REFERANS ELEKTRİK SAYAÇLARI

SANAYİ VE TİCARET ANONİM ŞİRKETİ

REF.TM.01

PREPAID THREE-PHASE ACTIVE

ELECTRONIC ELECTRICITY METERS

USER MANUAL

CONTENTS

1. INTRODUCTION

REF.TM.01 THREE-PHASE, CLASS B, ACTIVE ELECTRONIC ELECTRICITY METERS are designed for measurement and registration of active energy and demand in three-phase four-wire networks. REF.TM.01 has also PREPAID option.

A Prepaid Energy Meter enables the electrical service providers to collect electricity bills from the consumers prior to its consumption.

The electronic electricity meters of which the instructions of use are given in this manual have been developed with the advanced technology as contactless. The design is completely microcontroller based. The microcontroller measure the active electricity energy and the maximum power used, generates pulses for the LED, drives the LCD for display the data, keeps the required information and programs on memory.

REF.TM.01 have four terminal outputs optionally. The two is for enabling two-way communication via the RS485. The other two is for generator line voltage input. Thus the meter determines if the energy comes from the generator and the energy is stored in registers for the generator tariff.

2. IMPORTANT INSTRUCTIONS

- Not following standard safety precautions while performing any installation may result in serious injury or death.
- The meter should be installed on electrical panels only by qualified, competent personnel who have the appropriate training and experience with high voltage and current devices.
- During normal operation of the meter, hazardous high voltages are present on its terminal strips. Turn off the energy before the installation. Parts with high voltage should never be touched during the assembly.
- Voltage inputs including auxiliary supply must be protected by fuses in each circuit. The input connections must be made through spade lugs crimped to wire ends for reliable operations.
- The voltage and current limits that may be applied to terminals are listed on the front panel of the meter. The limits must not exceed. Besides, the connection cables must carry the maximum current safely in accordance with standards. Values beyond these limits may result in permanent damage to the meter and will render the warranty void.
- Appropriate meter used to the network and installation should be selected by the competent personnel. The selection of the incorrect electricity meter or connection products may result in permanent damages and this will render the warranty void.

3. TECHNICAL SPECIFICATIONS

Type	REF.TM.01 (Prepaid Active Three-Phase)
Prepayment Feature	Optional (Contactless RFID Com.)
Remote Disconnect	Optional (3-phases latching relay inside the meter)
Interface Unit	Optical Port (Default), Isolated RS485 (Optional)
Communication Speed	300-9600 Baud (TS EN 62056-21)
RS485 isolation voltage	4000 VAC RMS (60s)
Generator Tariff	Optional (Terminal out for sensing Generator On Off)
Class	Active: B
Reference Voltage (Un)	$3x230/400V (0,8\ U_n \sim 1,15\ U_n)$
Operating Voltage Range	3x35 / 60V (Minimum) - 3x460 / 795V (Maximum)
Reference Frequency	50 Hz ±%10
Starting Current (Ist)	0,02A (0,04.Itr)
Current	Minimum (Imin): 0,25A Transition Current (Itr): 0,5A Basic Current (Ib): 5A Maximum Current (Imax): 80A
IP Class	IP54 (Outdoor)
Protection Class	Two (2)
Humidity	5% to 95%
Operating Temperature	-40 ºC, +70 ºC (3K7)
Connection	Three phase, 4wire, Direct Connected
Power Consumption in Voltage Circuit	≤ 2W, ≤ 10VA
Power Consumption in Current Circuit	≤ 4VA
ESD Voltage Resistance	Contact Discharge : 8 kV Air Discharge : 15 kV
Impulse Voltage	6 kV
Pulse Constant	1000 imp/kWh
Display	6+3 Digit TN 4x22 SEGMENTS LCD
Battery Life of the System	≥ 10 years
Shelf Life of the Meter	≥ 4 years
Time Clock Accuracy	0,5 s/day (at room temperature) (IEC-EN 61038)
Data Storage Capacity	1 year
Related Standards	EN 50470-1, EN 50470-3, TS EN 62056-21

4. PERCENTAGE ERROR LIMITS AT REFERENCE CONDITIONS

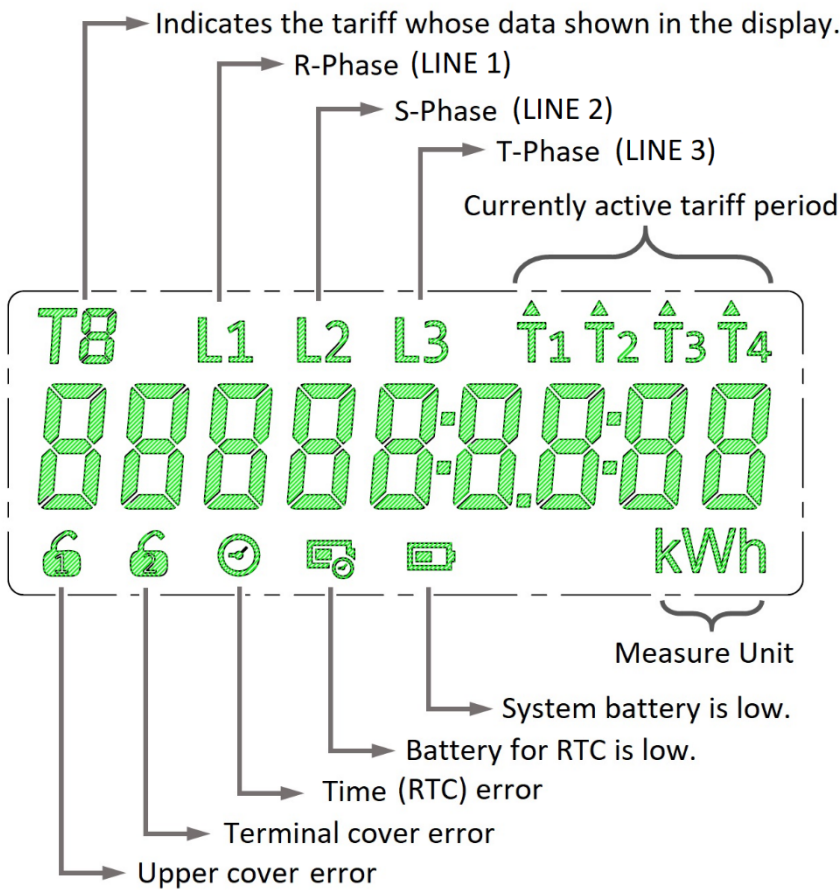| With balanced loads		
Value of current	Power factor	Error limits for REF.TM.01
Ist (20mA)	1	±10 %
Imin (0,25A) ≤ I < Itr (0,5A)	1	±1,5 %
Itr (0,5A) ≤ I ≤ Imax (80A)	0,5 ind...1...cap 0,8	±1,0 %

