

MEETS ANSI AND IEC STANDARDS  
QUICK AND EASY TO INSTALL  
REVENUE GRADE  
NEMA 4X



# THE "BYRAM" ELECTRIC METER



MEETS ANSI A  
QUICK AND E  
REVENUE GRA  
NEMA 4X

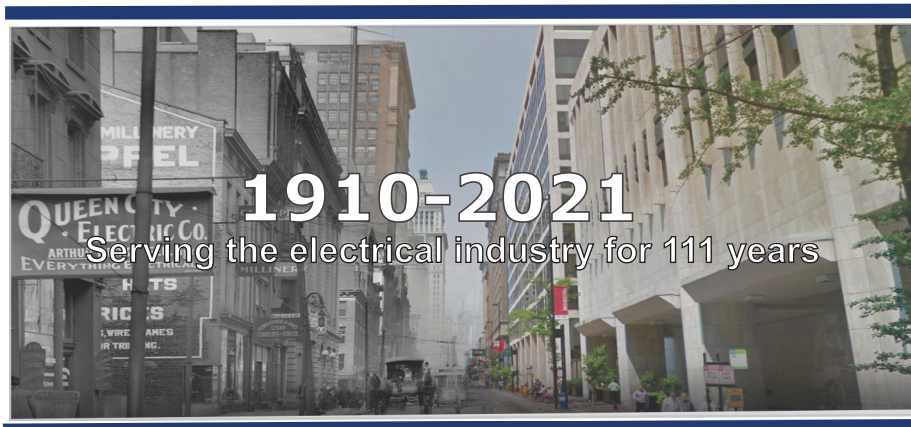


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**BYRAM LABS**  
AN ENERGY TECHNOLOGY COMPANY

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# 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 budgeting for energy consumption, users will also have necessary data to aid in reducing usage.

# Tenant Billing

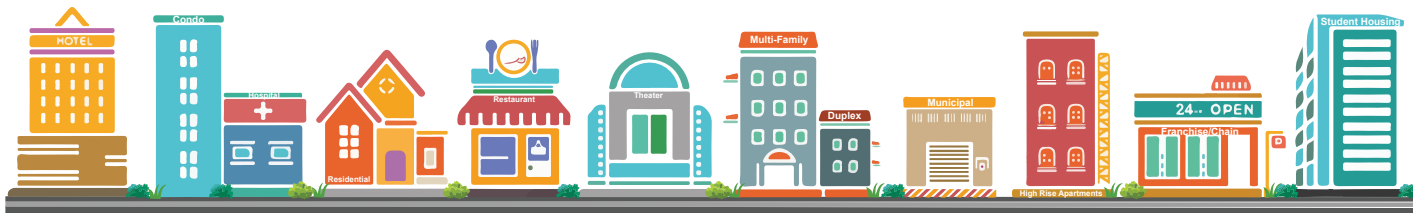
In facilities where there are multiple tenants, monitoring actual consumption is a win-win situation for both the building manager and the tenants.

Managers are able to allocate utility usage directly to the tenants. Utility costs can include electric, gas, water and BTU usage. 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 and ANSI C12.19, C12.22. Therefore, Byram's meters are revenue grade with an accuracy class of 0.2%.

Byram's meters also meet these additional requirements:

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

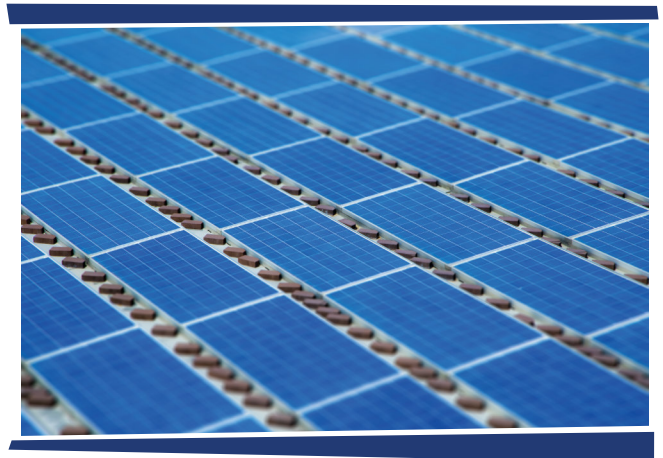


## Demand Intervals

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 for 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 meter features 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.

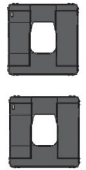


## The Byram Single Phase Meter

- Single Phase kWh meter
- Quick and Easy to install Kit, Transformers included
- Meter locking seal (applied after installation)
- Pulse Output
- Programmed and ready to go



Transformers Included With All Kits



## Three Phase kWh Meter with Demand

- Quick and Easy to install Kit, Transformers included
- Pulse Output
- Programmed and ready to go
- Optional upgrades include Time of Use, Load Profile and Reactive Energy



Transformers Included With All Kits

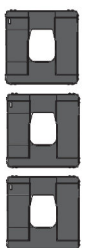


## Three Phase Power Meter with RS485 and Modbus

- Quick and Easy to install Kit, Transformers included
- Pulse Output
- Programmed and ready to go
- Optional upgrades include Time of Use, Load Profile and Reactive Energy



Transformers Included With All Kits



## Three Phase Power Meter and Power Analyzer with RS485 and Modbus

- Quick and Easy to install Kit, Transformers included
- Pulse Output
- Programmed and ready to go
- Optional upgrades include Time of Use, Load Profile and Reactive Energy



Transformers Included With All Kits



## Fusing and Accessories

- Fuses and Fuse Blocks are available
- Color coded 5' wiring harnesses assist in proper installation





# Single Phase / Network / Residential

## Specifications

### Voltage

1 phase, 2 wire service	120 VAC ± 20%
1 phase, 3 wire service	120/208 VAC ± 20%
1 phase, 3 wire service	240 VAC ± 20%

Current	200A
Frequency	Nominal 60 Hz ± 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, Bi-Directional energy, critical tier, and time-of-use (TOU) data. Byram's smart meters are available in most common residential wiring configurations.

