

# REX<sup>®</sup> Meter



## Residential Excellence, the new REX meter

Elster Electricity's REX meter is a totally electronic electricity meter designed to meet residential metering requirements and provide remote communications. The REX meter is designed to be a component of the Elster Electricity EnergyAxis<sup>®</sup> System which provides two-way communications to utility meters for selecting metering functionality, collecting meter readings, performing voltage monitoring, and controlling an optional internally mounted control switch. The REX meter offers demand, time-of-use (TOU), load profile recording, bidirectional metering, and critical tier pricing capabilities in addition to kWh consumption measurement. A REX meter, operating in the EnergyAxis System's mesh network, can lower meter reading costs, provide more accurate readings, and improve customer satisfaction by reducing the likelihood of billing questions due to incorrect readings.

## The EnergyAxis System

Elster Electricity has developed an advanced, intelligent two-way, unlicensed 900 MHz radio frequency (RF) network for metering communications. The Elster Electricity EnergyAxis System consists of the EnergyAxis Metering Automation Server (MAS), REX meters, A3 ALPHA<sup>®</sup> meters, and A3 ALPHA meters that act as local data collectors. The EnergyAxis server communicates via a public wide area network (WAN) with the A3 ALPHA meter/collectors. The A3 ALPHA meter/collectors communicate with and manage up to 1,024 REX or A3 ALPHA meters within the two-way Elster Electricity RF local area network (LAN).

Since the field components of the EnergyAxis System consist of REX and A3 ALPHA meters, system deployment is as simple as installing a meter. The optimal communication path is selected as the meter automatically registers with the local A3 ALPHA meter/collector. No special equipment is necessary to mount and install either the REX meters or the A3 ALPHA meter/collectors. If network conditions change,

the REX meter automatically discovers the best new communications pathway.

To optimize communications, each REX meter may serve as a repeater. This creates a robust, mesh communication network while maximizing the communication range of each collector.

## The REX Meter

The REX meter is a single phase, electronic meter available in Forms 1S, 2S, 3S, 4S, and 12S socket-type bases. The accuracy class, as defined by ANSI, is 0.5.

The metered quantity of the REX meter is selectable from the following:

- kWh delivered
- kWh received
- kWh sum (delivered + received)
- kWh net (delivered - received)

Regardless of the metered quantity selected, kWh received is also measured and available for retrieval along with the primary metered quantity.

## Load Profile Recording

Load profile recording is available using the REX meter. The interval length may be selected as 15, 30, or 60 minutes. The REX meter load profile record is periodically transferred to the local collector. This newly retrieved record is appended to previously collected data within the A3 ALPHA meter/collector, where it is stored for transfer to the server via the WAN connection.

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## Time-of-Use (TOU) and Demand

The REX meter supports a four-tier, four-season TOU rate. Energy values may be assigned to any of the four TOU tiers, and kW demand may be assigned to any two of the TOU tiers. The application choice for the two demand quantities may be made from the following:

- total demand
- demand for a specific tier

Previous season data is also available for retrieval following any season change.

The REX meter does not use a battery, which reduces initial cost and future maintenance expenses. For TOU and load profile recording features, the meter obtains its time periodically from the communications network.

## Service Control Switch

The optional service control switch is capable of remotely connecting or disconnecting power to a consumer. The remote service control feature can be used to replace the utility practice of controlling the service by manually removing or installing the meter at the socket. Additionally, the REX meter can be programmed to automatically disconnect power when the demand reaches a programmed threshold and to restore power a set number of minutes after the end of the demand interval.

The service control switch is available as an option for Form 2S and 12S meters and must be specified at the time of ordering.

## Reading the REX meter

The A3 ALPHA meter/collector periodically reads all of the REX meters within its LAN and stores the following information from each meter:

- meter billing data (kWh metered quantity, kW demand, and TOU tiers)
- status and error messages
- line voltage at the time of meter reading

In addition to the current billing data, the previous season data is read (for TOU accounts) and load profile intervals are collected.

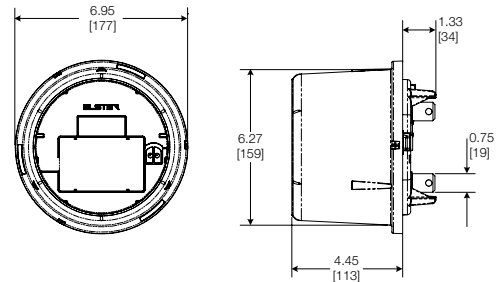
The EnergyAxis server reads the A3 ALPHA meter/collector on a regular basis to obtain data from all of the REX meters stored at each collector. The server collects readings on a scheduled basis and also supports on-request reads of data directly from individual REX meters.

All energy, TOU, demand, and status data is displayable on the REX meter's liquid crystal display.

## Technical Specifications

### REX Meter Specifications

Operating Ranges			
<b>Voltage</b>	<i>Nameplate nominal range</i>	<i>Operating range</i>	
	<i>Form 1S and Form 12S</i>	120 V	96 V to 144 V
	<i>Form 2S</i>	240 V	192 V to 288 V
	<i>Forms 3S and 4S</i>	120 V to 240 V	96 V to 288 V
<b>Current</b>	0 to maximum of Class Ampere rating		
<b>Frequency</b>	Nominal 60 Hz ±5 %		
<b>Temperature range</b>	-40 °C to +85 °C inside meter cover		
<b>Humidity range</b>	0 % to 100 % noncondensing		
General Performance Characteristics			
<b>Starting current</b>	<i>Forms 1S and 3S</i>	10 mA for Class 20 100 mA for Class 200	
	<i>Form 2S</i>	80 mA for Class 320	
	<i>Form 2S and 12S</i>	50 mA for Class 200	
	<i>Form 4S</i>	5 mA for Class 20	
<b>Startup delay</b>	Less than 2 seconds from power application to energy accumulation		
<b>Creep 0.000 A (no current)</b>	No more than 1 pulse measured per quantity, conforming to ANSI C12.1 requirements.		
<b>Primary time base</b>	Relative time is maintained by a crystal; real time is provided by the network		
<b>Communication frequency</b>	902 MHz to 915 MHz (unlicensed)		
<b>Communication rate</b>	900 MHz radio	17,600 bps	



REX meter Form 2S dimensions in inches [millimeters]. For reference only. Do not use in construction.



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