Carrying a single-phase load		
Value of current	Power factor	Error limits for REF.TM.01
Itr (0,5A) ≤ I ≤ Imax (80A)	0,5 ind...1	±1,0 %

5. FEATURES OF THE METERS

- **Structure:** The meters conform to the IP54 of protection against penetration dust and water. The terminal block, the terminal cover and the meter case ensure reasonable safety against spread of fire. After the meters are calibrated in the factory, upper cover is mounted and sealed.Fulfill class B accuracy.
- **Measuring:** Fulfill class B accuracy.
- **Tariff Configuration**: It is possible to define up to four tariffs. Energy consumption is calculated as total and for each tariff. 8 different time frames can be programmed within a day and each can be set to any one of 4 tariffs. Different tariffs are programmable on day of the week and on weekend holidays (Saturday and Sunday).
- **Demand Management:** The maximum demand is the maximum continuous load (kW) which remains for a certain period. This period is programmable and can be chosen as 5, 15, 30, 60 minutes. The maximum demand is stored for last 6 months.
- **Storing:** The meters store the total consumed energy for last 12 months.
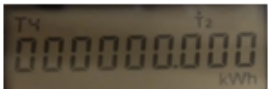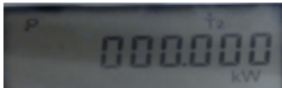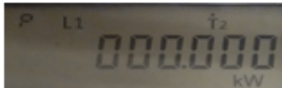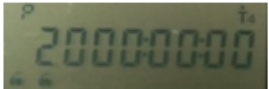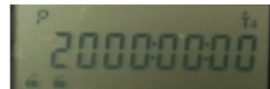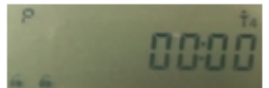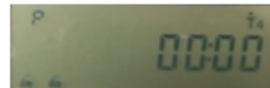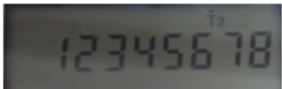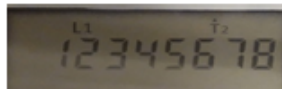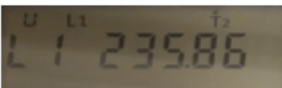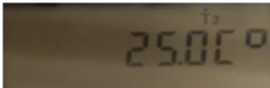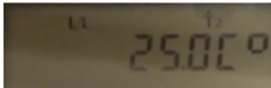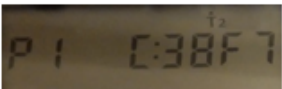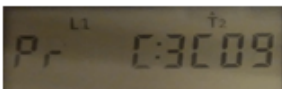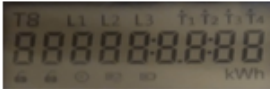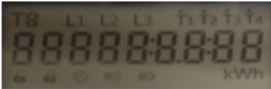
- **Tamper Detection:** The meters are able to detect and dispaly two types of tamper: Up Cover Detect and Terminal Cover Detect.
  The first opening date of the terminal cover for each month and the total number of opening within the same month are stored for last 12 months.
  In case of the upper cover opening, only first opening date is stored.
- **Remote On Off Control:** Remote ON / OFF load by the service provider optionally with a three phase latch relay inside the meter.
- **RTC:** Battery-backed Real Time Clock (RTC) to maintain time accuracy. RTC error is shown in display.
- **Daylight saving time**: The meters automatically switch between summer time and winter time. This feature might be canceled if requested.
- **Optical Test Output:** LED pulse outputs for accuracy verification of kWh (1000 imp/kWh: 1 Pulse means 1 Wh)
- **Communication Interface**: The meter is equipped with a standard built in optical communication interface and optionally with RS-485. Optical interface is designed according to TS EN 62056-21
- **Displaying the screen:** When the meter is energized, it will cause the display automatically sequence through the programmed screens list (Auto Scrolling). Each screen will be visible for 5 seconds. Pressing the button, the meter will display the next programmed screen. It will last for 2 minutes. After 2 minutes, the display returns to auto scrolling. The screen can be displayed by button in the event of power OFF.
- **Battery-backed :** Backed up battery is for Real Time Clock (RTC) to maintain time accuracy, displaying the screen, tamper detection and communication via optical interface in the event of power OFF.

6. DISPLAY PARAMETERS

Indicates the tariff whose data shown in the display.

R-Phase (LINE 1)

S-Phase (LINE 2)

T-Phase (LINE 3)

Currently active tariff period

T8   L1 L2 L3   T1 T2 T3 T4

88888:8.8:88

kWh

Measure Unit

System battery is low.

Battery for RTC is low.

