

ENGO V10 – CONTROL @ GRID EDGE

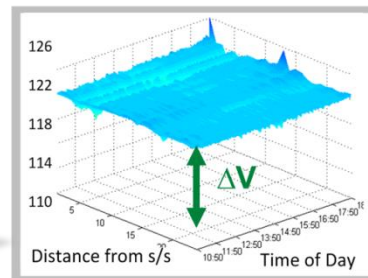
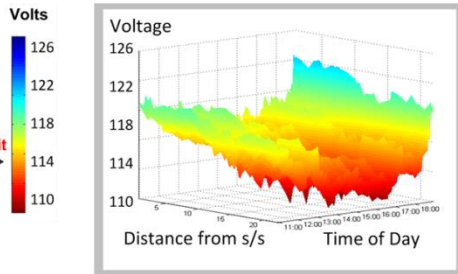
ENGO® V10.4 Product Description

ENGO-V10 is a dynamic voltage monitoring and control device that can be mounted on either a pole top or a pad, on the low voltage side of a service transformer. ENGO is connected on the customer-side of the transformer at 208V, 240 or 277 volts. The ENGO unit monitors the line voltage and actively adjusts the voltage level by injecting VARs when the observed line voltage drops below a configurable setpoint; it is capable of injecting 1 kVAR increments within half a cycle up to 10 kVAR maximum. ENGO-V10.4 is a compact, cost effective, autonomous device that requires no outage time (shunt connection) at installation. Equipped with remote communications, the unit delivers real-time control over feeder voltage, and provides voltage visibility at the feeder end points – where it matters the most.

The ENGO device is designed to operate autonomously and boost the voltage to achieve its setpoint on a sub-cycle level. The device can communicate via either cellular or AMI-mesh networks to a headend system (GEMS®) which enables remote setpoint changes and firmware upgrades. The ENGO/GEMS end to end solution provides precise voltage visibility at the feeder end points.

ENGO devices enable the utility to achieve one or multiple objectives:

- 1- Dynamic voltage support
- 2- Peak and emergency demand reduction
- 3- Energy efficiency via voltage reduction
- 4- Higher solar PV penetration



Features

- » Variable voltage support (0-10 kVAR) per ENGO-V10
- » Fast sub-cycle response with no fighting between ENGO devices
- » Multi-microprocessor design with inbuilt diagnostics
- » Multiple communications options (Cellular & AMI Meshed)
- » Voltage monitoring and reporting
- » Low losses of 0.35%: best in class

Installation & Configuration

- » Dynamic, distributed and autonomous control
- » Over the air Setpoint & Firmware upgrades
- » Low bandwidth communications
- » Suitable for pole and pad mount service transformers
- » Live Pole installation – no outage time
- » Easy Pole installation = 15-30 mins
- » Light weight: 48 lbs



ENGO-V10 Specifications

Electrical

Nominal Voltage
208/240/277V, 1 phase

Injected VARs
0-10kVAR leading

Losses
< 0.35% @ 10 kVAR

Nominal Frequency
60 Hz / 50 Hz

Mechanical

Dimensions (h, w, d)
29.3 x 17.9 x 6.6 inches
(h = 36.3" with brackets)

Weight
48 lbs / 21.8 kg
(with 15 ft of cabling)

Installation

Pole top
Padmount

Transportation

Vibration testing per ISTA 1A, 1E and 2A

Networking

Communication
Cellular LTE (CAT1)
AMI Mesh (Itron)

Protection

Overvoltage
330V up to 1 minute

Fusing

Internal Fuse (100A)

Surge/Impulse Protection

IEEE/ANSI C62.41 C3 combination wave
(20kV/10kA/1.2 /50 μ s) IEEE C62.41
B3 ring-wave (6kV/500A/100 kHz)

Environmental

Operating Temperature
-40°C to 55°C

Humidity

Up to 95% non-condensing

Weather

IP65/NEMA4x

Wind Survival

165MPH with < 300Newton wind load

Corrosion Resistance

Enclosure is UV stabilized ASTM B117 salt
fog resistance compliant



ENGO V10.4

Standards & Certifications

EMI Compliance	Radiated & Conducted Emissions <ul style="list-style-type: none"> FCC Part 15B Class A for radiated & conducted emissions ICICES-003 Issue 4 / CISPR 22:2006 for radiated & conducted emissions 	
EMC Compliance	Radiated, radio-frequency, electromagnetic field immunity test <ul style="list-style-type: none"> IEC 61000-4-3 	
Safety	Dielectric Withstand – Line to Chassis <ul style="list-style-type: none"> SPE-1000-13 – 1.5 kV for 1 minute 	
Surge/Transients	Category B3: ±6 kV / 100 kHz ring-wave Surges in Low Voltage (1000V and less) AC Power Circuits <ul style="list-style-type: none"> IEEE C62.41.2 IEEE C62.45 EN 61000-4-12 IEC 61000-4-12:2006 Electrical Fast Transient (EFT) - ±4 kV <ul style="list-style-type: none"> IEEE C37.90.1-2012 IEC 61000-4-4 	Induced Lightning Surge <ul style="list-style-type: none"> IEC 61000-4-5, 2006 IEEE C62.41 Category C3 (±20 kV / 10kA, Combination wave (1.2/50us)) Electrostatic Discharge (ESD) (±8 kV contact / ±15 kV air) <ul style="list-style-type: none"> IEEE C37.90.3 IEC 61000-4-2 Surge Withstand Capability (SWC) - Oscillatory Wave ± 2.5 kV <ul style="list-style-type: none"> IEEE C37.90.1
Accelerated Life	Highly accelerated life testing (HALT) <ul style="list-style-type: none"> Operating Limit: Temp. (-75°C to +105°C) Vibration (55 Grms) rapid cycling stress Steady-state AFR: 0.94% MTBF (Lower 90% confidence limit): 502,115 hours High Temperature Operating Life (HTOL) <ul style="list-style-type: none"> Continuous operation at 85°C for 4 months 	Humidity Freeze <ul style="list-style-type: none"> 85°C / 85% RH for 10 hours, followed by -40°C for 2 hrs, 20 cycles Thermal Cycling <ul style="list-style-type: none"> -40°C to 85°C for 144 cycles at 6 cycles/day Damp Heat <ul style="list-style-type: none"> 85°C / 85% RH for 1000 hours Total Relay Switching > 30 M
Environment	Rain & Dust Ingress Testing <ul style="list-style-type: none"> IP65 Compliant per IEC 60529 Salt Fog Testing – 5% NaCl, 35°C, 2500 Hrs <ul style="list-style-type: none"> ASTM-B-117-07 	Humidity Testing (95% Rel. Humidity @ 85°C for 24 hrs) <ul style="list-style-type: none"> Section 4.7.3.17 of ANSI C12.1-2008
Exterior	UV accelerated aging test - ANSI C57.12.28-1999 <ul style="list-style-type: none"> Gloss (ASTM D523) Thickness (ASTM B499) Impact (ASTM D2794) Adherence (ASTM D3359) Pencil Hardness (ASTM B3359) Color (ASTM D2244) 	
Packaging	Shock testing, rotational edge drop, incline impact, random vibration tests <ul style="list-style-type: none"> ISTA 1A-2005 for individual Cartons, ISTA 1E-2005 for unitized load on Pallet 	

Contact us at:

sales@varentec.com

Tel: 408-433-9900

Toll Free: 844-VARENTEC

Fax: 408-433-9919