## Single Phase / Network Meter Kits - Indoor

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

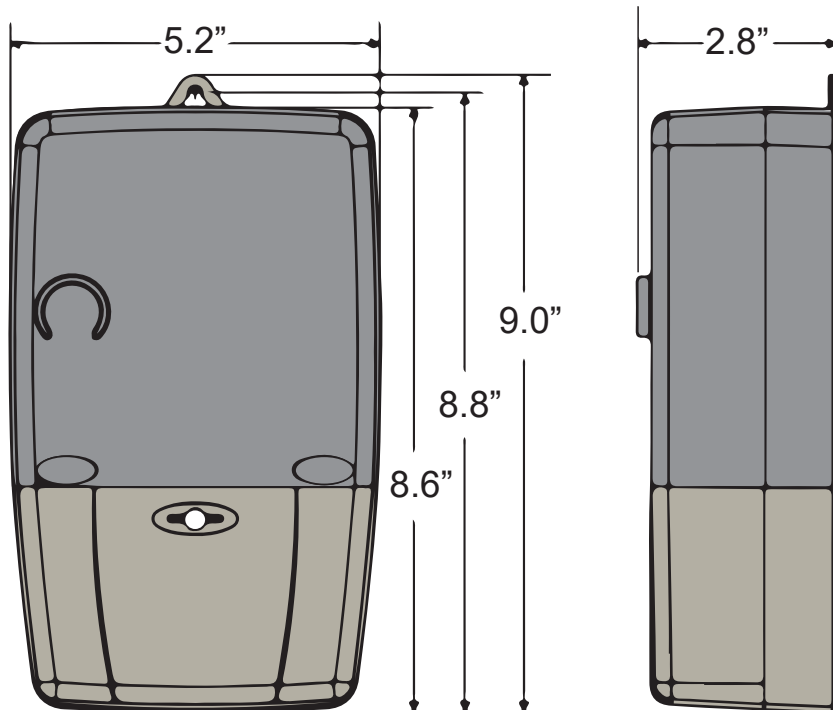
\*Only 1 CT supplied for 2 wire meters. Other amperages available upon request

## Single Phase / Network Meter Kits - Outdoor

Models	Ordering Number	Voltage	CT Diagram	Amperage Measurement*	Electrical System	Install Diagram Page
B10-2120100R	1D2346	120	BL-3	100A	1 Phase, 2 Wire	15
B10-2120200R	1D2347	120	BL-3	200A	1 Phase, 2 Wire	15
B10-3208100R	1D1618	208/240	BL-3	100A	1 Phase, 3 Wire, Network	16
B10-3208200R	1D2336	208/240	BL-3	200A	1 Phase, 3 Wire, Network	16

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

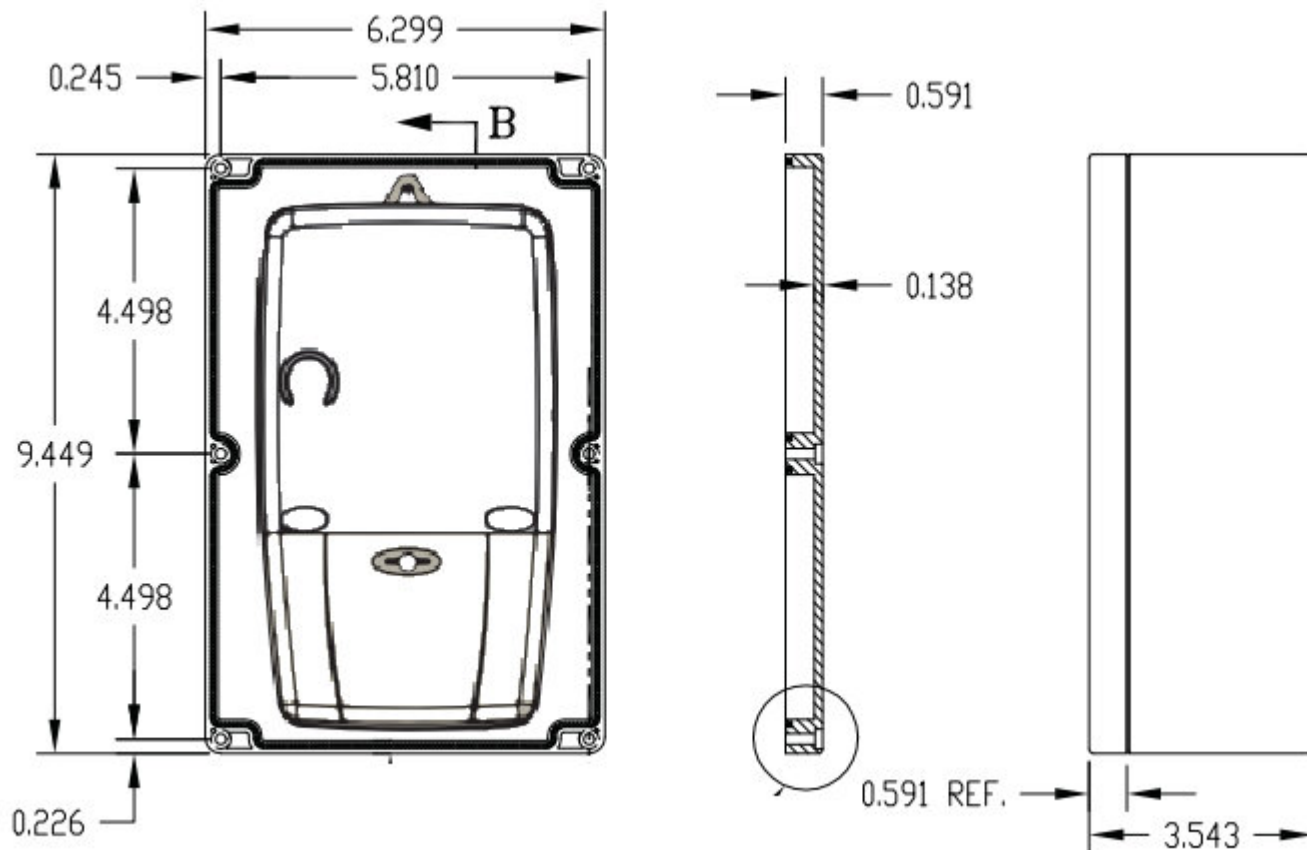
# Single Phase Meter Dimensions



**Indoor Kit Dimensions**



**Outdoor Kit**



**Outdoor Kit Dimensions**

## The Byram Polyphase Meter / 3-Phase, 3-Wire / 3-Phase, 4-Wire

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 two 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 automated 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