Time (RTC) error

Terminal cover error

Upper cover error

7. DISPLAY SAMPLES

Explanation	Obis Code	Screenshot No Energy	Screenshot In Energy
Remaining Credit	Cr	Cr 0	Cr 0
Energy Price	C1	C1 0.503	C1 0.503
Remaining kWh	C2	C2 0000 kWh	C2 0000 kWh
Project No	C3	C3 000001	C3 000001
Multiplier	C4	C4 1	C4 1
Current Date	0.9.2	2021.03.03	2021.03.03
Current Time	0.9.1	18:29:05	18:30:25
Total Energy	1.8.0	00000003 kWh	00000003 kWh
Tariff T1	1.8.1	000000000 kWh	000000000 kWh
Tariff T2	1.8.2	000000002 kWh	000000002 kWh

Tariff T3	1.8.3	T3 †₂ 00000001 kWh	T3 L1 †₂ 000000001 kWh
Tariff T4	1.8.4	T4 †₂ 000000000 kWh	T4 L1 †₂ 000000000 kWh
Demand	1.6.0	P †₂ 000.000 kW	P L1 †₂ 000.000 kW
Demand Date	1.6.0	P †₄ 20000000	P †₄ 20000000
Demand Time	1.6.0	P †₄ 0000	P †₄ 0000
Serial Number	0.0.0	†₂ 12345678	L1 †₂ 12345678
Voltage Data			U L1 †₂ L1 235.86
Current Data			A L1 †₂ L1 0.012
Temperature Data		†₂ 25.0C°	L1 †₂ 25.0C°
Program Version		P1 †₂ C:38F7	Pr L1 †₂ C:3C09
Test Screen		T8 L1 L2 L3 †₁†₂†₃†₄ 88888.888 kWh	T8 L1 L2 L3 †₁†₂†₃†₄ 88888.888 kWh

SUB MENUS

Access to the submenu:

The menu button is pressed for 5 seconds and the following screen appears.

Then, with the menu button, the screens in the table below are displayed, respectively.

Last month total energy obis code	1800.1	Last month tariff 4 obis code	1840.1
Last month total energy	000000.000 kWh	Last month tariff 4 energy	000000.000 kWh
Last month tariff 1 obis code	181.0.1	Last month demand obis code	1600.1
Last month tariff 1 energy	000000.000	Last month demand	000.000 kW
Last month tariff 2 obis code	1820.1	Last month demand date	20000000
Last month tariff 2 energy	000000.000 kWh	Last month demand time	00:00
Last month tariff 3 obis code	1830.1	Credit consumption	Ct 0.000
Last month tariff 3 energy	000000.000 kWh	Program checksum	Pr C3C09

8. DIMENSION AND APPEARANCE
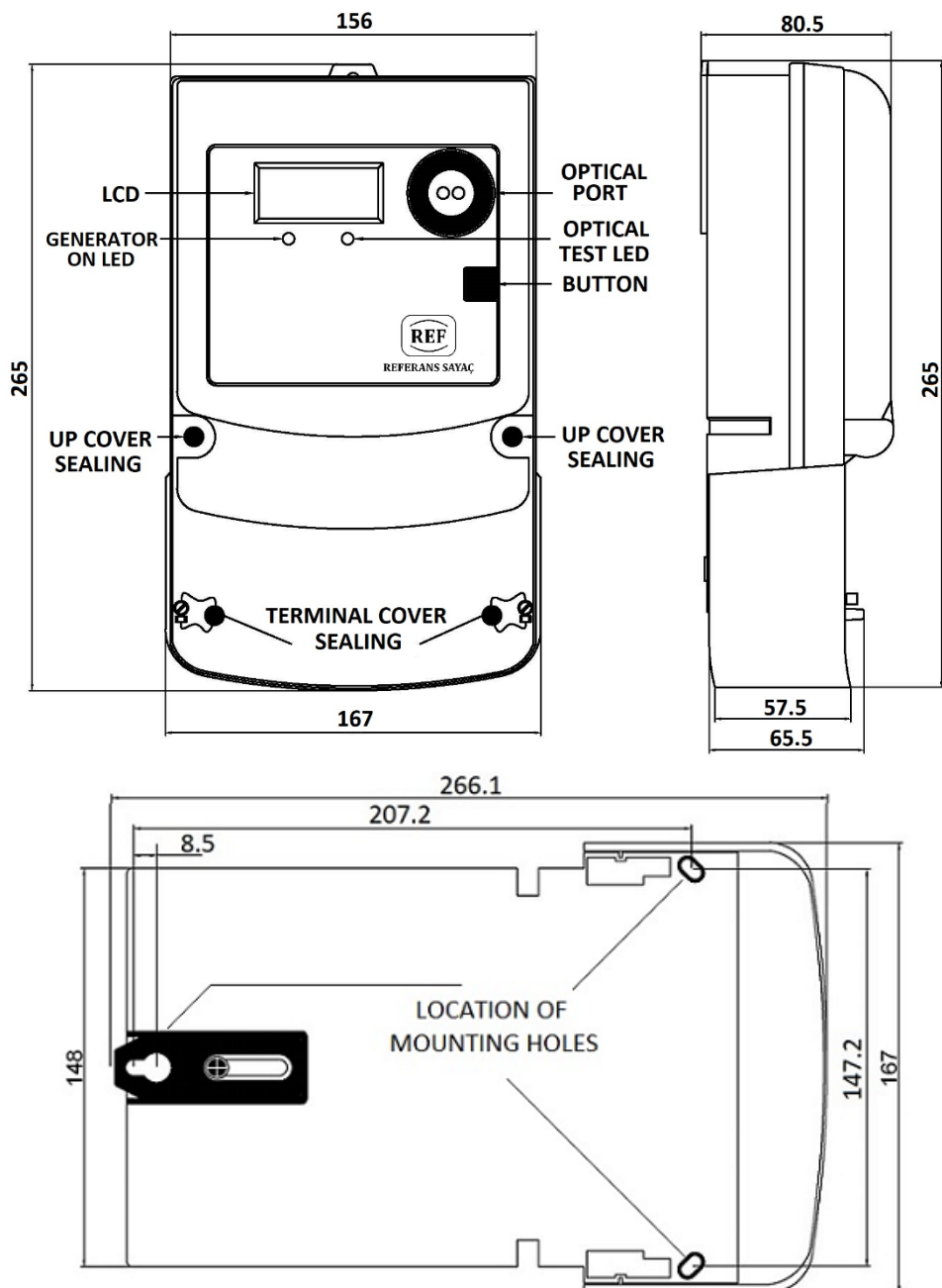
9. CONNECTION DIAGRAM
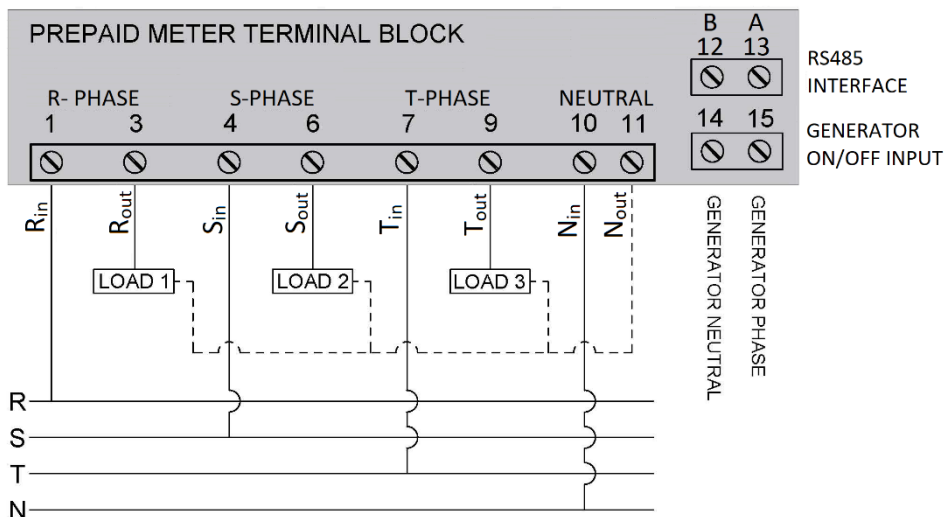
10. INSTALLING THE METER

