



- Meets ANSI and IEC Standards • Quick and Easy to Install •
- Revenue Grade • NEMA 4X •



# THE “BYRAM”—— —— Electric Meter

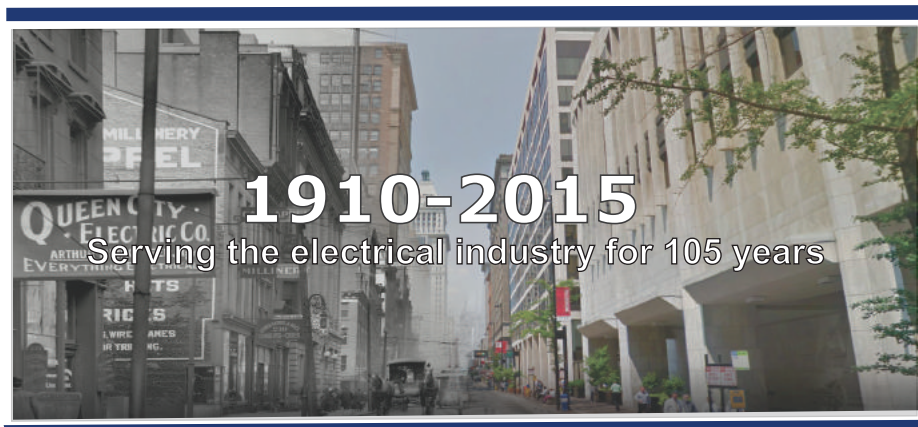
- Tenant Billing • Multi-Family • Commercial • Office & Retail •
- Industrial & Manufacturing • Educational • Government •

[www.byramlabs.com](http://www.byramlabs.com)  
1.800.766.1212



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Patent pending. Information contained herein is subject to change without notice. Product specifications may change. Contact your Byram representative for the most current product information. Printed in the United States.



# Sub-Metering

Sub-metering is the most accurate and widely used method of recovering variable utility costs. It is a proven, cost effective and easy to implement method to recover electric expenses.

Properties benefit from:

- Accurate energy monitoring, real-time energy consumption
- Ability to identify and eliminate wasted energy
- Reduced variable utility costs
- Improved net operating income
- Increased property value

## Cost Allocation

Metering individual departments, areas or buildings for cost center analysis, budgetary accountability and allocation allows visibility into energy consumption and usage trends. With this knowledge, managers are able to take advantage of new energy savings opportunities. When department budgets include energy consumption, users will be more inclined to take the necessary steps to reducing overall energy usage.

## Tenant Billing

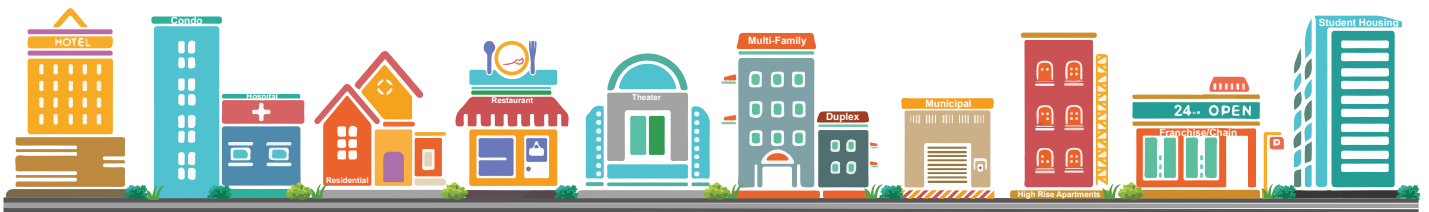
In facilities where there are multiple tenants, monitoring actual consumption is a win-win situation for both the building manager and the tenants.

Managers are able to allocate energy usage costs directly to the tenants. Energy costs can include not only electric, but gas, water and BTU costs as well. In addition, all common area usage can be monitored and distributed equitably between tenants. Both tenant billing and common area allocation allows building managers to recoup energy expenses.



Tenants benefit from sub-metering of actual energy usage in two ways. First, tenants only pay for what they use. They are not burdened with the overflow cost of large users as they would be if billed a flat rate per square foot of space rented. The second benefit is that they gain control over their usage allowing them to conserve energy and benefit financially for their efforts.

Whether metering a commercial or residential tenant, department or common area, cost allocation and accurate billing practices help reduce costs, recoup energy expenses and promote energy conservation.





## Revenue Grade

Byram's meters meet IEC 62052-21 and 62053-21 standards of compliance, as well as ANSI C12.19 and C12.22 accuracy requirements for accuracy class 0.2% These meters are sufficient for the purposes of electric utilities and are, therefore, revenue grade meters. Beyond just accuracy, Byram's meters meet additional requirements:

- Capable of separately recording bi-directional energy flows
- Visible display to support self-meter reading by the end user



## Demand Intervals

Demand meters record the highest average kilowatts consumed and maintained over a 15-minute interval during any given billing period. For properties where electrical demand is high, Byram's demand meters are the first step to tracking and managing your demand, saving you money on your electric bill.

## Bi-Directional

The bi-directional meter installed for Byram metering customers records the power flowing in two directions. It measures how much electricity you use from your utility company and how much electricity your system supplies to the utility's energy grid. Each billing period, the power from the utility company you use is offset by the power you send to the utility. This feature is imperative to systems where a solar array is deployed.



## Wide Voltage Range

No guessing required. The Byram meters feature a wide range voltage input. The meter may be used with any distribution voltage from 120 V to 480 V. The installer always has the meter with the correct voltage rating. The wide range feature detects and operates accurately on the voltage required.



# Byram's Electric Meters

Byram's meters are revenue grade electronic devices that measure the amount of electric energy consumed by a residence, business, or an electrically powered device. Byram's electric meters also measure "demand" for when energy savings during certain periods is desired. Additionally, these meters allow for "time of day" metering, meaning electric rates can be changed during a day in order to record usage during peak high-cost periods and off-peak, lower-cost, periods.

## Key Features

- Quick and easy to install
- Low ownership cost
- Fully programmable
- Reliable, revenue grade
- Preprogrammed at Byram Laboratories, Inc.
- Conforms to ANSI electrical standards
- UL Recognized safety
- Space saving footprint
- Pulse output capabilities
- Potential for future integration in smart metering mesh network

## Optional Feature Upgrades

- (TOU) Time-of-use
- (LP) Load profile
- (PQM) Power quality management
- (I-LP) Instrumentation profiling
- (ADV) Advanced metering (4 Quadrant)
- (A3R) Reactive Meter (Watt/Var)
- (A3K) Apparent Power Meter (Watt/VA)
- Selectable demand intervals
- Alternate communication options:
  - RS232 ANSI
  - RS485 ANSI
  - Ethernet

## Meter Limited Warranty

Byram warrants that goods shall be delivered free of defects in material and workmanship. The warranty remedy period for goods is effective for a period of (5) five years following the date of shipment when installed in accordance with manufacturer's instructions by qualified personnel.