# 3-Phase, 3/4 Wire Meter Kits

## 3-Phase, 3-Wire Meter Kits

Models	Ordering Number	Voltage	CT Diagram	Amperage Measurement*	Electrical System	Install Diagram Page
B20-120100D	1C7287	120-480V	BL-3	100A	3 Phase, 3 Wire	17
B20-120200D	1C7288	120-480V	BL-3	200A	3 Phase, 3 Wire	17
B20-120400D	1C7289	120-480V	BL-4	400A	3 Phase, 3 Wire	17
B20-120800D	1C7290	120-480V	BL-5	800A	3 Phase, 3 Wire	17
B20-1201600D	1C7291	120-480V	BL-6	1600A	3 Phase, 3 Wire	17

\*Other ratios available upon request

### 3-Phase, 3-Wire Meter Kits Include

- Revenue grade meter
- Calibrated current transformers (2 pcs)
- Meter locking seal (applied after installation)
- Mounting template
- Meter manual
- Display cycle descriptions

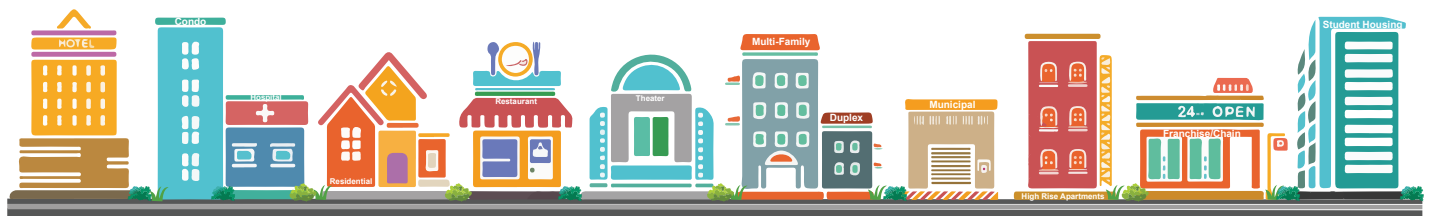
## 3-Phase, 4-Wire Meter Kits

Models	Ordering Number	Voltage	CT Diagram	Amperage Measurement*	Electrical System	Install Diagram Page
B20-208100D	1C6629	120-480V	BL-3	100A	3 Phase, 4 Wire	18
B20-208200D	1C7145	120-480V	BL-3	200A	3 Phase, 4 Wire	18
B20-208400D	1C7146	120-480V	BL-4	400A	3 Phase, 4 Wire	18
B20-208800D	1C7147	120-480V	BL-5	800A	3 Phase, 4 Wire	18
B20-2081600D	1C7148	120-480V	BL-6	1600A	3 Phase, 4 Wire	18

\*Other ratios available upon request

### 3-Phase, 4-Wire Meter Kits Include

- Revenue grade meter
- Calibrated current transformers (3 pcs)
- Meter locking seal (applied after installation)
- Mounting template
- Meter manual
- Display cycle descriptions



## 3-Phase, 3/4 Wire Meter Kits

### 3 Phase Transformer Ready Kit



The B30 is a compact multifunction meter that measures most important electrical parameters such as Volts, Amps, Vars and KWh consumption. With Modbus 485, pulse output and a 0.2% accuracy class, the B30 is one of the most robust and capable smart meters on the market. From Residential to Commercial to Solar the B30 can handle most usage cases making the Byram B30 a versatile and accessible option.

Models	Ordering Number	Voltage	Amperage Measurement*	Electrical System
B30-120005D	1D2370	120-480	Transformer Rated	3 Phase, 3 Wire
B30-208005D	1D2371	120-480	Transformer Rated	3 Phase, 4 Wire

### 3 Phase Transformer Ready Kit



The B70 is a compact multifunction meter that boasts an impressive graphical display for system analysis, KWh consumption and other important electrical parameters as well as a 3 phase phasor display. The B70 offers state of the art data display, in depth dissection of energy usage, a 0.2% accuracy class, Modbus 485 and pulse output making the user-friendly B70 one of the most capable and dependable meters on the market.

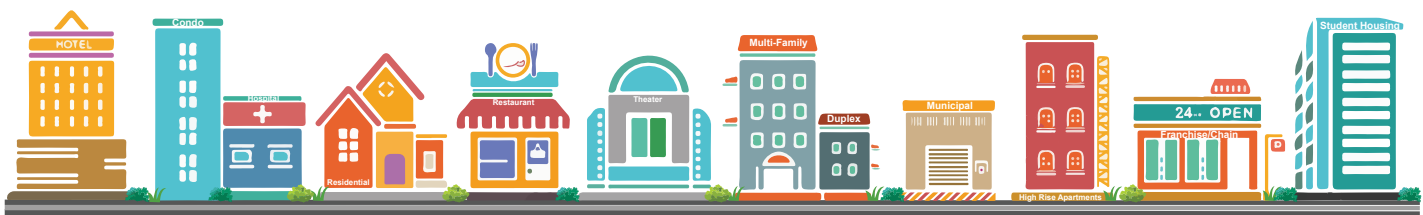
Models	Ordering Number	Voltage	Amperage Measurement*	Electrical System
B70-120005D	1D2372	120-480	Transformer Rated	3 Phase, 3 Wire
B70-208005D	1D2373	120-480	Transformer Rated	3 Phase, 4 Wire

## 3 Phase Transformer Ready Kit



Like the B20, the B20XL offers high accuracy metering (0.2% accuracy class), meets ANSI and IEC standards and can be used for applications ranging from tenant billing to industrial & manufacturing and more. The “XL” represents the enlarged enclosure that has the ability to accommodate options such as smart metering and locations with existing current transformers. Using the part numbers provided below ensures that the B20XL can be programmed to match your current transformer ratio allowing for easier retrieval of information displayed by the meter.