To install the REFERANS prepaid meter in a new location:

- The terminal cover from the meter is removed.
- The meter is installed in an appropriate position.
- The line and load wires are connected to the meter terminals , being careful to use the correct phase, neutral, and line/load configuration.
- Terminal cover is mounted by authorized personnel, after the meter is installed.
- Terminal Cover Error on the LCD blinks after terminal cover is mounted. After reading the meter firstly, Terminal Cover Error will disappear.
- The supply line power to the meter is turned on.
- Each phase line terminal of the meter are tested to make sure power is on to each phase, and that the neutrals are connected to the proper terminals.
- The load terminals of the meter are tested to make sure power is available to each phase of the load.

- For proper operation of the meter is checked from the display.
- Terminal cover is sealed by authorized personnel, after the meter is installed.
- If the credit is not load to the meter, the display works but on off unit inside the meter does not deliver the energy to the load.

11. PREPAID FUNCTIONS

- The REFERANS prepaid meter can charge with credit from the meter to the card or from the card to the meter.
- For charging with credit, the card is approached in parallel to upper surface of the meter and the button is pushed when the meter is energized. For approximately 10 seconds, the load card is held on the upper surface of the meter until the audible alarm sounds and the display shows new units and kWh information. The purchased credit and kWh information in the card are loaded into the meter. This information can be displayed by pressing the button on the meter.
- When the meter is loaded with the the credit and kWh, the meter turns on the remote disconnect relay in the off position and transfers the energy and starts to measure the consumption. By the amount of energy consumed, the credit and kWh value begin to decrease.
- In order to load the amount of credit and kWh in the meter to the card, the empty load card is approached in parallel with the upper surface of the meter and the button is pressed. For about 10 seconds, the load card is held on the upper surface of the meter until the audible alarm sounds and display shows the credit and kWh information as "0".
- For scheduled use, the card is loaded according to the tariffs and by the amount this value, credit is reduced during consumption. During the loading of the card, it is possible to select whether the meter should be used with or without the tariff.
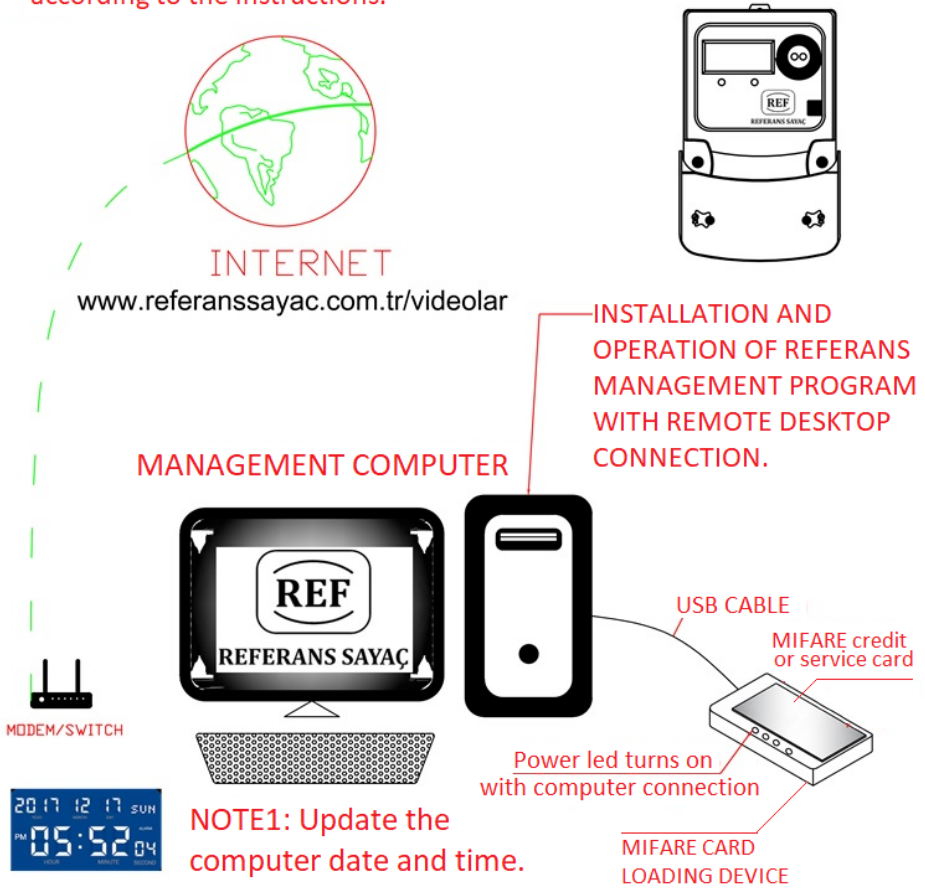
- If the card is lost, the electricity distribution company may generate the card's equivalent through the loading device by learning the meter serial number from consumer.
- During the loading of the card, the daily average credit usage of the meter is calculated and according to this account the low unit level to which the low unit alarm will be given is loaded to the card. When the credit in the meter is reduced to the low unit level, the meter sounds an audible alarm and continues until the consumer presses the meter button. If the consumer does not load the credit the next day and there is a decrease in credit quantity at 21.00, the meter will sound the alarm again flashing the screen. If there is no reduction in credit, the alarm does not occur by assuming that the user does not consciously load a credit. This cycle lasts until the credit runs out.
- If the credit deadline is over 16.00 on Friday, the energy will not be cut off. If the credit is still does not loaded at 06.00 am on Monday, the on off unit inside the meter cuts off the energy. When the credit is recharged, the on off unit inside the meter will turn on the energy.