## Meter Kits Include

### Byram Single Phase Meters

- Revenue grade meter
- Calibrated current transformers
- Meter locking seal (applied after installation)
- Mounting template
- Meter manual
- Display cycle descriptions
- Terminal Butt Connectors

### Byram Polyphase Meter

- Revenue grade meter
- Calibrated current transformers
- Meter locking seal (applied after installation)
- Mounting template
- Meter manual
- Display cycle descriptions





## Single Phase / Residential

### Specifications

#### Voltage

1 phase, 2 wire service	120 VAC $\pm$ 20%
1 phase, 3 wire service	120/208 VAC $\pm$ 20%
1 phase, 3 wire service	240 VAC $\pm$ 20%

Current	200A
Frequency	Nominal 60 Hz $\pm$ 5%
Temperature	-40°F to +131°F (ambient)
Humidity	0% to 100 % (non-condensing)

#### General performance characteristics

Starting current	100mA
Creep 0.000 A (no current)	No more than 1 pulse measured per quantity, conforming to ANSI C12.1 requirements
Burden	Less than 1.5W
IEC standards compliance	IEC 62052-11, IEC 62052-21, IEC 62053-21
Additional standards	C12.19, C12.22, AS/NZS 4268, NMI M6



### Byram Single Phase Meters

Byram's meters are electronic electricity meters designed to meet residential metering requirements and provide remote communications. The meters are capable of measuring interval data, bidirectional energy, critical tier, and time-of-use (TOU) data. Byram's smart meters are available in most common residential wiring configurations.

### Non Demand Meter Kits

Models	Ordering Number	Voltage	CT Diagram	Amperage Measurement*	Electrical System	Install Diagram Page
B10-2120100	1C7317	120	BL-3	100A	1 Phase, 2 Wire	15
B10-2120200	1C7383	120	BL-3	200A	1 Phase, 2 Wire	15
B10-3208100	1C7319	208/240	BL-3	100A	1 Phase, 3 Wire, Network	16
B10-3208200	1C7320	208/240	BL-3	200A	1 Phase, 3 Wire, Network	16

\*Only 1 CT supplied for 2 wire meters. Other amperages available upon request

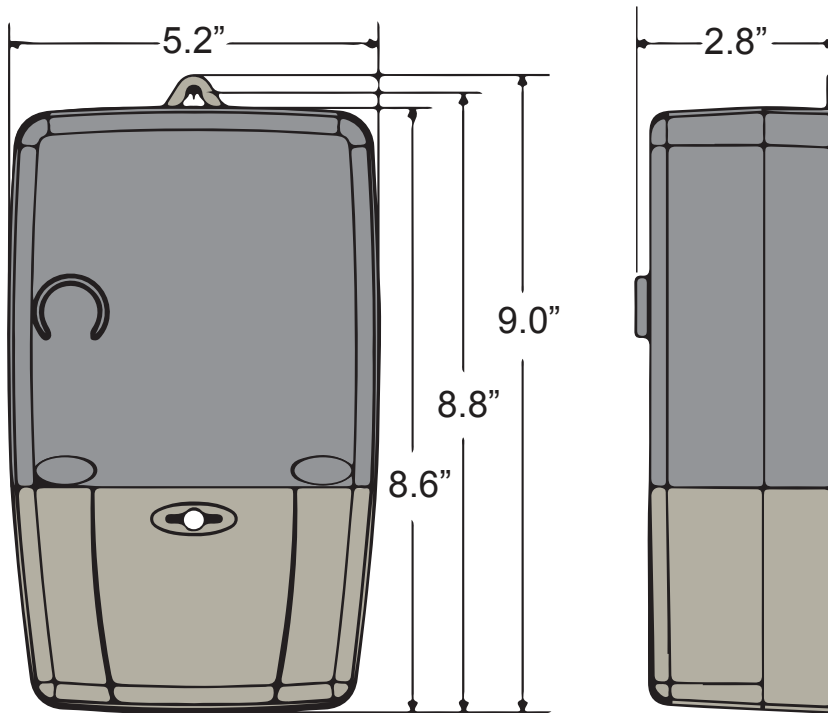
### Demand Meter Kits

Models	Ordering Number	Voltage	CT Diagram	Amperage Measurement*	Electrical System	Install Diagram Page
B10-2120100D	1C7384	120	BL-3	100A	1 Phase, 2 Wire	15
B10-2120200D	1C7318	120	BL-3	200A	1 Phase, 2 Wire	15
B10-3208100D	1C7074	208/240	BL-3	100A	1 Phase, 3 Wire, Network	16
B10-3208200D	1C7323	208/240	BL-3	200A	1 Phase, 3 Wire, Network	16

