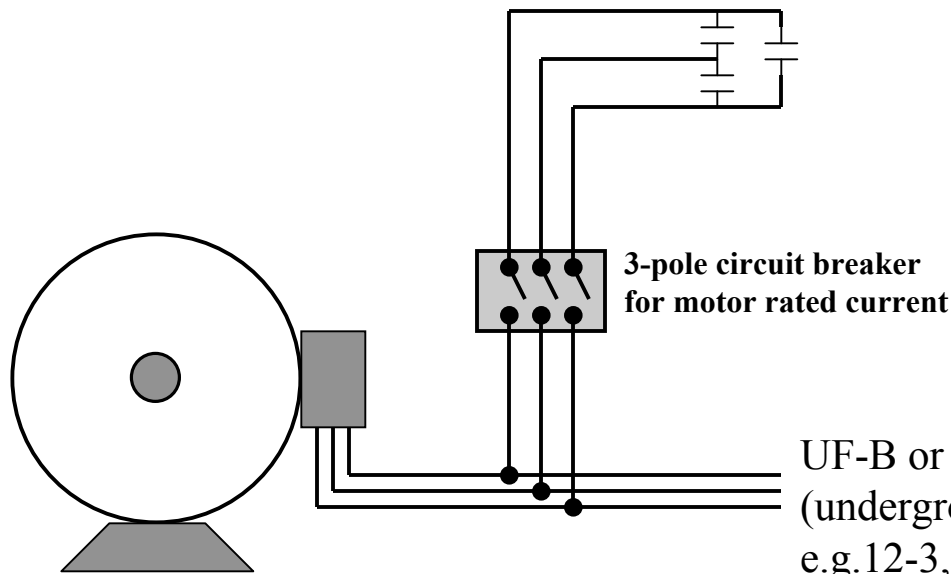


# Typical Micro-Hydro Schematic

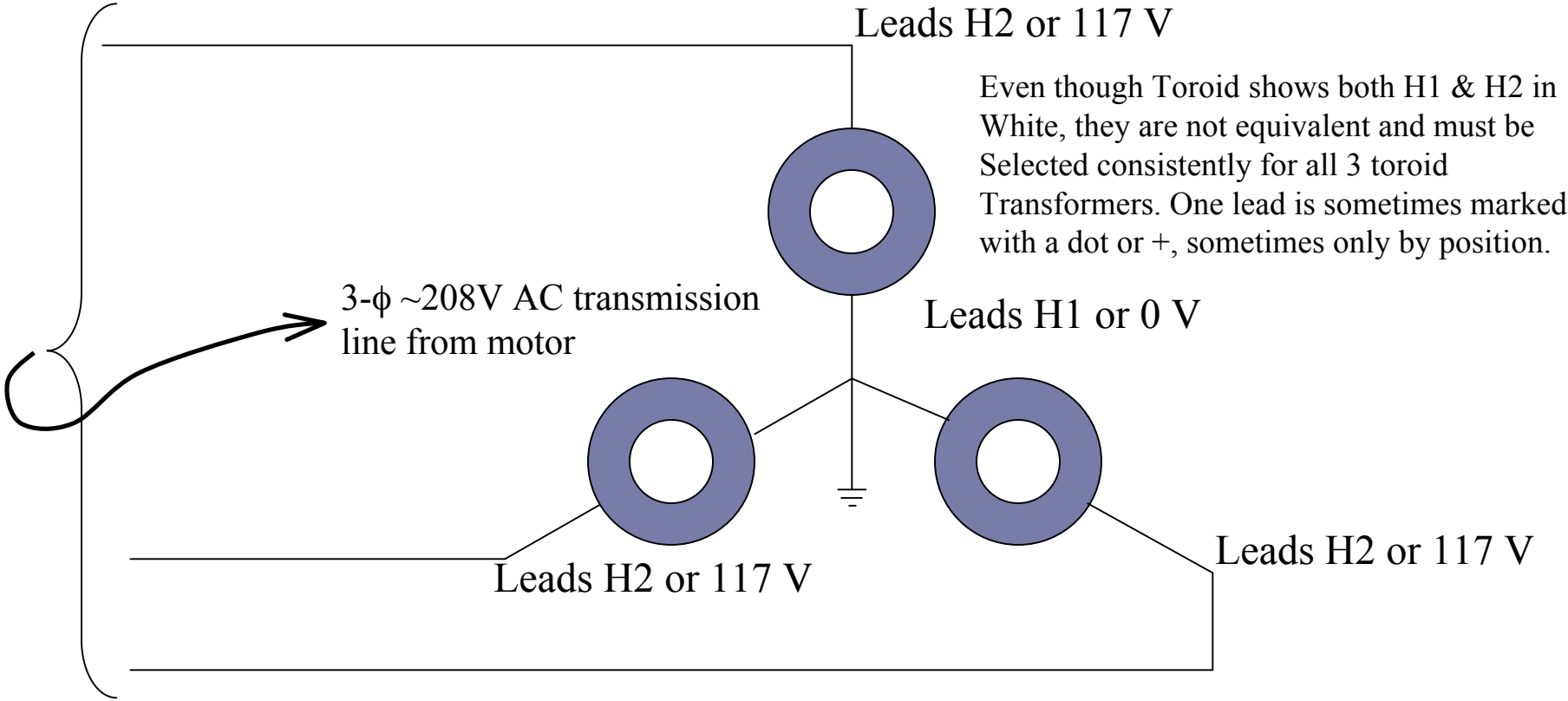
**460 V motor run capacitors**  
**Initial MFD value selected from chart**  
**then varied to tune motor rpm to near calculated value**