12. SETUP

- **ADMINISTRATION PART**

SETUP 1 (Administration Part)

Important Note: The meter to be installed has been specially designed by REFERANS SAYAÇ AR-GE. It is important that the installation is done according to the instructions.

INTERNET

www.referanssayac.com.tr/videolar

INSTALLATION AND OPERATION OF REFERANS MANAGEMENT PROGRAM WITH REMOTE DESKTOP CONNECTION.

MANAGEMENT COMPUTER

REF

REFERANS SAYAÇ

USB CABLE

MIFARE credit or service card

MODEM/SWITCH

Power led turns on with computer connection

20.17 12 17 SUN
PM 05:52 04
HOUR   MINUTE   SECOND

NOTE1: Update the computer date and time.

MIFARE CARD LOADING DEVICE

- **CUSTOMER PART**

SETUP 2 (CUSTOMER PART)

Step 1: By contacting Referans Sayaç, it is ensured that the management program for the prepaid system is installed on the administrator computer.

Step 2: The RFID upload device is connected to the computer via USB CABLE. The power led turns on after this connection is made. (Note: At the first connection, the "Control panel / Device manager" is run and the device is active on the com port side.

Step 3: The computer date and time are updated. The management program installed on the computer opens. A SERVICE CARD is placed on the loading device. The service card is created by clicking the "create service" button in the menu. After the service card is created, it is retrieved from the device.

Step 4: With the opened management program, the Customer CREDIT CARD is placed on the loading device. The card is loaded by entering customer information which are the customer name, the customer energy meter serial number, tariff fee information (attention is paid to the tariff selection), and the multiplier information for the meter x-5.

Step 5: By pressing the menu button of the REFERANS prepayment meter, C3 Project number is checked on the LCD screen. (The customer's own code must be installed.)

Step 6: The terminal cover of the meter, whose energy connections are made, is closed. It is checked that there is energy in the meter. (L1, L2, L3 for TF meter and L1 symbol for MF meter are displayed from the LCD of the meter.) It is seen that the second lock sign on the LCD disappears or moves back and forth on the screen.
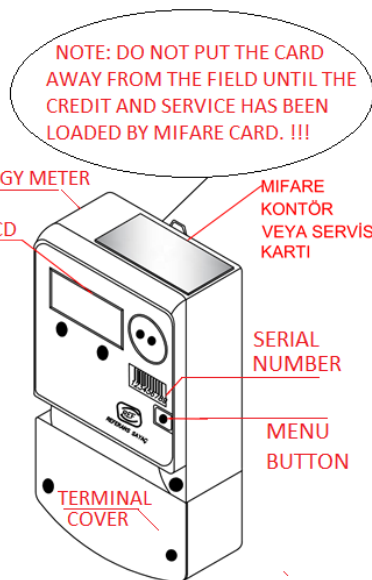
Step 7: The created service card is placed on the upper surface of the meter or brought close (No card is taken or removed until the process is completed.) Press the menu button for 3 seconds and Cr 0 is displayed on the LCD and a beep is heard from the prepaid meter. Service card loading is complete. You can now take the card away or take it away.

Step 8: The process performed in Step 7 is repeated for the credit loading card.
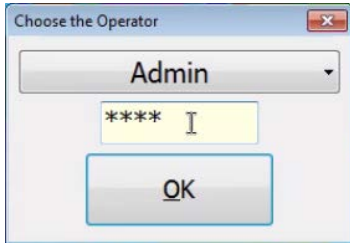
REF

REFERANS SAYAÇ

NOTE: DO NOT PUT THE CARD AWAY FROM THE FIELD UNTIL THE CREDIT AND SERVICE HAS BEEN LOADED BY MIFARE CARD. !!!

ENERGY METER

LCD

MIFARE KONTÖR VEYA SERVİS KARTI

SERIAL NUMBER

MENU BUTTON

TERMINAL COVER

13. MANAGEMENT PROGRAM

13.1) RFID_Management.exe program is run from the folder where the Prepaid Meter Program is installed.
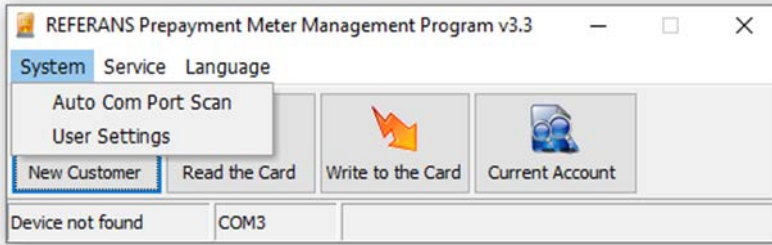

Picture 1

13.2) User login and password are entered on the screen that opens. Factory default User Name is "Admin" and Password is "1234". These parameters can be changed and it is recommended to change them in order to prevent unauthorized access.