\*Only 1 CT supplied for 2 wire meters. Other amperages available upon request



## Single Phase Meter Dimensions



### ENCLOSURE DIMENSIONS

**5.2 in X 8.6 in X 2.8 in**

## Split Core CT Dimensions

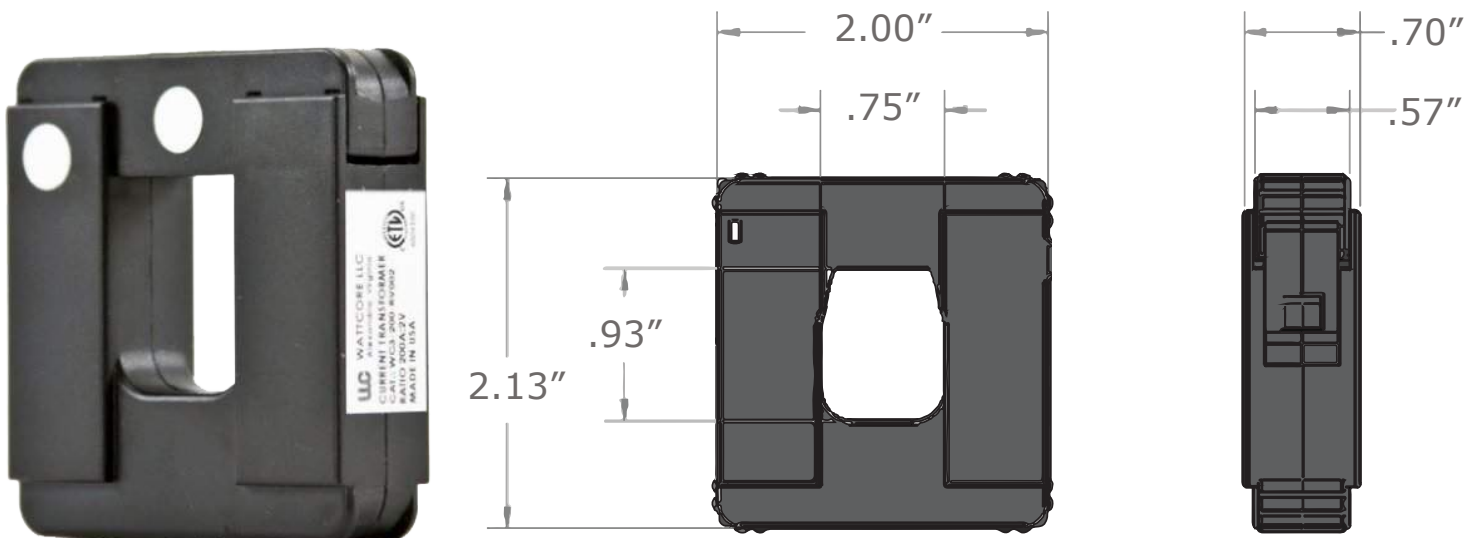
### Features

- Secured latch & keying hole for locking/service tag
- Swing open for ease of installation
- Rigid housing case with UL rated durable plastic
- Indoor rated
- 6ft twisted pair leads
- 22 AWG black/white leads

### BL – 3 Series

### Applications

- Energy and sub-metering products
- Electrical load monitoring
- Network equipment
- Instruments and sensors
- Control systems
- Go GREEN initiatives





### The Byram Polyphase Meter

The Byram meter is a very accurate revenue meter (0.2 accuracy Class). The meter provides advanced four quadrant revenue functions, transformer and line loss compensation, and increased data profiling without adding hardware option boards. The main circuit board has a nonvolatile memory for storing profile, data logs, and self read data. If extensive profile recording is required, an extended memory option board can be easily added to increase total memory by 1 MB. When optional instrumentation profiling is enabled, the meter stores 2 separate sets of instrumentation data. Each data set has an independent interval length and up to 16 channels. With instrumentation profiling, each meter becomes a powerful data collection tool to monitor data and diagnose problems without installing expensive temporary monitoring equipment.

### Power Quality Management

Power quality management (PQM) provides continuous service condition monitoring 24 hours a day. PQM looks for exceptions to user-defined thresholds for items such as voltage, current, and total harmonic distortion. Each of the 12 PQM tests can be configured to control relay activation, LCD warning, date/time stamp log entry, and even an automatic telephone call to report the condition.

### Specifications

#### The "Byram" Electric Meter

Maximum voltage	Continuous 528 VAC
Operating Range	120V - 480V
Surge voltage withstand	ANSI C37.90.1 oscillatory 2.5kV, 2500 strikes
	Fast transient 5kV, 2500 strikes
	ANSI C62.41 6kV at 1.2/50 $\mu$ s, 10 strikes
	IEC 61000-4-4 4kV, 2.5 kHz repetitive burst for 1 minute
	ANSI C12.16 2.5 kV, 60 Hz for 1 minute
Temperature	-40°F to 122°F (Inside meter cover)
Humidity	0 to 100% RH (Non condensing)
Enclosure	Rugged IP-66 outdoor-rated
Material	UV Resistant Polycarbonate
UL Type	4X/6P Listed
Width x Height x Depth	8.5 in x 7.7 in x 5.5 in
Weight	2.85 lbs.
ANSI Standards	C12.1; C12.10; C13.18; C12.19; C12.20; C12.21





## Non Demand Meter Kits

Models	Ordering Number	Voltage	CT Diagram	Amperage Measurement*	Electrical System	Install Diagram Page
B20-120100	1C7302	120V	BL-3	100A	3 Phase, 3 Wire	17
B20-120200	1C7303	120V	BL-3	200A	3 Phase, 3 Wire	17
B20-120400	1C7304	120V	BL-4	400A	3 Phase, 3 Wire	17
B20-120800	1C7305	120V	BL-5	800A	3 Phase, 3 Wire	17
B20-1201600	1C7306	120V	BL-6	1600A	3 Phase, 3 Wire	17
B20-240100	1C7307	240V	BL-3	100A	3 Phase, 3 Wire	17
B20-240200	1C7308	240V	BL-3	200A	3 Phase, 3 Wire	17
B20-240400	1C7309	240V	BL-4	400A	3 Phase, 3 Wire	17
B20-240800	1C7310	240V	BL-5	800A	3 Phase, 3 Wire	17
B20-2401600	1C7311	240V	BL-6	1600A	3 Phase, 3 Wire	17
B20-480100	1C7312	480V	BL-3	100A	3 Phase, 3 Wire	17
B20-480200	1C7313	480V	BL-3	200A	3 Phase, 3 Wire	17
B20-480400	1C7314	480V	BL-4	400A	3 Phase, 3 Wire	17
B20-480800	1C7315	480V	BL-5	800A	3 Phase, 3 Wire	17
B20-4801600	1C7316	480V	BL-6	1600A	3 Phase, 3 Wire	17

\*Other ratios available upon request

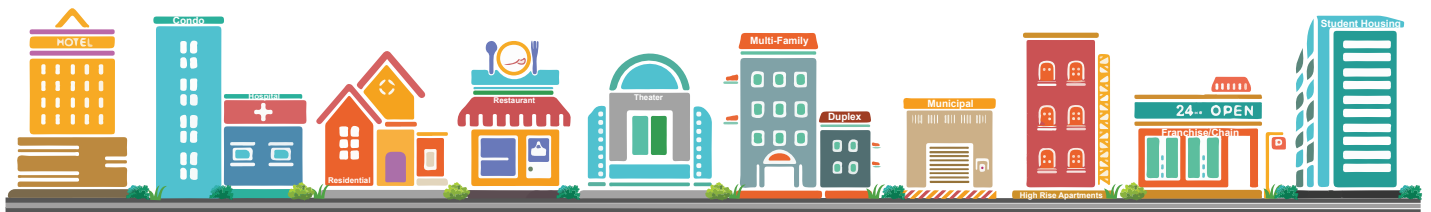
## Demand Meter Kits

Models	Ordering Number	Voltage	CT Diagram	Amperage Measurement*	Electrical System	Install Diagram Page
B20-120100D	1C7287	120V	BL-3	100A	3 Phase, 3 Wire	17
B20-120200D	1C7288	120V	BL-3	200A	3 Phase, 3 Wire	17
B20-120400D	1C7289	120V	BL-4	400A	3 Phase, 3 Wire	17
B20-120800D	1C7290	120V	BL-5	800A	3 Phase, 3 Wire	17
B20-1201600D	1C7291	120V	BL-6	1600A	3 Phase, 3 Wire	17
B20-240100D	1C7292	240V	BL-3	100A	3 Phase, 3 Wire	17
B20-240200D	1C7293	240V	BL-3	200A	3 Phase, 3 Wire	17
B20-240400D	1C7294	240V	BL-4	400A	3 Phase, 3 Wire	17
B20-240800D	1C7295	240V	BL-5	800A	3 Phase, 3 Wire	17
B20-2401600D	1C7296	240V	BL-6	1600A	3 Phase, 3 Wire	17
B20-480100D	1C7297	480V	BL-3	100A	3 Phase, 3 Wire	17
B20-480200D	1C7298	480V	BL-3	200A	3 Phase, 3 Wire	17
B20-480400D	1C7299	480V	BL-4	400A	3 Phase, 3 Wire	17
B20-480800D	1C7300	480V	BL-5	800A	3 Phase, 3 Wire	17
B20-4801600D	1C7301	480V	BL-6	1600A	3 Phase, 3 Wire	17