**Three phase motor**  
**wired for 208-230/240.**  
**Actual voltage will depend**  
**on battery state of charge and**  
**transformer ratio, ~ 167 to 202Vac**

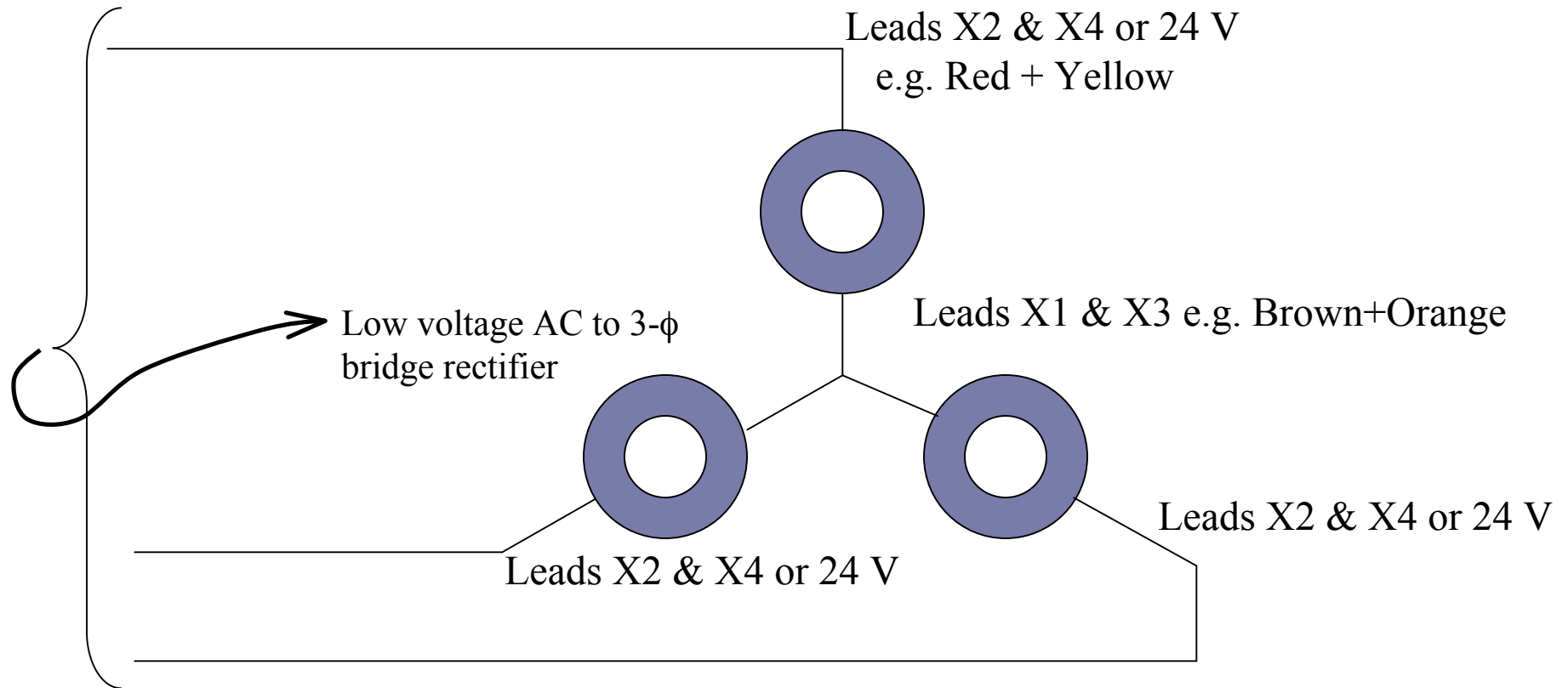
UF-B or tray cable transmission line  
(underground feeder direct burial type),  
e.g. 12-3, 10-3, or 14-3 depending  
on distance and current.  
Or use separate THHN wires in conduit.  
No motor protection circuit breaker  
required between motor and load. Motor  
will lose excitation before overloading.  
Loads may need protection.