13.3) Before the program opens, the installation device must be connected to the computer's USB port. When the program is opened, "Connected" and "COM18" as an example as shown in the picture below appear on the screen. It may be "COM18" or the number of the USB communication port to which the loading device is connected.
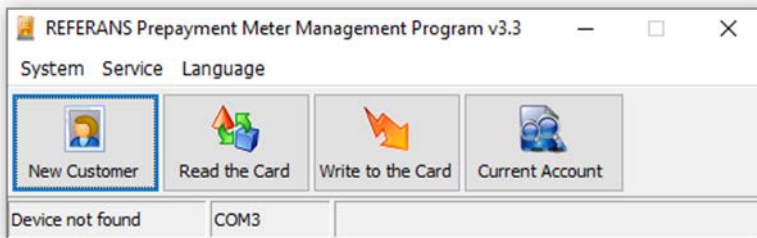
Picture 2

13.4) The "Automatic Com Port Scan" operation under "System" is used when the programming device is not detected automatically when the program is opened. If the USB port of the loading device is still not detected by the program, it is checked that the installation device and the USB cable are intact and the program driver is up to date. If no connection can be established at this stage, the technical service unit of the manufacturer should be consulted.

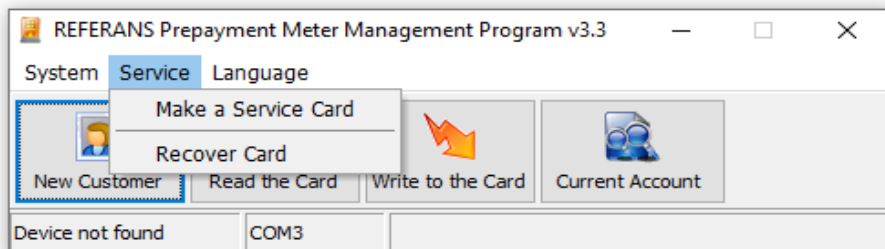Picture 3
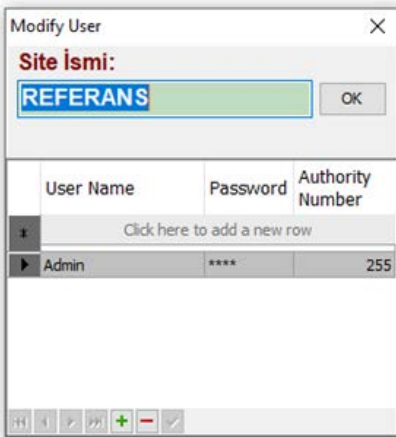
Picture 4

13.5) The User Name and Password can be changed in the "User Settings" tab under "System". New users can be added with the "+" key or removed with the "-" key.

13.6) A Service Card is made with the "Make a Service Card" tab under the "Service" tab. At this stage, it should be checked whether the computer time and date are up to date. The service card is used for the re-authorization of the meters whose authorization is revoked when the terminal cover is opened. The service card should be updated once a month. In the case of operations to the meter with expired service cards, "H25" error is reported to the user as a feedback on the meter screen. In this case, the service card should be revised according to the current month. This card is only in administration and is not given to customers. When the card is on the loading device, the "Make a Service Card" tab is selected under the "Service" tab and the following statement is displayed.

Picture 5

13.7) With the "Recover Card" tab under the "Service" tab, a card that previously had a service card is turned into a customer card. This tab can be used if the cards do not work or get corrupted in some way. Since the card will be formatted with this tab, the information in it will be reset. This feature is not used for customer cards that contain information.
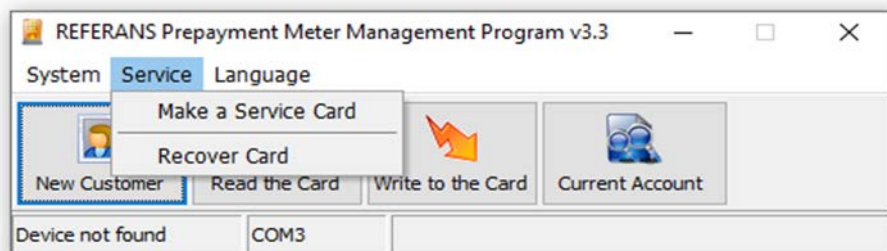
Picture 6

13.8) It is possible to set Turkish and English menus from the "Language" selection tab.
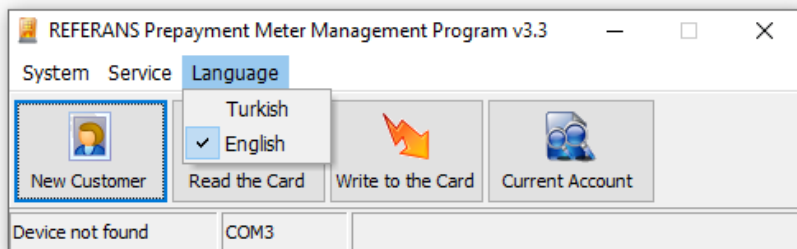
Picture 7

13.9) With the "New Customer" tab, customers who are not registered in the system are registered. In this tab, the Customer Name, Apartment, Floor, Flat Number, Meter Serial Number, Address, Phone1, Phone2, Multiplier information are entered. "Meter Serial Number" information and the customer's meter serial number must be the same. Otherwise, the customer will not be able to use his card when he goes to his meter. If the meter is processed with a card with a faulty serial number, the H14 error will appear on the LCD screen of the meter as a feedback. In this case, the meter serial number in the card must be checked. The "Multiplier" information is the current transformer ratio to which the X / 5 meter is connected. For example, for a meter connected with current transformer whose ratio is 5/200, the multiplier is 40. Particular attention should be paid to these two information, as it will change the calculations. After this information is filled, a new record is made by clicking the OK button. If you want to delete the record, the recorded data can be deleted from the database by pressing the (-) sign after selecting it.

