



**Badger Meter**

## How to Read an Encoder

HR-E LCD Encoder and

E-Series® Meters with High Resolution Protocol

The HR-E LCD encoder has a 9-digit Liquid Crystal Display (LCD) to show consumption, flow and alarm information. The display automatically toggles between 9-digit and 6-digit consumption, rate of flow and meter model.

### VISUAL READING DISPLAYS

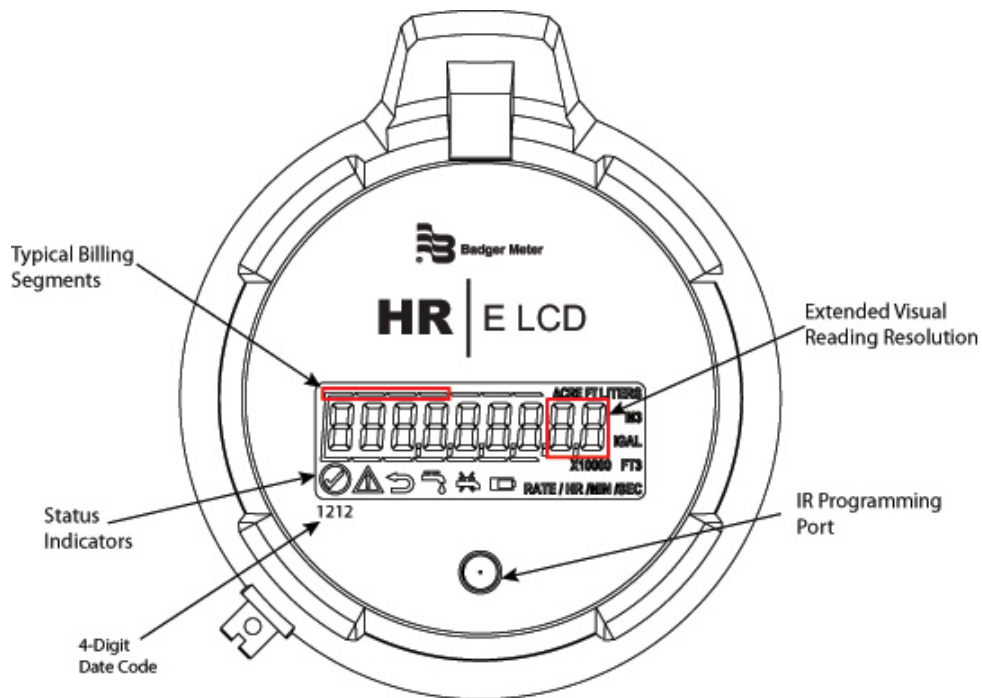
- The 9-digit display provides your utility with the finest reading resolution.
- The 6-digit display represents the equivalent of the moveable number wheels on a 6-dial mechanical encoder.
- Depending on the meter model, size, and unit of measure, a multiplier value may also be shown. Multiply the displayed value by the multiplier value to calculate the reading to the nearest gallon, cubic foot, or cubic meter. Ex: 123456 with factor of x10, equals 1234560.

### UTILITY BILLING STANDARDS FOR METER READING

Typical 6-wheel odometer registration is designed with white and black number wheels for local readability with the white number wheels corresponding to the “typical” utility standard meter reading units:

- Gallons – reading to the nearest 1000 gallons
- Cubic Feet – reading to the nearest 100 ft<sup>3</sup>
- Cubic Meters – reading to the nearest 1 m<sup>3</sup>

The HR-E LCD encoder is designed with segmented lines above the numeric dials. The segmented lines above the numbers on the LCD display represent what the white number wheels do for the mechanical encoders—the typical utility standard meter reading.