\*Other ratios available upon request

## Meter Kits Include

- Revenue grade meter
- Calibrated current transformer
- Meter locking seal (applied after installation)
- Mounting template
- Meter manual
- Display cycle descriptions





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#### The "Byram" Electric Meter

Maximum voltage	Continuous 528 VAC
Operating Range	120V - 480V
Surge voltage withstand	ANSI C37.90.1 oscillatory 2.5kV, 2500 strikes
	Fast transient 5kV, 2500 strikes
	ANSI C62.41 6kV at 1.2/50 $\mu$ s, 10 strikes
	IEC 61000-4-4 4kV, 2.5 kHz repetitive burst for 1 minute
	ANSI C12.16 2.5 kV, 60 Hz for 1 minute
Temperature	-40°F to 122°F (Inside meter cover)
Humidity	0 to 100% RH (Non condensing)
Enclosure	Rugged IP-66 outdoor-rated
Material	UV Resistant Polycarbonate
UL Type	4X/6P Listed
Width x Height x Depth	8.5 in x 7.7 in x 5.5 in
Weight	2.85 lbs.
ANSI Standards	C12.1; C12.10; C13.18; C12.19; C12.20; C12.21





## Non Demand Meter Kits

Models	Ordering Number	Voltage	CT Diagram	Amperage Measurement*	Electrical System	Install Diagram Page
B20-208100	1C7234	208V	BL-3	100A	3 Phase, 4 Wire	18
B20-208200	1C7235	208V	BL-3	200A	3 Phase, 4 Wire	18
B20-208400	1C7321	208V	BL-4	400A	3 Phase, 4 Wire	18
B20-208800	1C7322	208V	BL-5	800A	3 Phase, 4 Wire	18
B20-2081600	1C7281	208V	BL-6	1600A	3 Phase, 4 Wire	18
B20-277100	1C7283	277V	BL-3	100A	3 Phase, 4 Wire	18
B20-277200	1C7282	277V	BL-3	200A	3 Phase, 4 Wire	18
B20-277400	1C7284	277V	BL-4	400A	3 Phase, 4 Wire	18
B20-277800	1C7285	277V	BL-5	800A	3 Phase, 4 Wire	18
B20-2771600	1C7286	277V	BL-6	1600A	3 Phase, 4 Wire	18

\*Other ratios available upon request

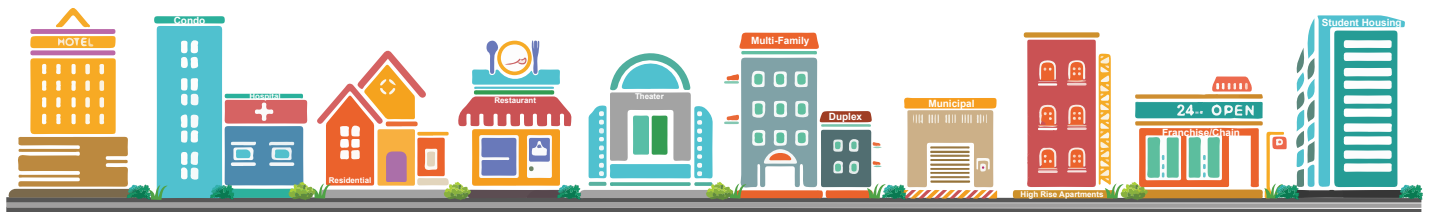
## Demand Meter Kits

Models	Ordering Number	Voltage	CT Diagram	Amperage Measurement*	Electrical System	Install Diagram Page
B20-208100D	1C6629	208V	BL-3	100A	3 Phase, 4 Wire	18
B20-208200D	1C7145	208V	BL-3	200A	3 Phase, 4 Wire	18
B20-208400D	1C7146	208V	BL-4	400A	3 Phase, 4 Wire	18
B20-208800D	1C7147	208V	BL-5	800A	3 Phase, 4 Wire	18
B20-2081600D	1C7148	208V	BL-6	1600A	3 Phase, 4 Wire	18
B20-277100D	1C7149	277V	BL-3	100A	3 Phase, 4 Wire	18
B20-277200D	1C7150	277V	BL-3	200A	3 Phase, 4 Wire	18
B20-277400D	1C7151	277V	BL-4	400A	3 Phase, 4 Wire	18
B20-277800D	1C7152	277V	BL-5	800A	3 Phase, 4 Wire	18
B20-2771600D	1C7153	277V	BL-6	1600A	3 Phase, 4 Wire	18

\*Other ratios available upon request

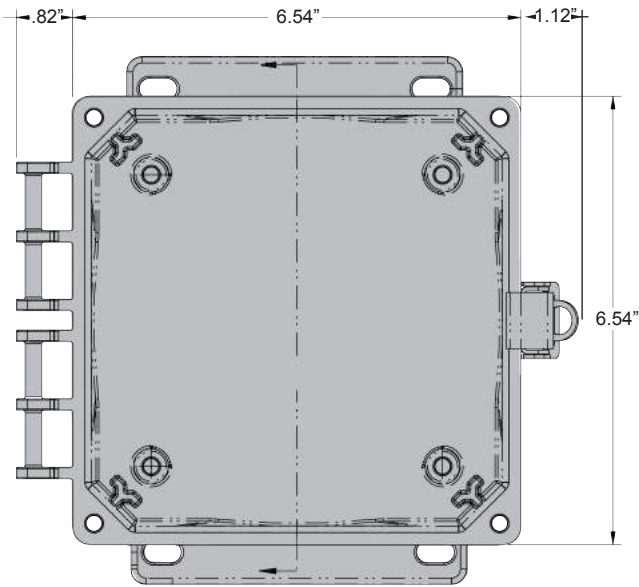
## Meter Kits Include

- Revenue grade meter
- Calibrated current transformer
- Meter locking seal (applied after installation)
- Mounting template
- Meter manual
- Display cycle descriptions

