



# Energy Monitoring Kit (EMK) Install Guide

*For systems without variable speed or variable airflow*



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The Turntide Energy Monitoring Kit provides  
the easiest way to accurately monitor energy usage  
of the power draw of HVAC equipment  
driven by the Smart Motor System.

## Software Wrapped in Metal™

The Turntide software-driven motor solution includes the Turntide Smart Motor and the Turntide Motor Controller, complete with networking and connection capabilities to Turntide Cloud Services. It is proven to significantly reduce energy consumption, dramatically reducing energy costs and carbon footprint resulting from electric motor operation.

## Overview

The Turntide Energy Monitoring Kit includes a three-phase power meter and current transformers. It is intended to be used with the Turntide Remote Monitoring Kit to enable remote monitoring of HVAC equipment.

The Energy Monitoring Kit may be used to perform Measurement & Verification of the energy saving benefits of the Smart Motor System. It may also be used for routine diagnostics and performance monitoring.



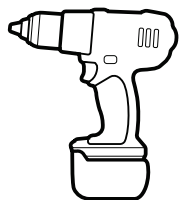
## CONSIDERATIONS

- Review this installation guide and available installation training videos before beginning
- Follow all local and national electrical codes, safety compliance requirements and common installation procedures
- Cables provided by Turntide are NOT rated for outdoor use

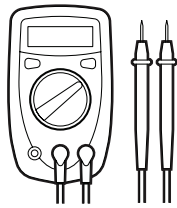
# Know Before You Go

Below is a list of the common tools that are required to install the Turntide Energy Monitoring Kit. Every application is different, and additional tools may be required. Check your toolbox to make sure you have all the tools you'll need.

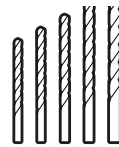
## Tools You'll Need



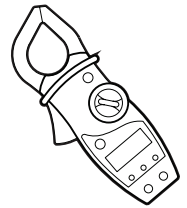
Cordless Drill



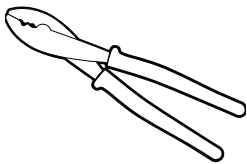
Multi-VOM Meter



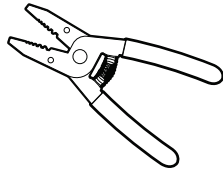
Drill Bit Index



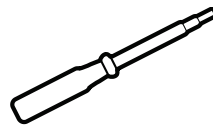
Clamp Amp Meter



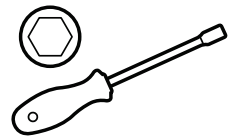
Terminal (Spade)  
Crimp Tool



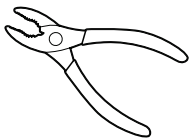
Wire Strippers



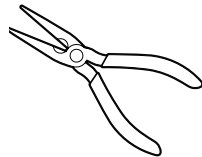
Screwdriver  
*Small Terminating*



Nut Driver  
*1/4" and 5/16"*



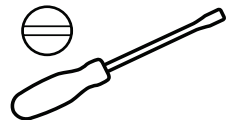
Adjustable Pliers



Needle Nose Pliers



Screwdriver  
*Phillips*

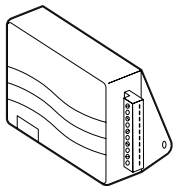


Screwdriver  
*Slot*

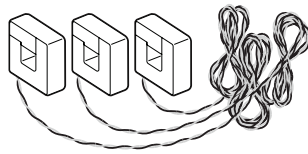
# What's Included

The Turntride Energy Monitoring Kit includes the wattnode, current transformers (CT), and a modbus cable.