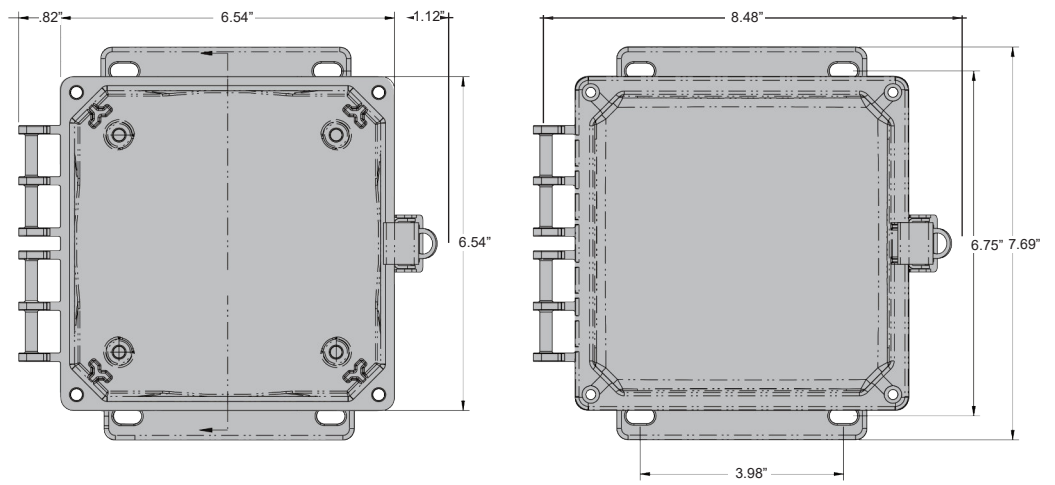
Models	Ordering Number	Voltage	Amperage Measurement*	Electrical System
B20-120005D	1D0439	120-480	Transformer Rated	3 Phase, 3 Wire
B20-208005D	1D0438	120-480	Transformer Rated	3 Phase, 4 Wire





# Polyphase Meters

## B20 Meter



TOP A

TOP B

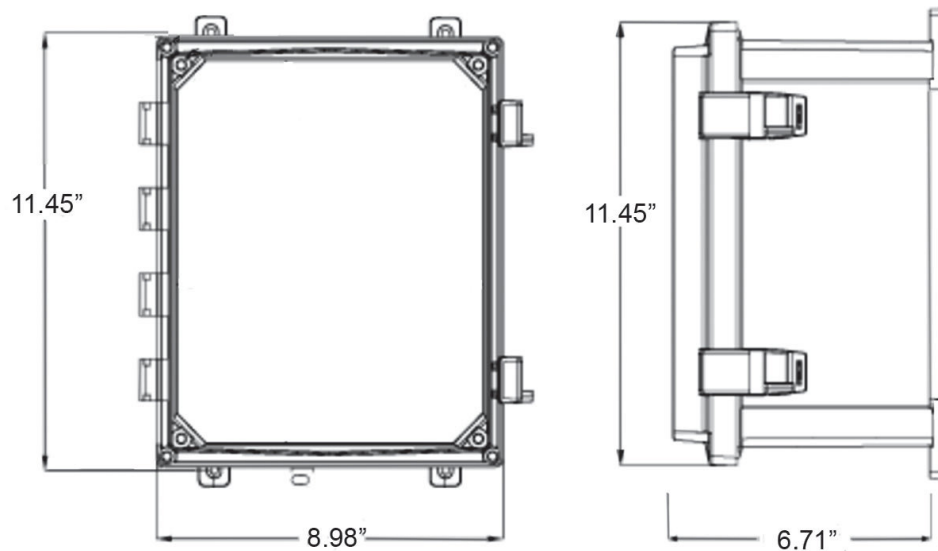
6.01"  
@ TOP OF BACKPANEL

6.01"  
@ TOP OF BACKPANEL

SIDE A

SIDE B

## B20XL Meter



# Split Core CT Dimensions

## Features

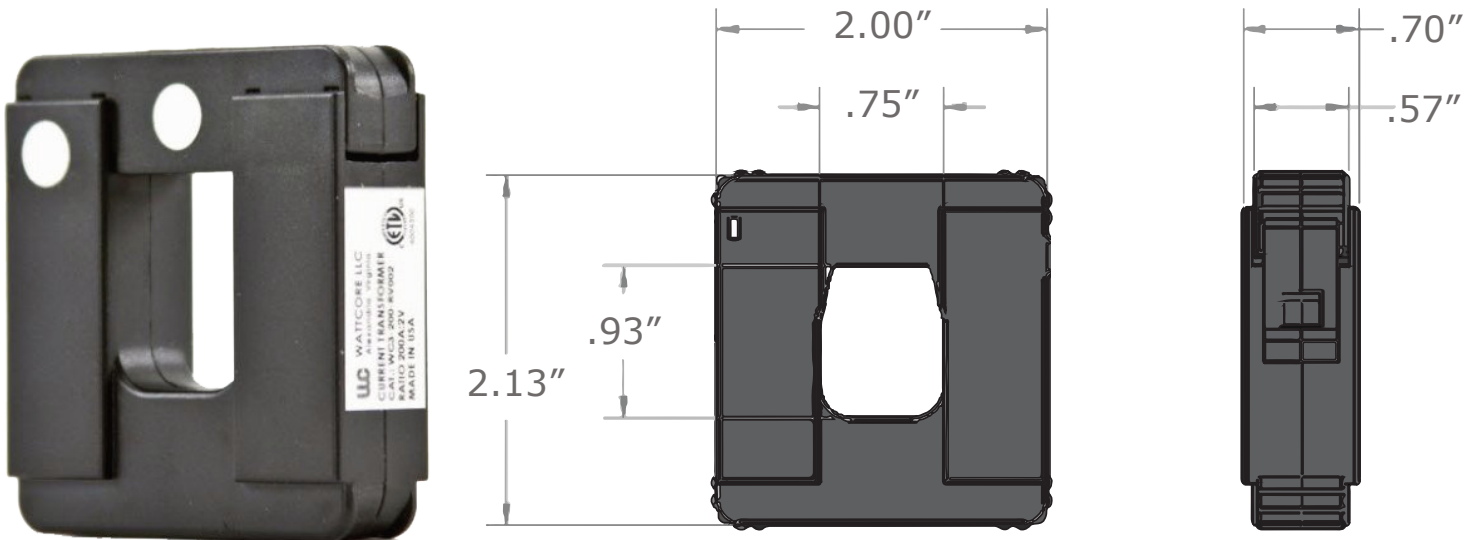
- Secured latch & keying hole for locking/service tag
- Swing open latch for ease of installation
- Rigid housing case with UL rated durable plastic
- Indoor rated
- 6ft twisted pair leads
- Black/white leads
  - **BL-3** - 22AWG
  - **BL-4** - 18AWG
  - **BL-5** - 16AWG
  - **BL-6** - 16AWG