# Transformer - Primaries



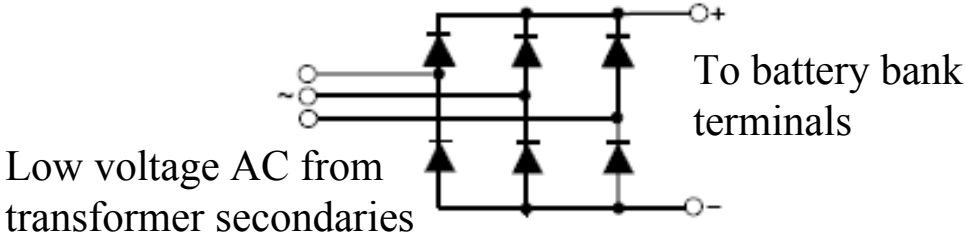
0V	H1	WHITE	□	BROWN	0V	X1
117V	H2	WHITE	□	RED	24V	X2
Toroid 660.242 lead configuration				ORANGE	0V	X3
				YELLOW	24V	X4

# Transformer - Secondaries



0V	H1	WHITE	□	□	BROWN	0V	X1
117V	H2	WHITE	□	□	RED	24V	X2
Toroid 660.242				□	ORANGE	0V	X3
lead configuration				□	YELLOW	24V	X4

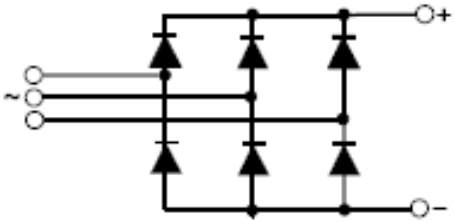
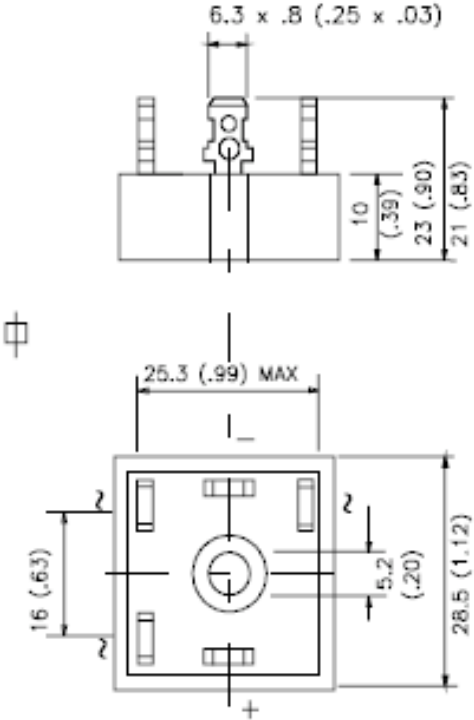
# Three Phase Bridge Rectifier



