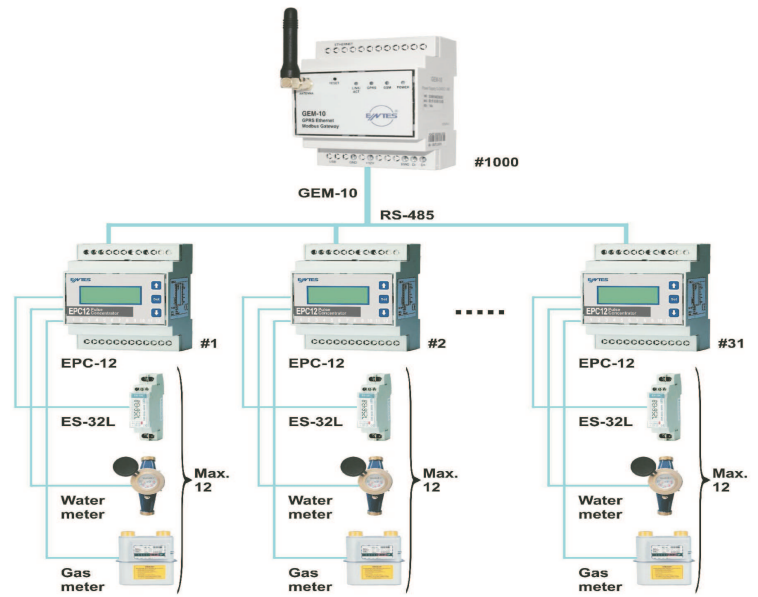
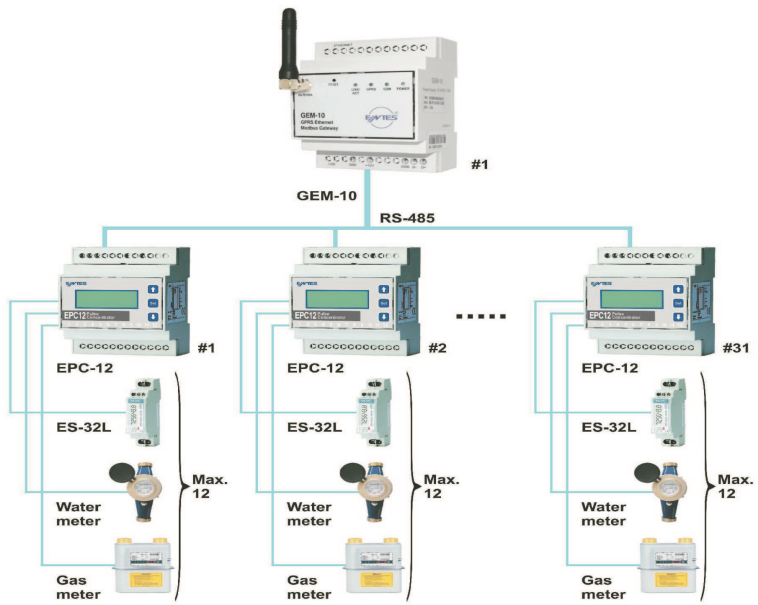


51

BY USING A REPEATER, 247 DEVICES CAN BE CONNECTED TO THE SAME LINE.



52



5. TECHNICAL DATA

Operating Voltage (Un)	= Please see device labels.
Operating Frequency (f)	= 45-65Hz
Supply Input Power Consumption	= <5VA
Communication (Insulated)	= MODBUS RTU (RS485)
Baud Rate	= 1200 – 38400 bps
Adress	= 1 – 247
Parity	= No, Odd, Even
Stop Bit	= 1
Max Communication Distance	= 1200 m (MODBUS/RS-485 side, using signal amplifier)
Pulse Inputs (12 pcs, Insulated)	= Complies with EN 62053-31.
Minimum Pulse Duration	= 10 ms
Minimum Time Between Pulses	= 30 ms
Minimum pulse period	= 60 ms
Maximum Pulse Frequency	= 16 Hz
Maximum Contact Resistance	= 800 Ohm
Pulse Voltage	= 10-12V
Trigger Edge	= Rising and Pulse width control
Distance between meters to be connected to EPC-12	= 1000 m
Total Counter Capacity	= 34.359.738.360

55

Ambient Temperature	= -25...+55 C°
Storage Temperature	= -25...+70 C°
Humidity	= %95
Display	= Backlight 2x12 LCD
Dimensions	= DIN4 (PK27)
Device Protection Class	= Double Insulated
Front panel	= IP40
Terminals	= IP20
Enclosure Material	= Nonflammable
Installation	= Rail mount
Cable Thickness for Voltage Connection	= max. 2.5 mm ²
Cable Thickness for Pulse Connection	= max. 2.5 mm ²
Cable Thickness for RS-485 Connection	= CAT 5 cable
Weight	= 456,4 gr
Internal Memory	= 2MB
Factory Default Settings	
Baud Rate	= 9600
Parity	= No
Address	= 1
Counter Set	= Disable
PASSWORD	= 1234
PASSWORD Enable	= No
Log Save Period	= 30 min.
Daylight Savings Time application	= Active
Multiplier	= 1
Denominator	= 1
Unit	= None
Tariff	= None
Counters	= 0
Alarm	= Normal

56