## Applications

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

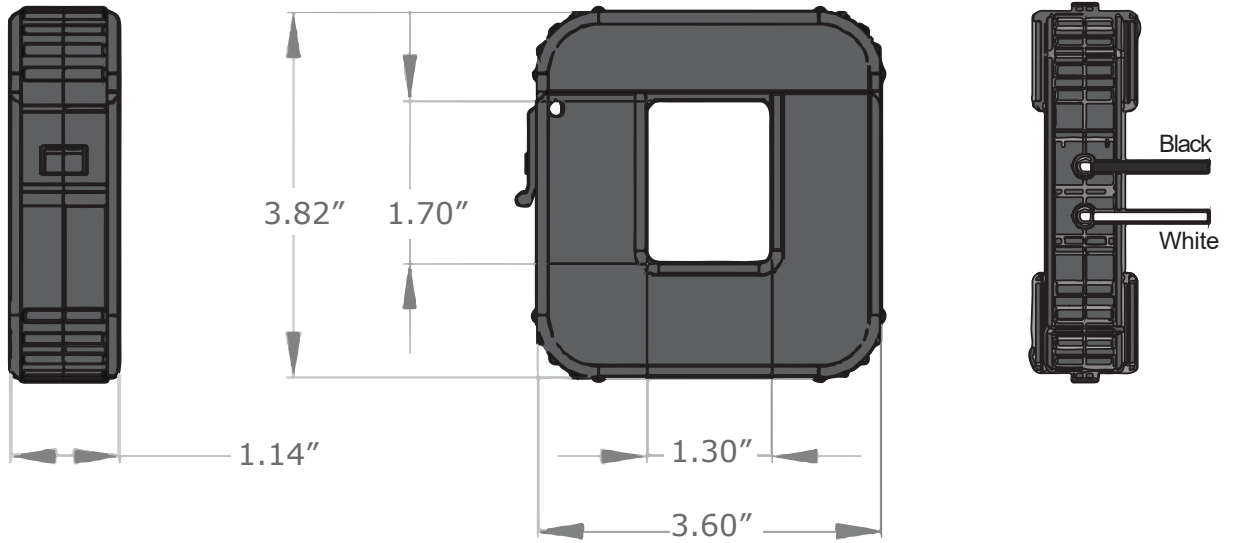


## BL- 3 Series



# BL - 4/BL- 5 Series Dimensions

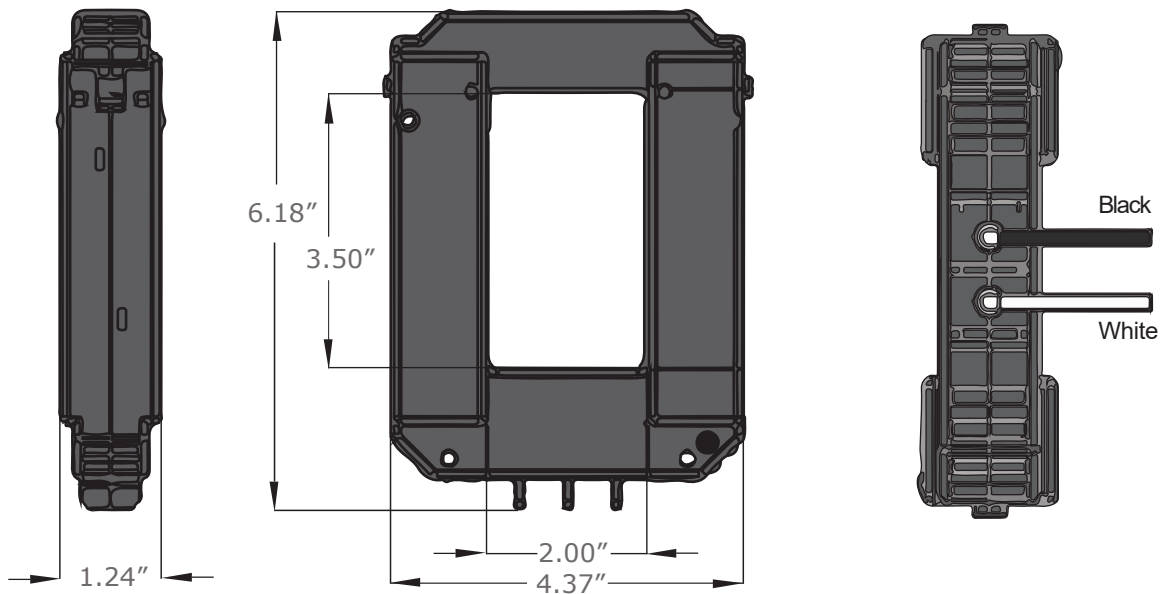
## BL - 4 Series Dimensions



**Outside Dimensions**  
3.82 in X 3.60 in

**Inside Dimensions**  
1.70 in X 1.30 in

## BL - 5 Series Dimensions



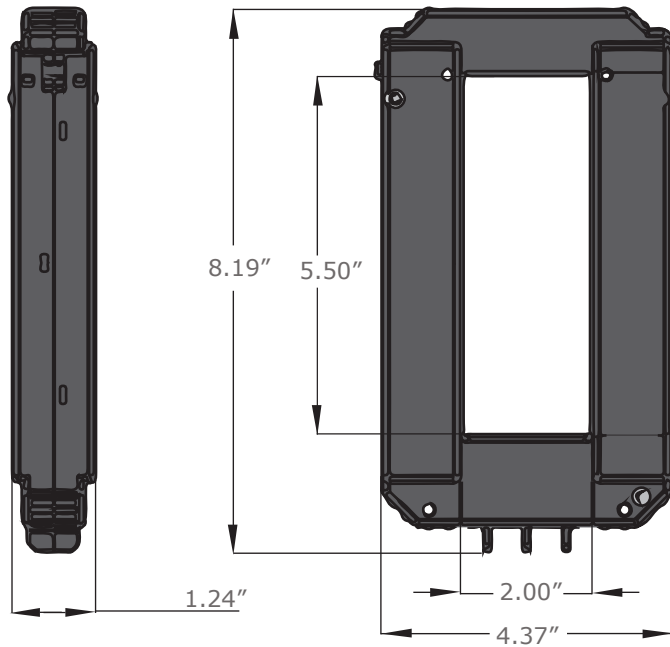
**Outside Dimensions**  
6.18 in X 4.37 in