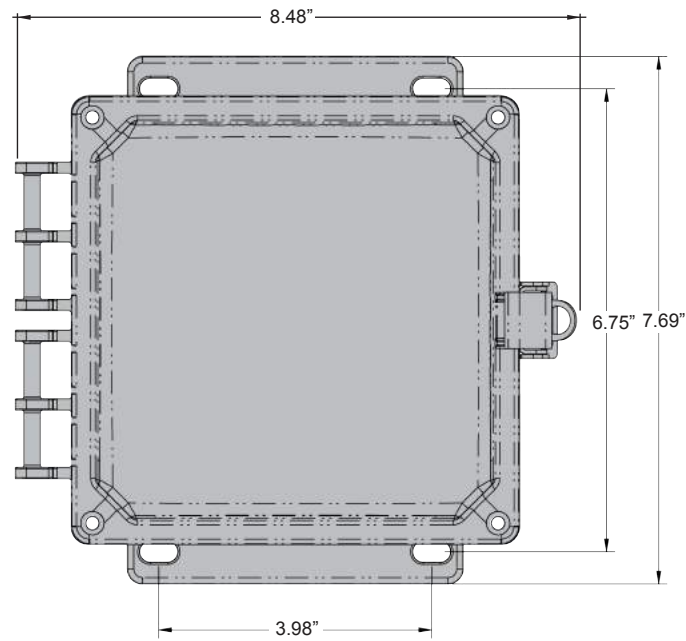




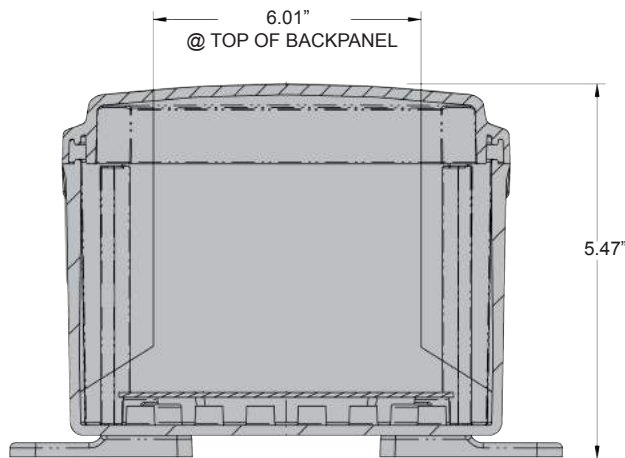
# Polyphase Meter Dimensions



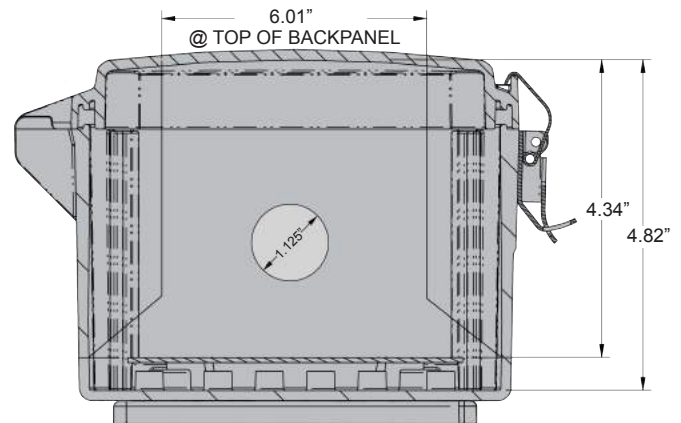
TOP A



TOP B



SIDE A



SIDE B

## ENCLOSURE DIMENSIONS 8.5 in X 7.7 in X 5.5 in



# Split Core CT Dimensions

## Features

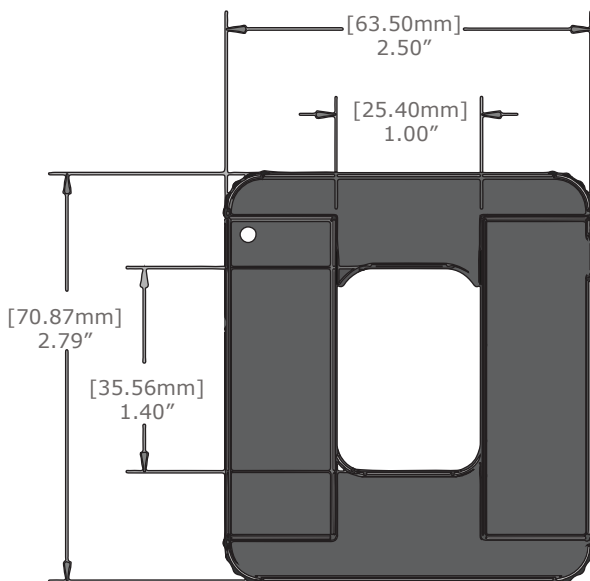
- Secured latch & keying hole for locking/service tag
- Swing open for ease of installation
- Rigid housing case with UL rated durable plastic
- Indoor rated
- 6ft twisted pair leads
- Black/white leads
  - **BL-2** - 22AWG
  - **BL-3** - 22AWG
  - **BL-4** - 18AWG
  - **BL-5** - 16AWG
  - **BL-6** - 16AWG

## Applications

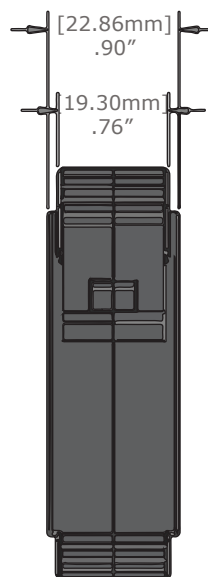
- Energy and sub-metering products
- Electrical load monitoring
- Network equipment
- Instruments and sensors
- Control systems
- Go GREEN initiatives



## BL – 2 Series Dimensions

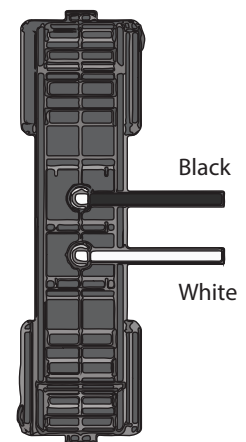


**Outside Dimensions**  
**2.79 in X 2.50 in**



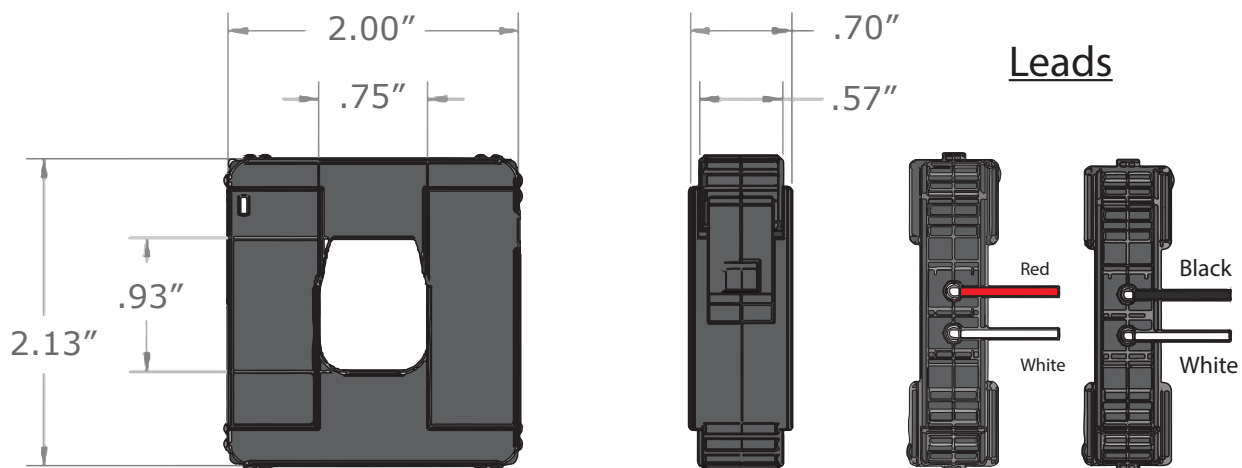
**Inside Dimensions**  
**1.40 in X 1.00 in**