## International Rectifier 36MT20-ND

Suggested plugging force:  
400 N max; axially applied to faston terminals

Mount on heatsink



All dimensions in millimeters (inches)

# Diversion Load Control Mode

[http://www.morningstarcorp.com/products/TriStar/info/TS\\_Manual.pdf](http://www.morningstarcorp.com/products/TriStar/info/TS_Manual.pdf)

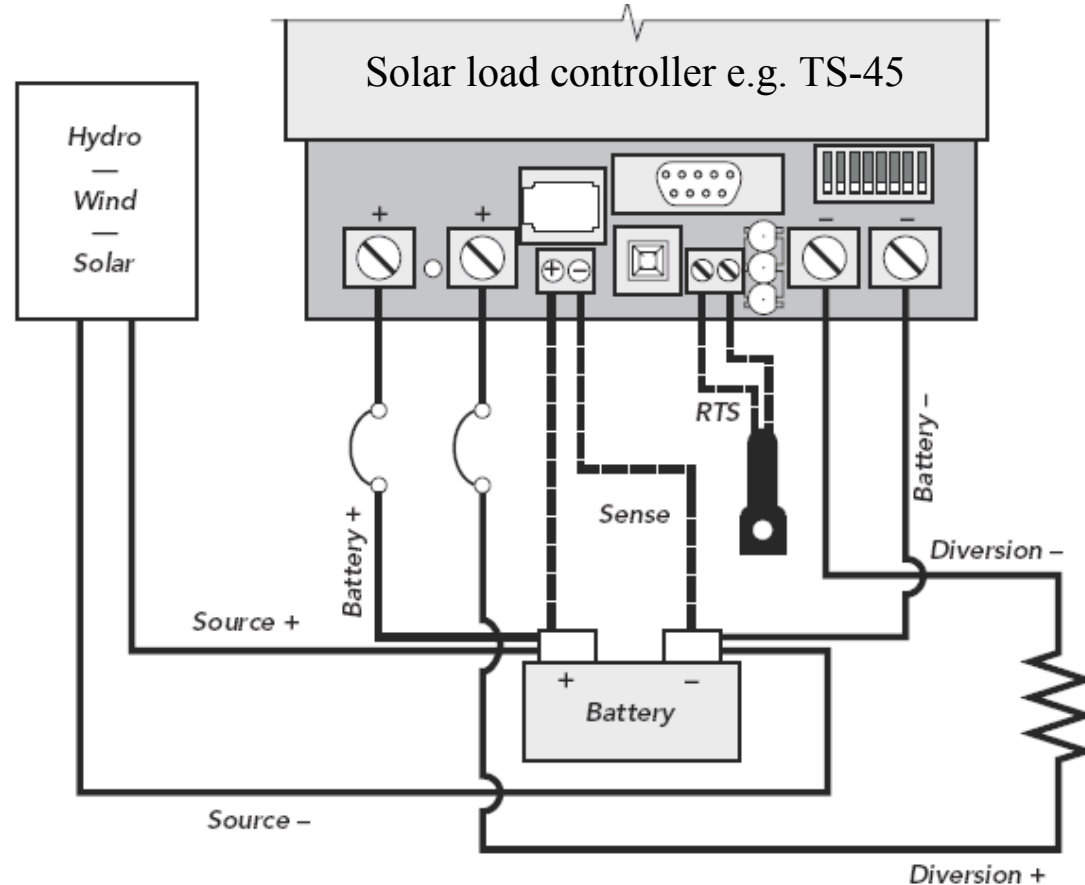


Figure 2.2b Installation Wiring for Diversion Charge Control

**Warning! Do not connect load control between source and battery as is done with solar PV systems when using hydro or wind sources.**