**Inside Dimensions**  
3.50 in X 2.00 in



# Split Core CT Dimensions

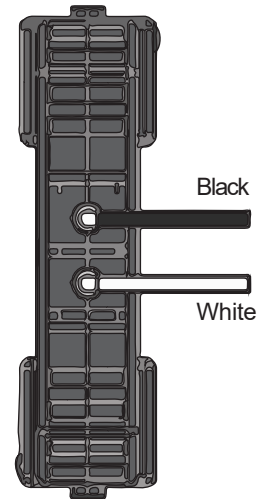
## BL- 6 Series Dimensions



**Outside Dimensions**  
8.19 in X 4.37 in

**Inside Dimensions**  
5.50 in X 2.00 in

## Leads



## Accessories

Pad Mount Kit Shown Below



Other Options Include

- Wire Harness
- Hardware
- Fuse Kits
- Sockets
- Enclosures



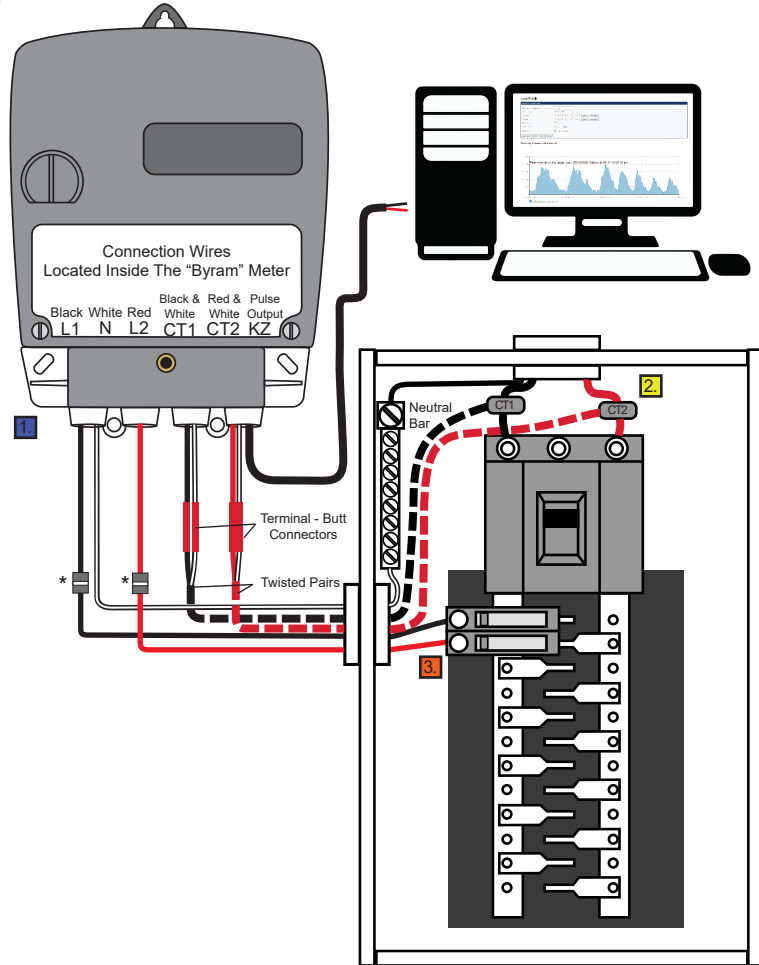
# 1 Phase, 3 Wire Installation Diagram

## Commercial Installation Example:

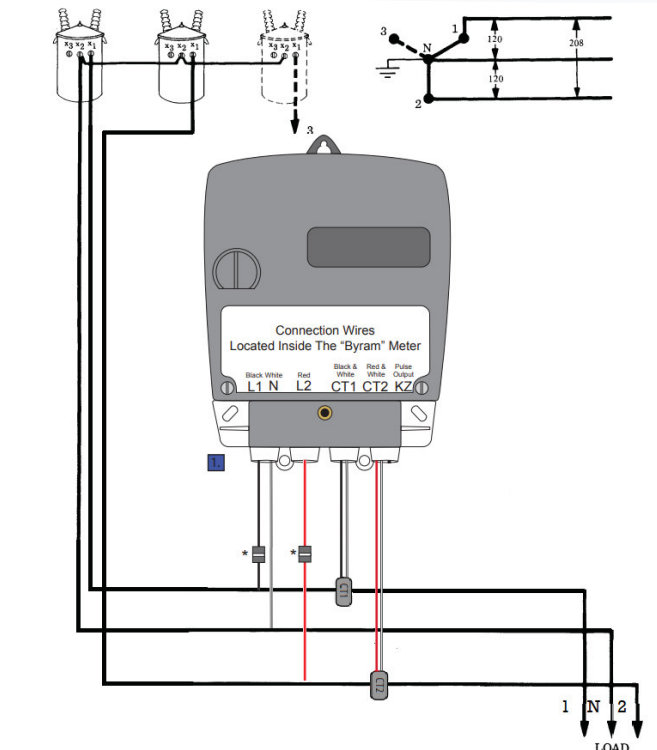
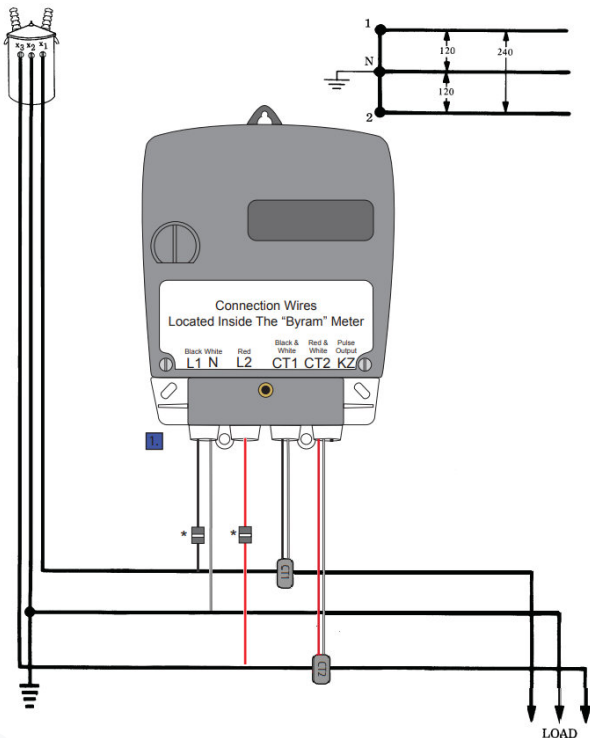
- 1 Mount Meter
- 2 Install Current Transformers
- 3 Connect Voltage and Neutral Wiring