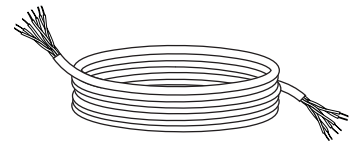
## Energy Monitoring Kit



Wattnode



Current Transformers  
Qty 3



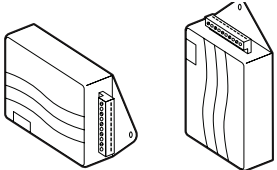
Modbus Cable

# Step-by-Step Installation of Energy Monitoring Kit

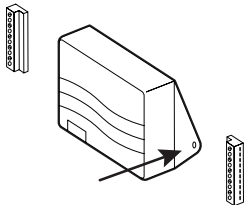
Follow these simple step-by-step instructions to install the Turntide Energy Monitoring Kit (EMK) for most common applications, follow all local codes and common installation procedures.

## Install the Wattnode Power Meter

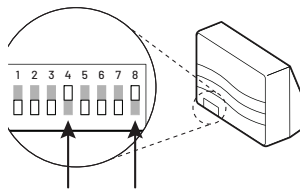
- 1



Wattnode is typically mounted in the unit control panel and can be oriented in any position with no minimum clearances – as long as ample room to terminate the wire.
- 2



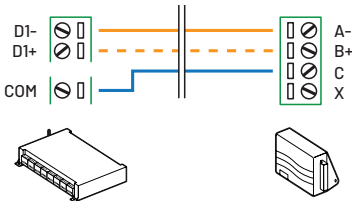
Remove green and black terminal blocks to access mounting holes and use provided self-drilling screws to mount the Wattnode securely to an interior panel.
- 3



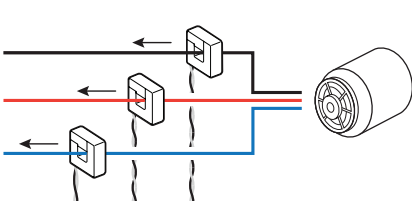
Confirm that DIP switches 4 and 8 are in the UP position and all other switches are in the DOWN position.

## Wire Components

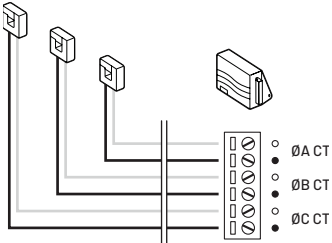
- 4



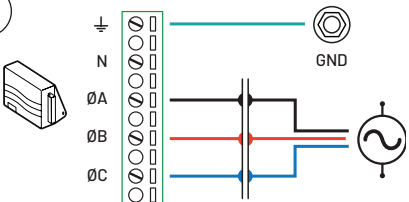
Using the provided Modbus cable, terminate the wires on D1+, D1- and any ANALOG OUTPUT COMMON on the Turntide Supervisor, and on A-, B+ and C terminals on the Wattnode.
- 5



Install a CT on each of the line voltage wires to the induction motor (i.e., A-phase CT to A-phase line voltage). Separate CTs by a few inches to avoid cross-contamination of magnetic fields. The arrows on the CT MUST point toward the power source.
- 6



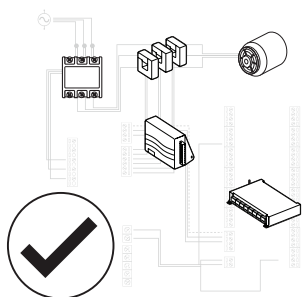
Connect the CTs to ØA CT, ØB CT and ØC CT on the Wattnode, with the white wire to the top and the black to the bottom of each terminal.
- 7



Install wiring from uninterrupted line voltage to power input terminals on Wattnode.

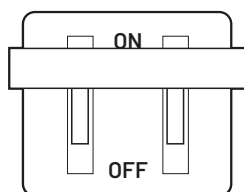
## System Startup

8



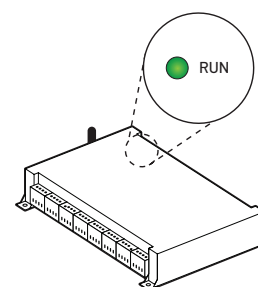
Verify all wiring is correct and that it's safe to turn power on to unit

9



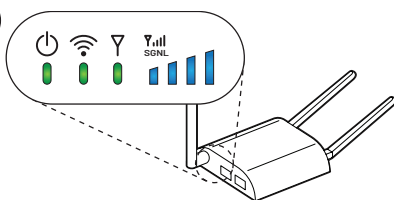
Turn power on to the unit.