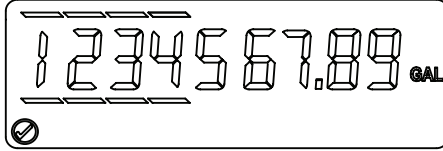
## GALLONS

### Typical Billing Unit of 1000 Gallons

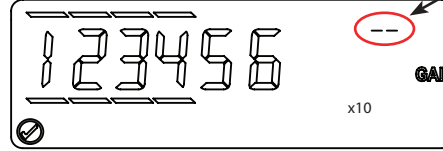
#### 9-DIGIT VISUAL DISPLAY

#### 6-DIGIT VISUAL DISPLAY

**Recordall Disc LP, M25, M35, M40, M55, M70, Recordall CSM 2, 3, 4, 6 inch Low Side, E-Series E-25, E-35, E-55 (9-digit display only)**

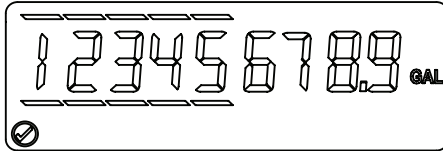


Meter reading to the nearest?  
 100th gallon = 1234567.89  
 10th gallon = 1234567.8  
 1 gallon = 1234567  
 10 gallons = 123456  
 100 gallons = 12345  
 Typical Billing Units → 1000 gallons = 1234

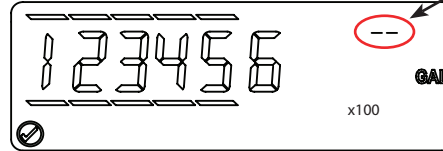


Meter reading to the nearest?  
 1 gallon = 1234560  
 10 gallons = 123456  
 100 gallons = 12345  
 Typical Billing Units → 1000 gallons = 1234

**Recordall Disc M120 & M170, Recordall TSM 1-1/2, 2, 3 & 4 inch, Recordall CSM 2, 3 & 4 inch High Side, Recordall Combo 8 inch Low Side, E-Series E-1-1/2 inch & E-2 inch (9-digit display only)**



Meter reading to the nearest?  
 10th gallon = 12345678.9  
 1 gallon = 12345678  
 10 gallons = 1234567  
 100 gallons = 123456  
 Typical Billing Units → 1000 gallons = 12345



Meter reading to the nearest?  
 1 gallon = 12345600  
 10 gallons = 1234560  
 100 gallons = 123456  
 Typical Billing Units → 1000 gallons = 12345

**Recordall TSM 6, 8 & 10 inch, Recordall CSM 6 inch High Side, Recordall Combo 8 inch High Side**



Meter reading to the nearest?  
 1 gallon = 123456789  
 10 gallons = 12345678  
 100 gallons = 1234567  
 Typical Billing Units → 1000 gallons = 123456



Meter reading to the nearest?  
 1 gallon = 123456000  
 10 gallons = 12345600  
 100 gallons = 1234560  
 Typical Billing Units → 1000 gallons = 123456

**Recordall TSM 12, 16 and 20 inch**



Meter reading to the nearest?  
 1 gallon = 1234567890  
 10 gallons = 123456789  
 100 gallons = 12345678  
 Typical Billing Units → 1000 gallons = 1234567  
 10000 gallons = 123456



Meter reading to the nearest?  
 1 gallon = 1234560000  
 10 gallons = 123456000  
 100 gallons = 12345600  
 Typical Billing Units → 1000 gallons = 1234560  
 10000 gallons = 123456

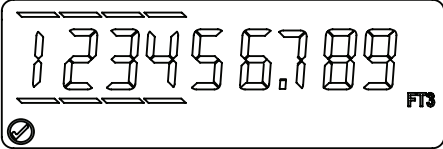
# CUBIC FEET

## Typical Billing Unit of 100 Cubic Feet

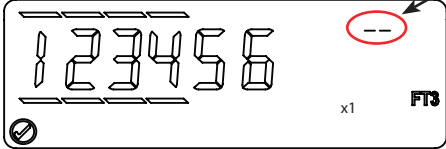
### 9-DIGIT VISUAL DISPLAY

### 6-DIGIT VISUAL DISPLAY

**Recordall Disc LP, M25, M35, M40, M55, M70, Recordall CSM 2, 3, 4, 6 inch Low Side, E-Series E-25, E-35, E-55 (9-digit display only)**



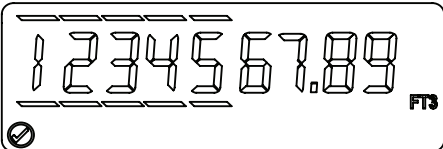
Meter reading to the nearest?  
 1000th ft<sup>3</sup> = 123456.789  
 100th ft<sup>3</sup> = 123456.78  
 10th ft<sup>3</sup> = 123456.7  
 1 ft<sup>3</sup> = 123456  
 10 ft<sup>3</sup> = 12345  
 Typical Billing Units → 100 ft<sup>3</sup> = 1234