Picture 8

13.10) The new card and customer are associated by clicking the "Write to the Card" tab. First of all, in order to find the previously registered customer from the database, an entry is made to any of the "Meter Serial Number" or "Customer Name" cells. When searching the record by entering the Meter Serial number, the customer information of the found record appears on the left side of the screen. The right part of the screen contains the parameters to be loaded. The parameters to be loaded are Credit, Invoice Number, Tariff Price Information, Multiple / Single Tariff Selection, Low Alarm Level.

Credit: It refers to the contour information to be loaded on the meter and it is a currency such as 1 TL, 1Usd. For example, 100 credits or 100 counters for 100 TL can be loaded to the meter via this tab. When the contour drops to zero, the meter will de-energize.

Invoice Number: A tab used by the accounting unit to sort the receipts. There is no status regarding the operation of the meter.

T0: It contains the information with which unit price 1kWh will be calculated. For example, if the T0 price information of a customer with 1 credit is 0.5TL, it means that the customer purchased 2kWh of electricity. If multiple tariffs are selected, T0, T1, T2, T3, T4 digits appear and there are different tariff prices according to the real time clock of the meter. If the tariff is not used, multiple tariffs are not selected. If there is a generator tariff on the meter, multiple tariffs are selected and the price of the related tariff must be entered in T1 and T4. T2 and T3 are not used in generator tariff meters. The same unit price as T0 is used.

Payment Place: It is a 4-digit information showing the location of the collection for projects where collection is made in more than one location. There is no status regarding the operation of the meter.

Low Alarm: It is the information that the meter will give an audible alarm if it falls under which contour. To turn off the audible alarm, it will be sufficient to press the button on the meter once.

The "Cash" tab indicates how the payment is made.

After this information is filled in correctly, click on the "Write to the Card" tab. If you confirm the confirmation tab, the information will be transferred to the card with the loading device.
With the "Refund" tab, the contours in the card are reset. The customer receives a refund as much as the credit in the card and closes account with the management. Management can now define this card and Meter to another customer.
With the Print tab, the receipt of the operation on the loading screen is printed.

Picture 9

13.11) In "Read the Card" tab, customer and card information within the card is read from the card and transferred to the screen. It is used to view the inside of the card and to verify which customer it is associated with.

13.12) With the "Operations" tab, reporting of the operations can be made. Every operation performed is recorded and reporting for certain time intervals is provided. Records can be displayed according to the Begin / End date and Customer name. Filtering and more advanced reporting can be made by transferring these records to Excel. No deletion can be made on this tab. For any deletion on this page, the management must apply to the manufacturer company representative.
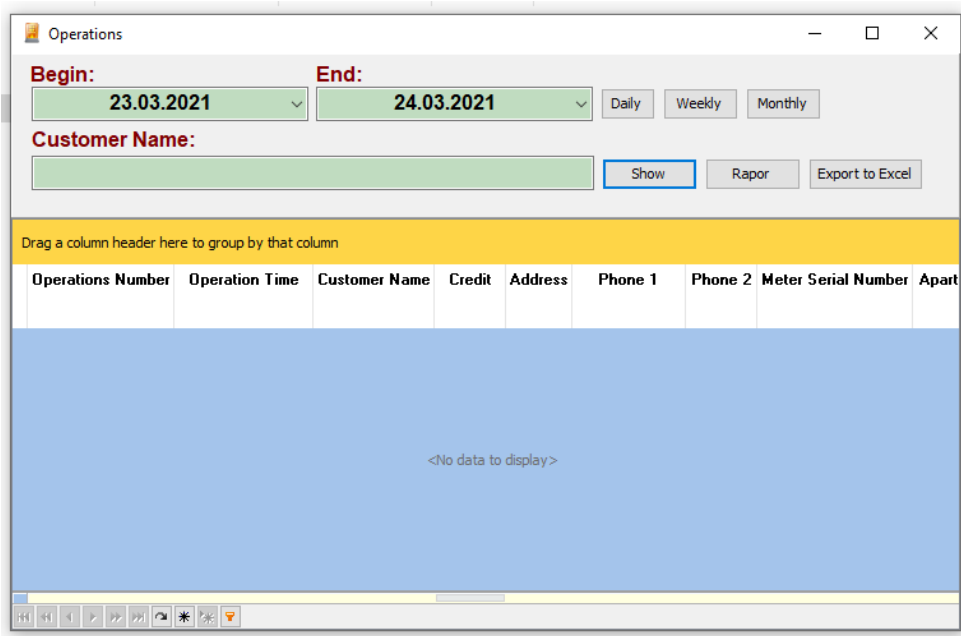
Picture 10

14. GENERATOR TARIFF WORKING PRINCIPLE

Purpose: During the interruption of the mains energy and the generator feeding the system, this situation is detected on the meter and the consumption is written in a different tariff section, so that the mains and generator consumption is calculated differently and priced differently.

14   15
GENERATOR ON/OFF INPUT

GENERATOR NEUTRAL
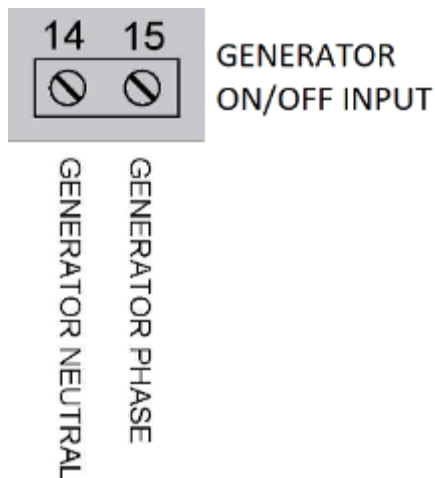
GENERATOR PHASE

On the right side of the meter, there are phase and neutral inputs coming from the generator output for generator tariff meters. When the mains is cut and the generator is activated, the output voltage of the generator is applied to these inputs and the energy meter detects that the energy is coming from the generator. In this case, the meter writes the energy consumption to the tariff specified for the generator in the configuration file of the meter. And it is priced according to this tariff.

When the power comes back to the mains, the generator is deactivated and since the generator voltage at the generator detection input is cut off, the meter detects this and starts to write to the mains tariff.