10



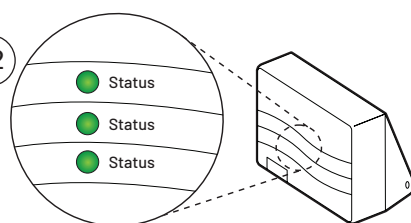
Verify the Turntide Supervisor has power and is running by checking for the green RUN LED.

11



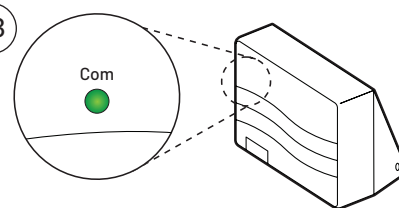
Verify the LEDs on the modem are on – green for power/wifi/connection to cell and blue for cell signal strength.

12



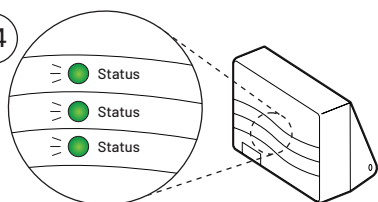
Verify the status LEDs on the Wattnode are green – if any are red, the incoming voltage and/or the CTs are wired incorrectly.

13



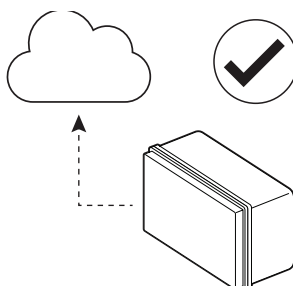
Verify the com LED is green – if not, the Modbus communication cable may be miswired, the dip switches may be set incorrectly or the programming of the Turntide Supervisor may be incorrect.

14



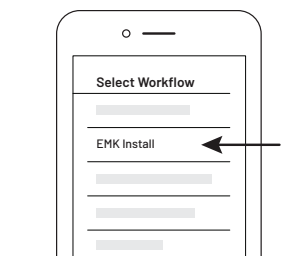
Turn on Fan motor and confirm the status LEDs on the Wattnode are pulsating green

15



Contact Turntide (877-776-8470) to confirm the EMK is operating and posting data to the cloud.

16



After installation is finished, complete the EMK Install workflow on the XOI mobile app.





# Contact Us

If you encounter issues that are not covered in this Install Guide or have other questions about the Turntide Motor System as it relates to your specific application, please contact Turntide's Customer Success team.

**877.776.8470**

[support@turntide.com](mailto:support@turntide.com)

1295 Forgewood Avenue  
Sunnyvale, CA 94089  
[www.turntide.com](http://www.turntide.com)

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1295 Forgewood Avenue, Sunnyvale, CA 94089  
[support@turntide.com](mailto:support@turntide.com)  
**877.776.8470**

Turntide Technologies (formerly Software Motor Company) has developed the world's most efficient and intelligent electric motor system. The revolutionary Smart Motor System is based on proven switched reluctance technology, now managed with advanced cloud software and connected to precise controls via IoT. Turntide's vision is to eliminate the 25% of global electricity consumption that is wasted by legacy motors, thus accelerating the world's transition from fossil fuels. Turntide is based in Sunnyvale, Calif., with offices in San Francisco; Arlington, Wash.; and Kennesaw, Ga. Turntide has installed Smart Motor Systems with dozens of customers, reducing their motor electricity consumption by an average of 64%, and is powering the systems of leading OEMs. For further information, visit [www.turntide.com](http://www.turntide.com).