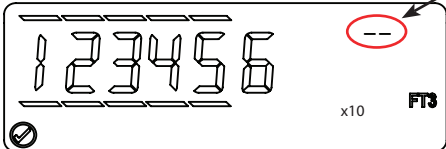
Meter reading to the nearest?  
 1 ft<sup>3</sup> = 123456  
 10 ft<sup>3</sup> = 12345  
 Typical Billing Units → 100 ft<sup>3</sup> = 1234

Flow Finder in this view

**Recordall Disc M120 & M170, Recordall TSM 1-1/2, 2, 3 & 4 inch, Recordall CSM 2, 3 & 4 inch High Side, Recordall Combo 8 inch Low Side, E-Series E-1-1/2 inch & E-2 inch (9-digit display only)**



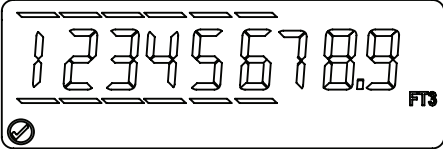
Meter reading to the nearest?  
 100th ft<sup>3</sup> = 1234567.89  
 10th ft<sup>3</sup> = 1234567.8  
 1 ft<sup>3</sup> = 1234567  
 10 ft<sup>3</sup> = 123456  
 Typical Billing Units → 100 ft<sup>3</sup> = 12345



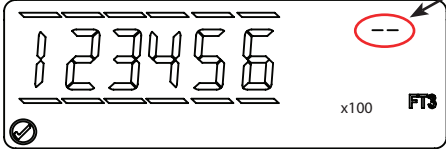
Meter reading to the nearest?  
 1 ft<sup>3</sup> = 1234560  
 10 ft<sup>3</sup> = 123456  
 Typical Billing Units → 100 ft<sup>3</sup> = 12345

Flow Finder in this view

**Recordall TSM 6, 8 & 10 inch, Recordall CSM 6 inch High Side, Recordall Combo 8 inch High Side**



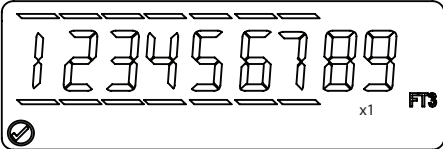
Meter reading to the nearest?  
 10th ft<sup>3</sup> = 12345678.9  
 1 ft<sup>3</sup> = 12345678  
 10 ft<sup>3</sup> = 1234567  
 Typical Billing Units → 100 ft<sup>3</sup> = 123456



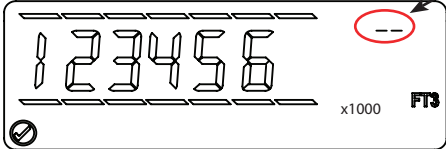
Meter reading to the nearest?  
 1 ft<sup>3</sup> = 12345600  
 10 ft<sup>3</sup> = 1234560  
 Typical Billing Units → 100 ft<sup>3</sup> = 123456

Flow Finder in this view

**Recordall TSM 12, 16 and 20 inch**



Meter reading to the nearest?  
 1 ft<sup>3</sup> = 123456789  
 10 ft<sup>3</sup> = 12345678  
 Typical Billing Units → 100 ft<sup>3</sup> = 1234567



Meter reading to the nearest?  
 1 ft<sup>3</sup> = 123456000  
 10 ft<sup>3</sup> = 12345600  
 Typical Billing Units → 100 ft<sup>3</sup> = 1234560

Flow Finder in this view

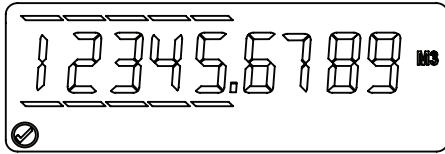
## CUBIC METERS

### Typical Billing Unit of 1 Cubic Meter

#### 9-DIGIT VISUAL DISPLAY

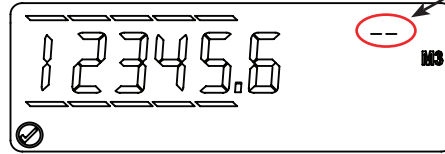
#### 6-DIGIT VISUAL DISPLAY

**Recordall Disc LP, M25, M35, M40, M55, M70, Recordall CSM 2, 3, 4, 6 inch Low Side, E-Series E-25, E-35, E-55 (9-digit display only)**