NO	TANIM	AÇIKLAMA
	15. PREPAID ENERGY METER USAGE ERROR CODES	
0	RFID_CHECK_OK	The operation is successful
1	RFID_CHECK_SETTINGS	RFID settings from EEPROM reading failed
2	RFID_CHECK_SELF_TEST	RFID read interface selftest failed
3	RFID_CHECK_INIT	RFID read interface cannot be started
4	RFID_CHECK_NO_CARD	No RFID card found
5	RFID_CHECK_READ_UID	The serial number of the RFID card cannot be read
6	RFID_CHECK_AUTHENTICATE	RFID card does not accept password
7	RFID_CHECK_READ_SECTOR_TRAILER	RFID card startup sector unreadable
8	RFID_CHECK_SECTOR_TRAILER_ MISMATCH	Read RFID start sector does not match what is expected
9	RFID_CHECK_READ_BLOCK0	The zeroth block RFID card can not be read
10	RFID_CHECK_READ_BLOCK1	The first block RFID card can not be read
11	RFID_CHECK_READ_BLOCK2	The second block RFID card can not be read
12	RFID_CHECK_CHECKSUM	Checksum of read data is incorrect
13	RFID_CHECK_SERVICE_NEEDED	Service card required for operation
14	RFID_CHECK_SERIAL_NUMBER	Serial number of the card and the meter does not match
15	RFID_CHECK_MAX_CREDIT	Amount of credit desired to be loaded, exceeds the maximum amount of credits that can be loaded at one time as defined in the project
16	RFID_CHECK_MAX_CUM_CREDIT	The new credit formed with the credit to be loaded exceeds the defined maximum total credit amount
17	RFID_CHECK_LOAD_BACK_LIMIT	Credit load and withdrawal limit exceeded with the same card
18	RFID_CHECK_MULTIPLIER	The multiplier value requested to load is not within the limits

19	RFID_CHECK_NO_BALANCE	There is no credit amount that can be taken back from the meter (Available credit less than 1 unit)
20	RFID_CHECK_WRITE_VERIFY	Data written to the card cannot be verified
21	RFID_CHECK_WRITE_SECTOR_TRAILER	Startup sector cannot be written
24	RFID_CHECK_SERVICE_CARD_INVALID	Invalid service card
25	RFID_CHECK_SERVICE_CARD_EXPIRED	Service card expired
26	RFID_CHECK_TERMINAL_COVER_OPEN	For this operation, the terminal cover must be closed
27	RFID_CHECK_COPY_DETECTED	Data on this card has been previously uploaded to the meter
28	RFID_CHECK_CREDIT_CARD_EXPIRED	The validity period of the credit card has exceeded one year (Check the clock of the loading terminal or the meter)
29	RFID_CHECK_UNKNOWN	Card type unknown
30	RFID_CHECK_MASTER_DATA_CHECKSUM	Master Card checksum is incorrect
31	RFID_CHECK_MASTER_HEADER_INVALID	Initial sector of the master card invalid
32	RFID_CHECK_MASTER_WRITE_SETTINGS	Master card data could not be written to EEPROM of the meter
33	RFID_CHECK_CONFIG_CARD_EXPIRED	Configuration card has expired
34	RFID_CHECK_MASTER_CARD_EXPIRED	The validity period of the Master Card has expired
35	RFID_CHECK_FACTORY_CARD_EXPIRED	Factory Reset Card has expired
36	RFID_CHECK_MASTER_ DATA_GMT_CHECKSUM	The checksum of the data of Master card's clock settings is incorrect

REF

AYK ELEKTRONİK SANAYİ VE DIŞ TİCARET LİMİTED ŞİRKETİ

EC DECLARATION OF CONFORMITY
(AT UYGUNLUK BEYANI)

Company *(Firma)* : **AYK ELEKTRONİK SANAYİ VE DIŞ TİCARET LİMİTED ŞİRKETİ**
AKŞEMSETTİN MAH. OKURLAR CAD. NO:20
ESENYURT/İSTANBUL

Plant *(Üretim Yeri)* : **AYK ELEKTRONİK SANAYİ VE DIŞ TİCARET LİMİTED ŞİRKETİ**

: AKŞEMSETTİN MAH. OKURLAR CAD. NO:20
ESENYURT/İSTANBUL

Product Description : **Three-Phase, Active Class B, Outdoor Watt-Hour Meter**
(Ürün Tanımı) Üç fazlı, Aktif B sınıfı, Bina Dışı Elektronik Elektrik Sayacı

Product Model : REF.TM.01
(Ürün Model Adı)

Applicable Directives : Measuring Instruments Directive (2004/22/EC)
(Uygulanan *Ölçü Aletleri Yönetmeliği (2004/22/AT)*
Yönetmelikler) Electromagnetic Compatibility Directive (2004/108/EC)
Elektromanyetik Uyumluluk Yönetmeliği(2004/108/AT)

Applicable Standards : EN 50470-1:2006 *(TS EN 50470-1:2007)*
(Uygulanan Standartlar) EN 50470-3:2006 *(TS EN 50470-3:2007)*

EC Approval Number : 1783-MID-080
(AT Onay No)

Our company declares that the above mentioned products are produced according to the above mentioned standards and directives.

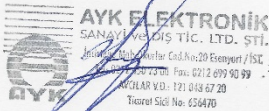*(Firmamız, yukarıda adı geçen ürünlerinin yukarıda belirtilen yönetmelik ve standart hükümlerine göre üretildiğini beyan eder.)*

CE

İstanbul/TURKİYE
October 24, 2019
(24 Aralık 2019)

Aykun Sergici

Chairman
(Yönetim Kurulu Başkanı)

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Ticaret Sicil No: 656470

Declaration No: REF/2019-001-24.12.2019

REFERANS ELEKTRİK SAYAÇLARI
SANAYİ VE TİCARET ANONİM ŞİRKETİ

TURGUT ÖZAL MAH.
68. SK. OTOPORT AVM 46 / 245
ESENYURT/İSTANBUL

Avcilar VD: 7340851415

REF

REFERANS SAYAÇ

ÜRETİM YERİ:
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