\* Recommended fuses or circuit breaker per the National Electrical Code.

Typical Fuses: 1A fuses (not included)



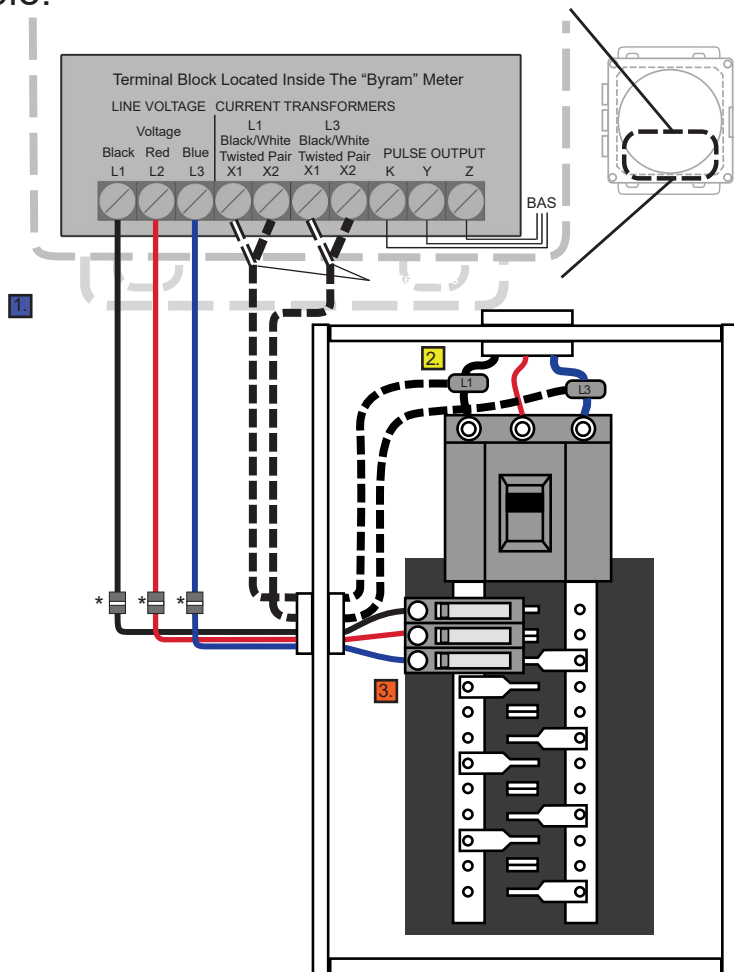
## Industrial Installation Examples:





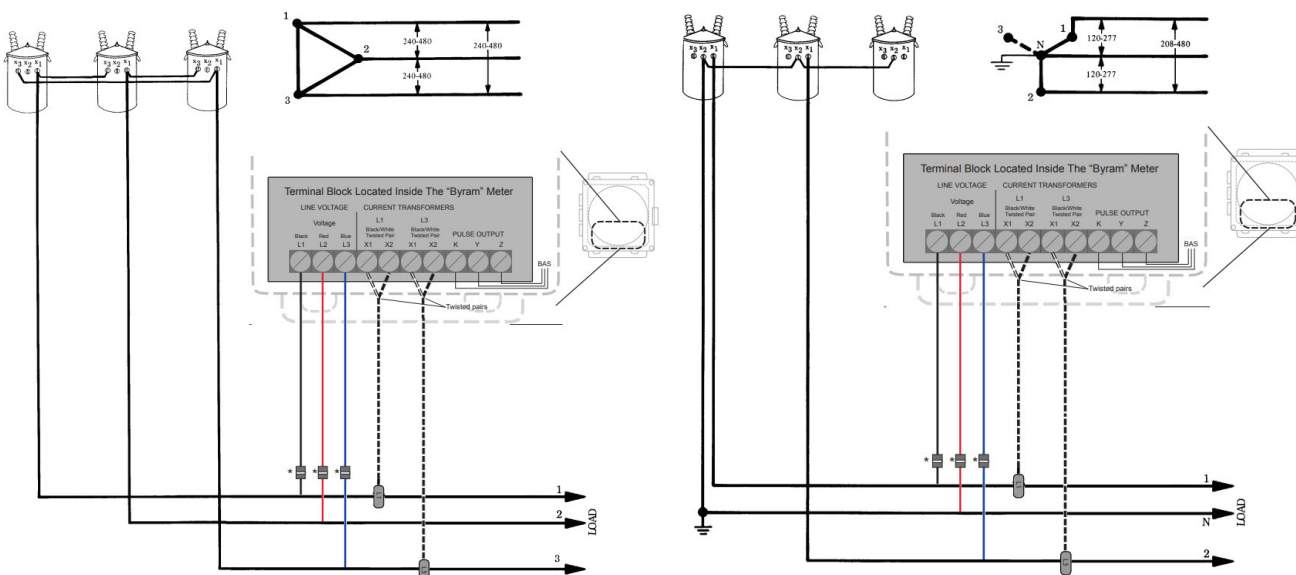
# 3 Phase, 3 Wire Installation Diagram

## Commercial Installation Example:



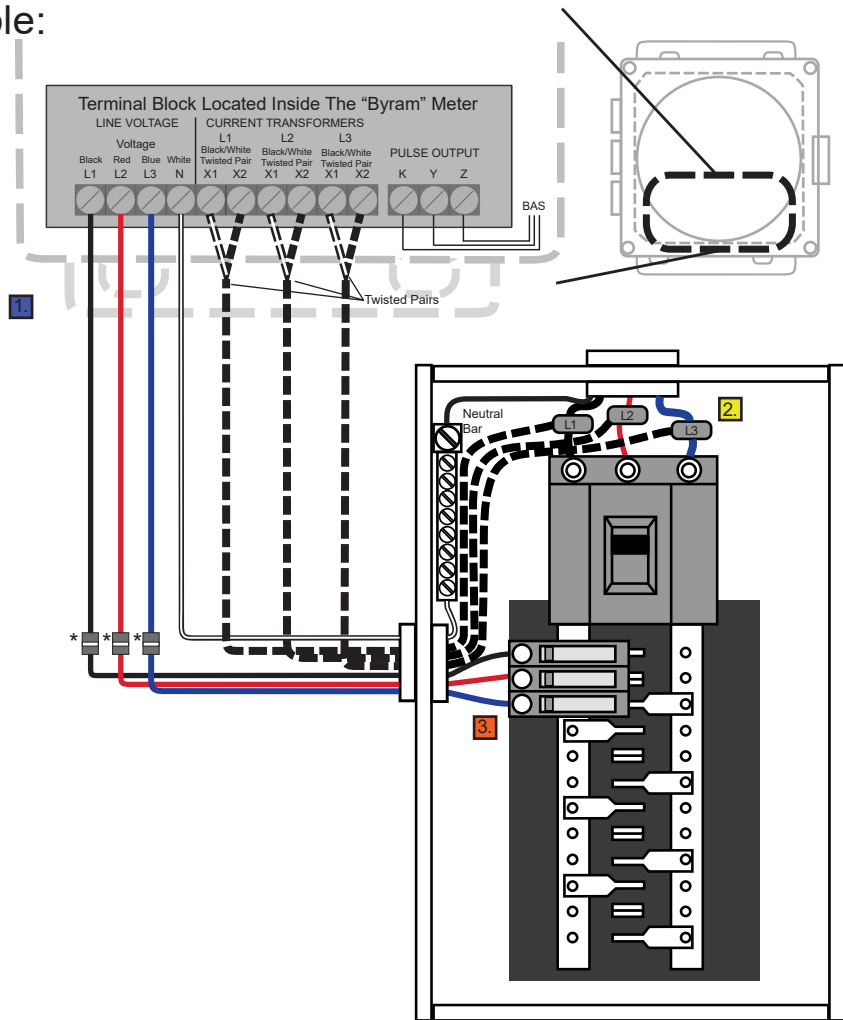
- 1 Mount Meter
  - 2 Install Current Transformers
  - 3 Connect Voltage Wiring
- BAS = Building Automation System
- \* Recommended fuses or circuit breaker per the National Electrical Code.
- Typical Fuses: 1A fuses (not included)

## Industrial Installation Examples:

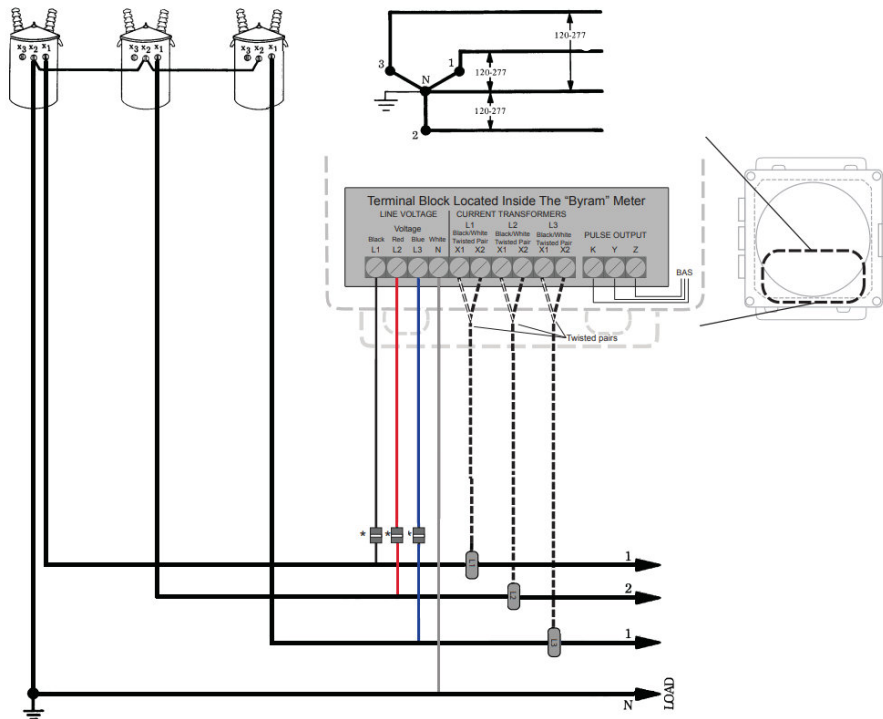


# 3 Phase, 4 Wire Installation Diagram

## Commercial Installation Example:



## Industrial Installation Example:



# Byram Additional Offerings

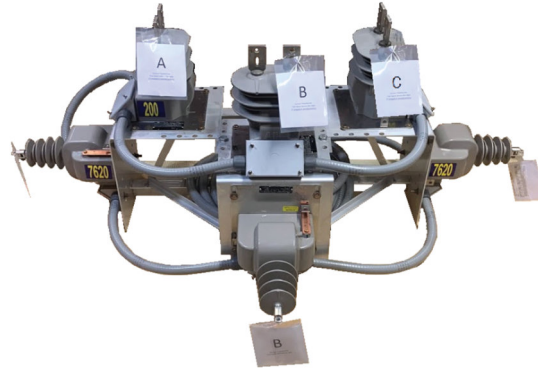
## Switchboard Meters



## Primary Metering Assemblies



## Pole Mount Meter Kits



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