Meter reading to the nearest?  
 1000th m<sup>3</sup> = 12345.6789  
 100th m<sup>3</sup> = 12345.678  
 10th m<sup>3</sup> = 12345.67  
 10th m<sup>3</sup> = 12345.6

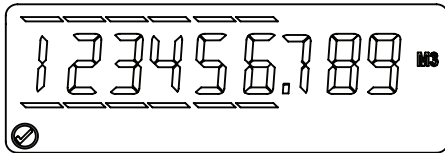
Typical Billing Units → 1 m<sup>3</sup> = 12345  
 10 m<sup>3</sup> = 1234



Meter reading to the nearest?

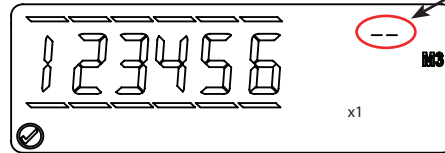
Typical Billing Units → 10th m<sup>3</sup> = 123456  
 1 m<sup>3</sup> = 12345  
 10 m<sup>3</sup> = 1234

**Recordall Disc M120 & M170, Recordall TSM 1-1/2, 2, 3 & 4 inch, Recordall CSM 2, 3 & 4 inch High Side, Recordall Combo 8 inch Low Side, E-Series E-1-1/2 inch & E-2 inch (9-digit display only)**



Meter reading to the nearest?  
 1000th m<sup>3</sup> = 1234567.89  
 100th m<sup>3</sup> = 1234567.8  
 10th m<sup>3</sup> = 1234567  
 10th m<sup>3</sup> = 1234567

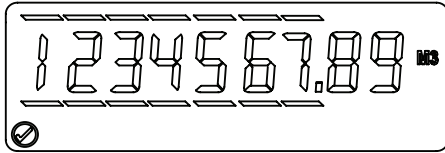
Typical Billing Units → 1 m<sup>3</sup> = 123456  
 10 m<sup>3</sup> = 12345



Meter reading to the nearest?

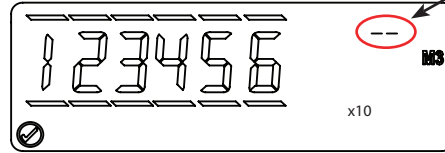
Typical Billing Units → 1 m<sup>3</sup> = 123456  
 10 m<sup>3</sup> = 12345

**Recordall TSM 6, 8 & 10 inch, Recordall CSM 6 inch High Side, Recordall Combo 8 inch High Side**



Meter reading to the nearest?  
 100th m<sup>3</sup> = 1234567.89  
 10th m<sup>3</sup> = 1234567.8  
 10th m<sup>3</sup> = 1234567  
 10th m<sup>3</sup> = 1234567

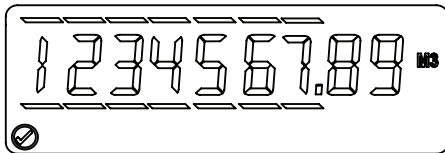
Typical Billing Units → 1 m<sup>3</sup> = 1234567  
 10 m<sup>3</sup> = 123456



Meter reading to the nearest?

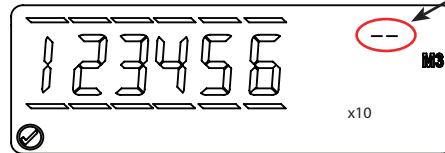
Typical Billing Units → 1 m<sup>3</sup> = 1234560  
 10 m<sup>3</sup> = 123456

**Recordall TSM 12, 16 and 20 inch**



Meter reading to the nearest?  
 100th m<sup>3</sup> = 1234567.89  
 10th m<sup>3</sup> = 1234567.8  
 10th m<sup>3</sup> = 1234567  
 10th m<sup>3</sup> = 1234567

Typical Billing Units → 1 m<sup>3</sup> = 1234567  
 10 m<sup>3</sup> = 123456



Meter reading to the nearest?

Typical Billing Units → 1 m<sup>3</sup> = 1234560  
 10 m<sup>3</sup> = 123456

### Making Water Visible®

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