## Leads





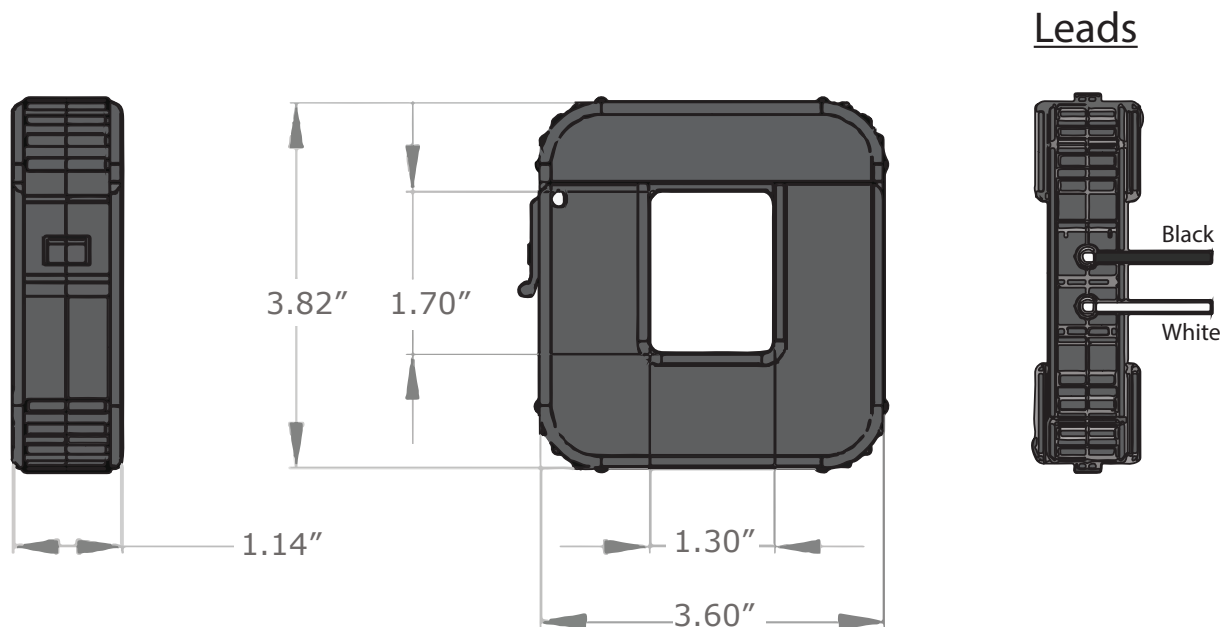
## BL – 3 Series Dimensions



**Outside Dimensions**  
2.13 in X 2.00 in

**Inside Dimensions**  
.93 in X .75 in

## BL – 4 Series Dimensions



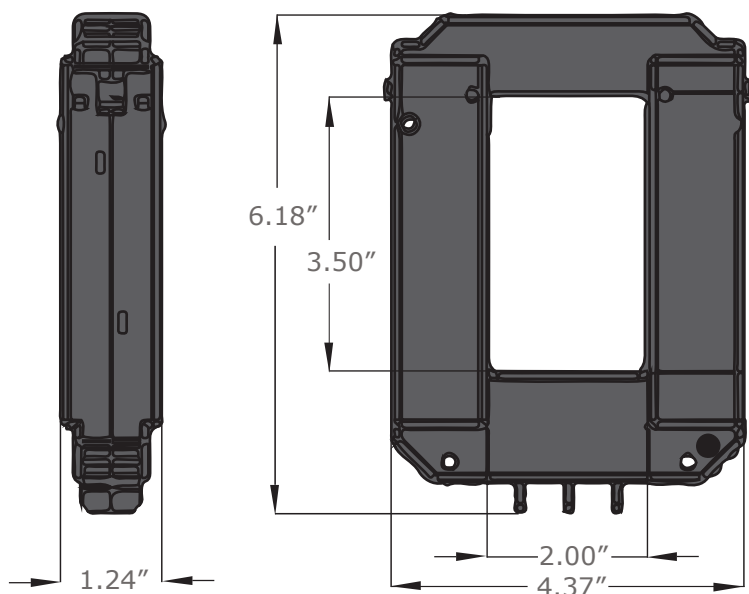
**Outside Dimensions**  
3.82 in X 3.60 in

**Inside Dimensions**  
1.70 in X 1.30 in

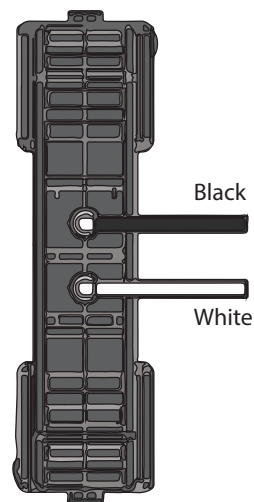


# Split Core CT Dimensions

## BL – 5 Series Dimensions



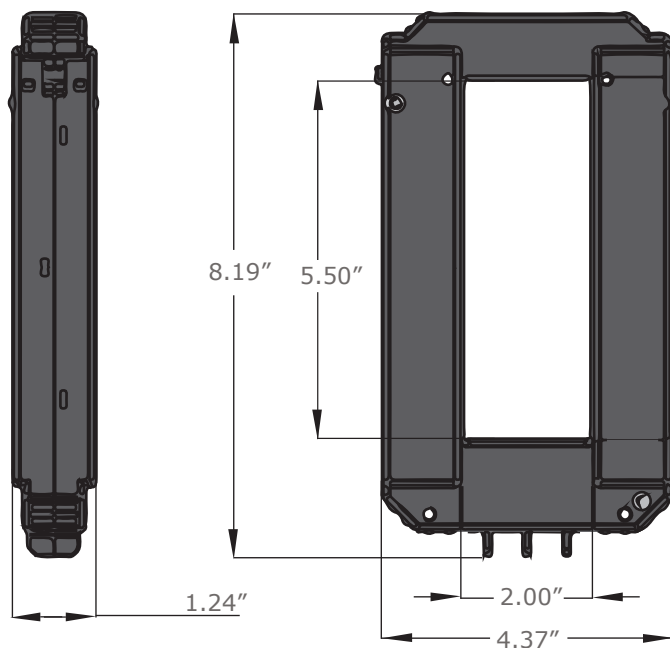
### Leads



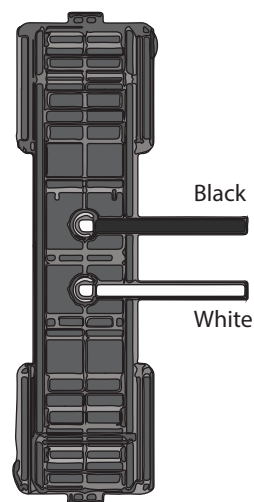
**Outside Dimensions**  
6.18 in X 4.37 in