# AC Diversion Load Control Mode

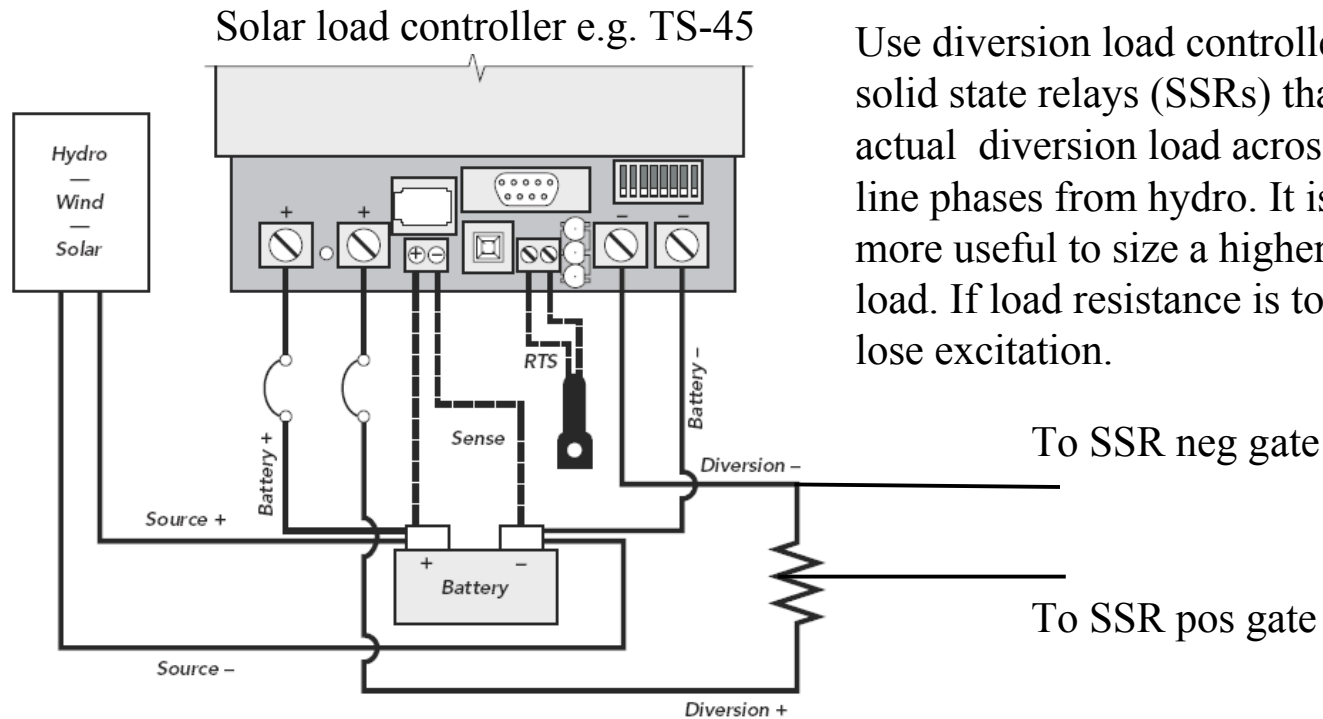


Figure 2.2b Installation Wiring for Diversion Charge Control

Use diversion load controller only to fire solid state relays (SSRs) that in turn connect actual diversion load across 208Vac transmission line phases from hydro. It is often easier and more useful to size a higher voltage diversion load. If load resistance is too low, motor will lose excitation.

To SSR neg gate

To SSR pos gate

Diversion load is two 10W, 2.2k-ohm resistors in series. Solid state relay 3-32V DC Trigger provided by Diversion (-) and center tap between diversion resistors.