**Inside Dimensions**  
3.50 in X 2.00 in

## BL – 6 Series Dimensions



### Leads



**Outside Dimensions**  
8.19 in X 4.37 in

**Inside Dimensions**  
5.50 in X 2.00 in



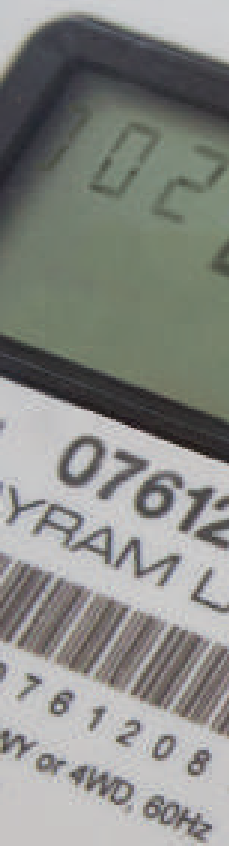
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YRAM L

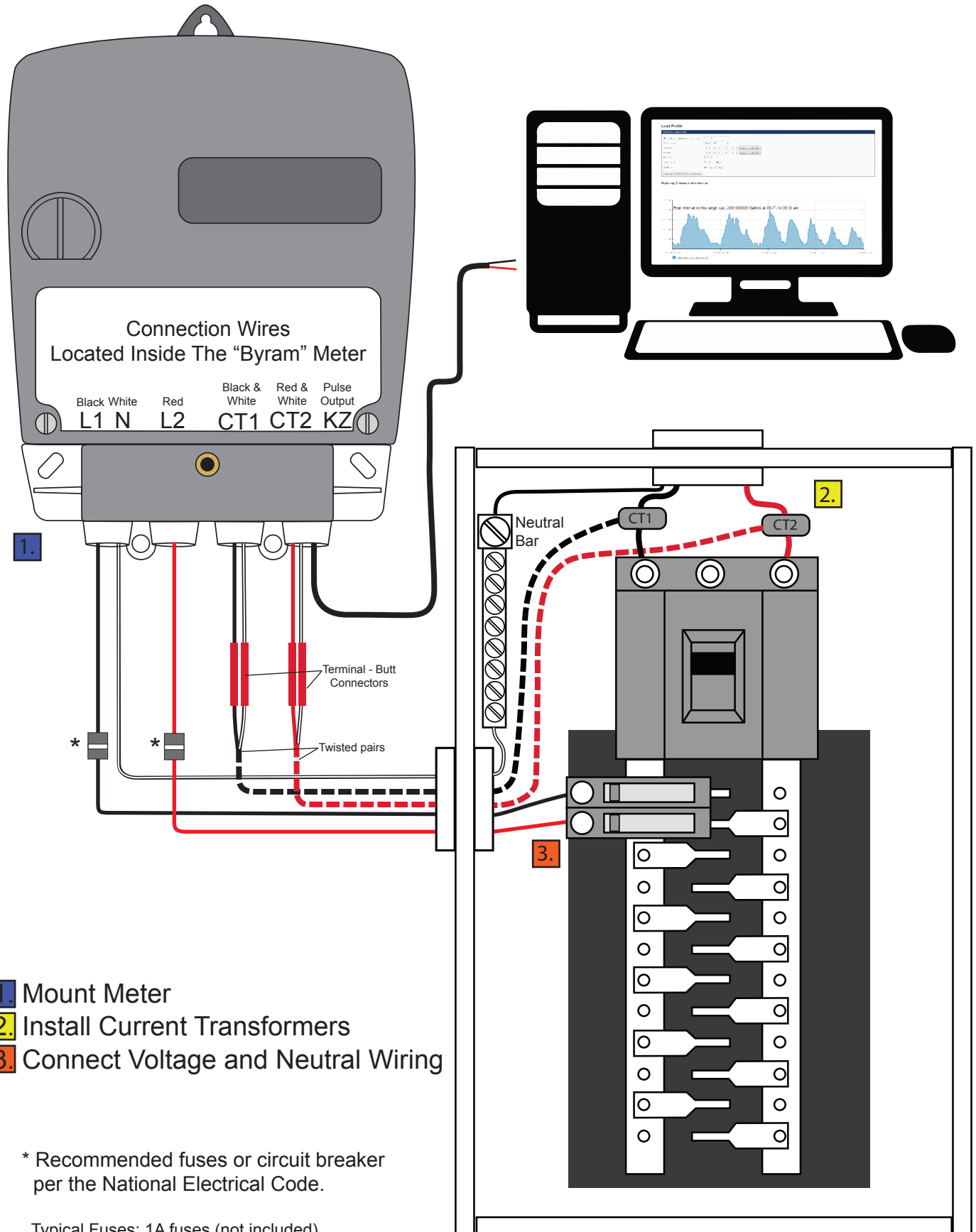
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NY or 4WD, 60Hz



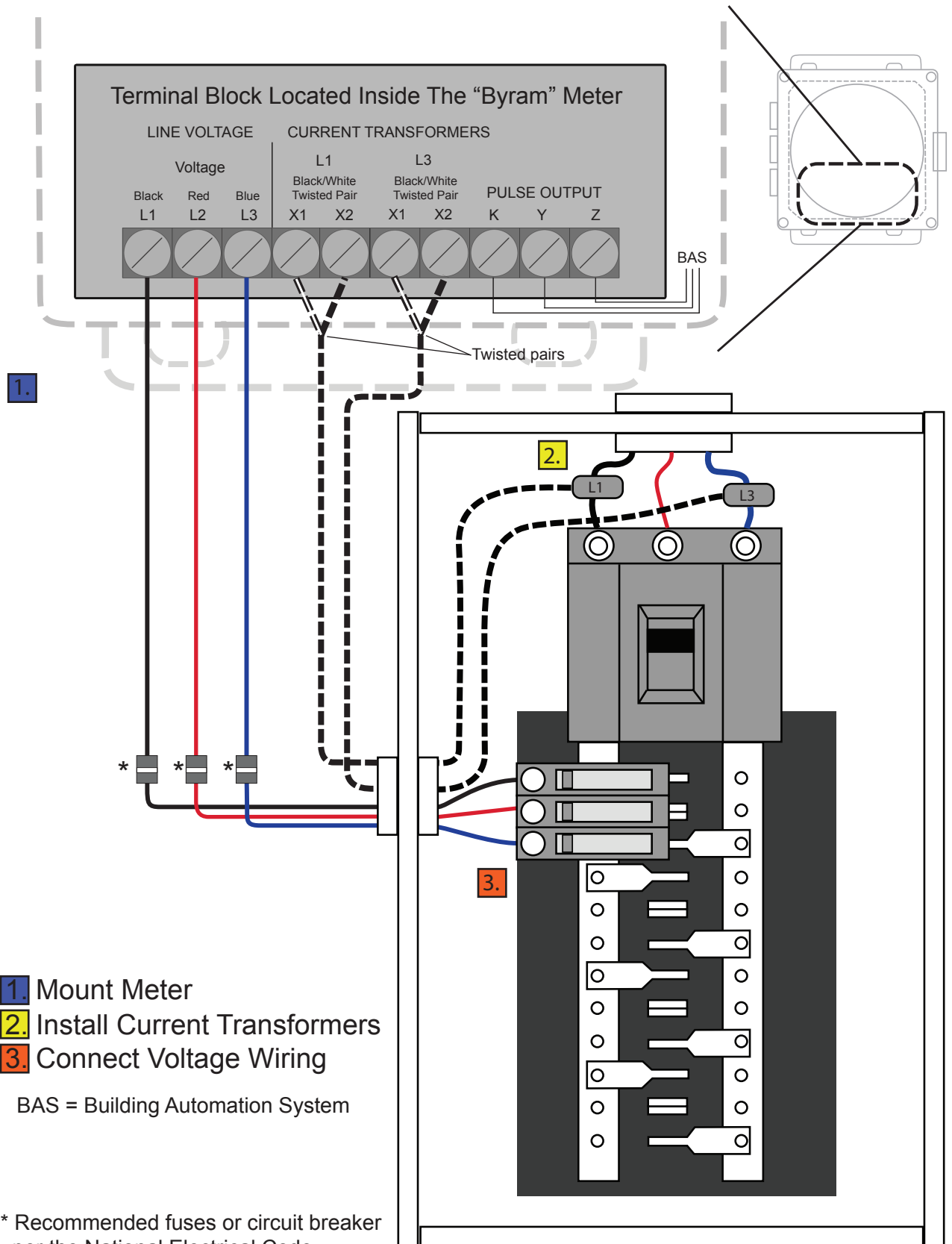


# 1 Phase, 3 Wire Installation Diagram



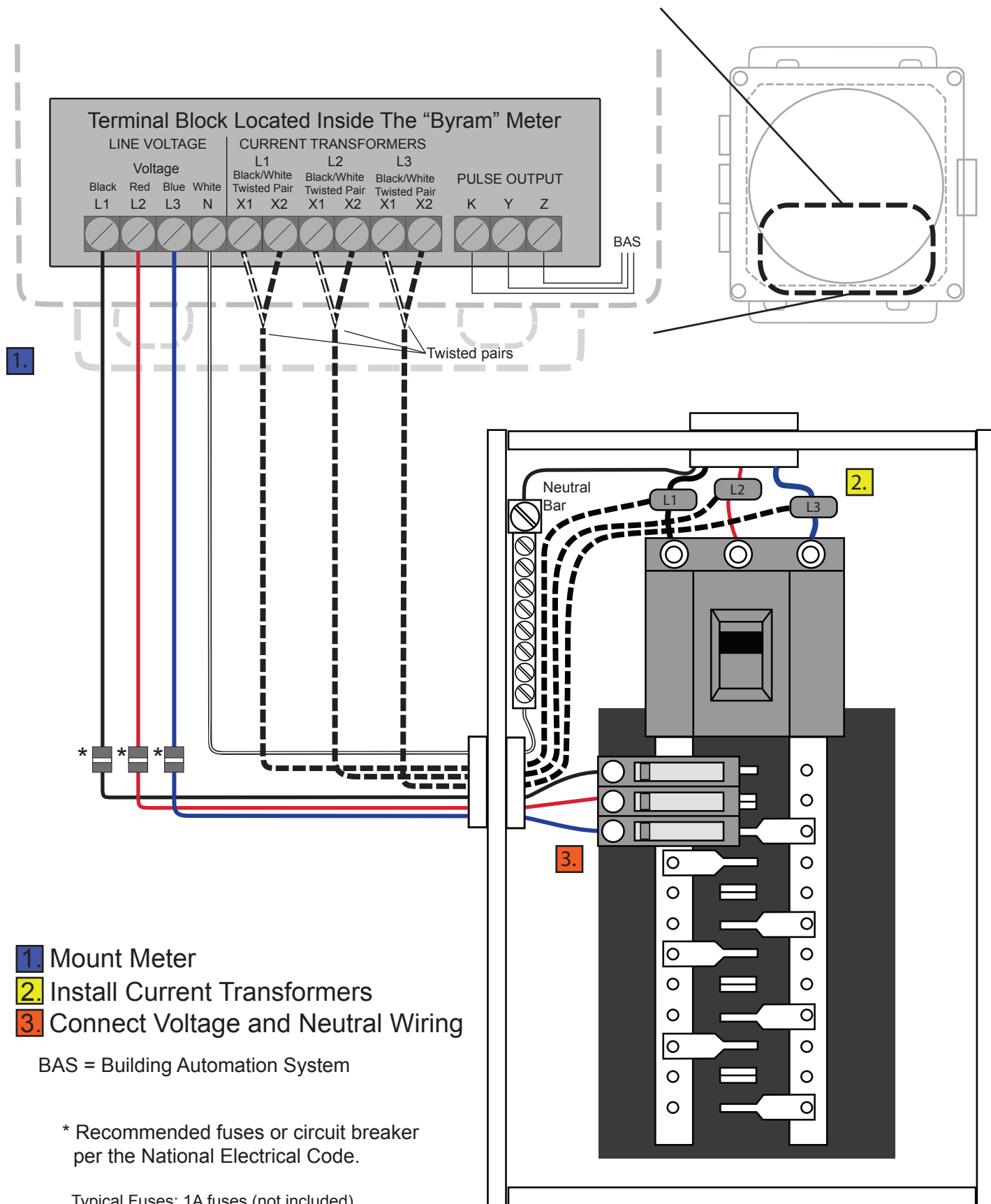


# 3 Phase, 3 Wire Installation Diagram





# 3 Phase, 4 Wire Installation Diagram





# Manufacturer Representatives

