



Additional information
available at
www.startco.ca

SE-330AU

NEUTRAL-EARTHING-RESISTOR MONITOR

The SE-330AU is a microprocessor-based neutral-earthing-resistor (NER) monitor that detects NER failures and earth faults in resistance-earthed systems. NER resistance, NER current, and transformer or generator neutral-to-earth voltage are measured using a current transformer (CT) and an ER-series sensing resistor. The SE-330AU responds only to fundamental-frequency current and voltage, and it is not influenced by harmonics.

NER resistance is continuously measured and a resistor-fault trip will occur if NER resistance varies from its calibrated value. Earth-fault trip level is adjustable from 0.125 to 5.0 A if used with an EFCT-x, and from 0.75 to 30.0 A if used with an SE-CS30-x. Earth-fault trip time is adjustable from 0.10 to 0.50 seconds.

The SE-330AU has four output relays—trip, earth fault, resistor fault, and unit healthy. Additional features include LED trip indication, trip memory, front-panel and remote reset, 4–20-mA analog output, RS-232 communication, and optional network communications with trip-record logging.

The SE-330AU is suitable for AS/NZS 2081 installations.

TECHNICAL SPECIFICATIONS

Supply - Option 0	30 VA, 65 to 265 Vac, 40 to 400 Hz, 20W, 80 to 275 Vdc
Power-Up Time	250 ms at 120 Vac
AC Measurements	Discrete Fourier Transform. 16 samples per cycle, 50 or 60 Hz
Resistor-Fault Circuit:	
Neutral-To-Earth Voltage Trip-Level Range:	
ER-600VC or ER-5KV	20 to 2,000 Vac
ER-15KV to ER-35KV	100 to 10,000 Vac
Accuracy	5% of setting
NER Calibration Range:	
ER-600VC or ER-5KV	0 to 2 k Ω
ER-15KV to ER-35KV	0 to 10 k Ω
Trip Resistance, $V_N = 0$:	
ER-600VC or ER-5KV	500- Ω change \pm 200 Ω
ER-15KV to ER-35KV	2.5-k Ω change \pm 1 k Ω
DC-Voltage Rejection:	
ER-600VC or ER-5KV	25 Vdc
ER-15KV to ER-35KV	125 Vdc
Trip Time	12 \pm 1 s
Trip Hold-Off Level	5% of CT-Primary Rating
Operating Mode	Latching/Non-Latching
Earth-Fault Circuit:	
Trip Level:	
EFCT-x	0.125, 0.25, 0.30, 0.40, 0.50, 0.75, 1.0, 2.0, 3.0, 4.0, 5.0 A
SE-CS-30-x	0.75, 1.5, 1.8, 2.4, 3.0, 4.5, 6.0, 12.0, 18.0, 24.0, 30.0 A
Trip Time	0.10, 0.12, 0.14, 0.16, 0.18, 0.2, 0.25, 0.3, 0.35, 0.4, 0.5 s
Trip-Level Accuracy	+0, -20% of setting
Trip-Time Accuracy	+0, -15 ms or +0, -20% of setting
CT-Input Burden:	
EFCT Input	11 Ω
CS30 Input	10 Ω
CT-Detection Threshold	15 Ω
Thermal Withstand:	
Continuous	10 x CT Rating
1-Second	25 x CT Rating
Measurement Range	25 x CT Rating
Operating Mode	Latching/Non-Latching
Trip Relay K1 Contacts:	
Configuration	N.O. (Form A)
Operating Mode	Fail-Safe
CSA/UL Contact Ratings	8 A resistive 250 Vac, 5 A resistive 30 Vdc
Supplemental Contact Ratings:	
Make/Carry 0.2 s	30 A
Break:	
dc	75 W resistive, 35 W inductive (L/R = 0.04)
ac	2,000 VA resistive, 1,500 VA inductive (PF = 0.4)
Subject to maximums of 8 A and 250 V (ac or dc).	
EF (K2) and RF (K3) Relay Contacts:	
Configuration	N.O. and N.C. (Form C)
Operating Mode	Non-Fail-Safe
CSA/UL Contact Ratings	8 A resistive 250 Vac, 8 A resistive 30 Vdc
Supplemental Contact Ratings:	
Make/Carry 0.2 s	20 A
Break:	
dc	50 W resistive, 25 W inductive (L/R = 0.04)
ac	2,000 VA resistive, 1,500 VA inductive (PF = 0.4)
Subject to maximums of 8 A and 250 V (ac or dc).	
Unit-Healthy Output K4 (Option 00):	
Configuration	N.O. (Form A)
Operating Mode	Closed when Healthy
Ratings	100 mA, 250 V (ac or dc)
Closed Resistance	30 Ω maximum

Unit-Healthy Output K4 (Option 01):	
Configuration	N.C. (Form B)
Operating Mode	Open when Healthy
Ratings	100 mA, 250 V (ac or dc)
Closed Resistance	30 Ω maximum
4–20-mA Analog Output:	
Type	Self Powered and Loop Powered
Range	4 to 22 mA
Loop Voltage	8 to 36 Vdc
Load	500 Ω (maximum with 24-Vdc supply)
Isolation	120 Vac
Parameter	NER Current
Terminal-Block Ratings	10 A, 300 Vac, 2.5 mm ²
PWB Conformal Coating	MIL-1-46058 qualified, UL QMJU2 recognized
Mounting Configurations	Panel Mount and Surface Mount
Shipping Weight	2.0 kg (4.4 lbs)
Environment:	
Operating Temperature	-40 to 60°C
Storage Temperature	-55 to 80°C
Humidity	85% Non-Condensing
Surge Withstand	ANSI/IEEE C37.90.1-1989 (Oscillatory and Fast Transient)
EMC	EN 5011:1998
Compliance	AS/NZS 2081.3:2002

ORDERING INFORMATION

SE-330AU-

Options:	
00	N.O. UNIT HEALTHY Contact
01	N.C. UNIT HEALTHY Contact
Network Communications:	
0	None
1	DeviceNet™
2	PROFIBUS®
3	Ethernet
Supply:	
0	Universal ac/dc Supply
2	48 Vdc

Sensing Resistors:	
ER-600VC	1 kVac max. System Voltage
ER-5KV	5 kVac max. System Voltage
ER-15KV	15 kVac max. System Voltage
ER-25KV	25 kVac max. System Voltage
ER-35KV	35 kVac max. System Voltage

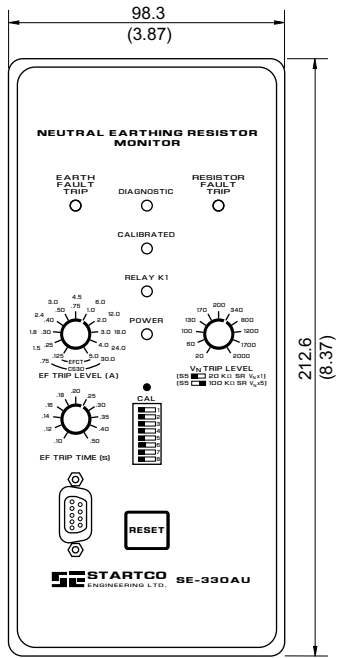
Current Sensors:	
EFCT-26	5:0.05 A, 26 mm Window
EFCT-1	5:0.05 A, 82 mm Window
SE-CS30-26	30:0.05 A, 26 mm Window
SE-CS30-70	30:0.05 A, 70 mm Window

Accessories:	
RK-332	Remote Indication and Reset
SE-330-SMA	Surface-Mount Adaptor

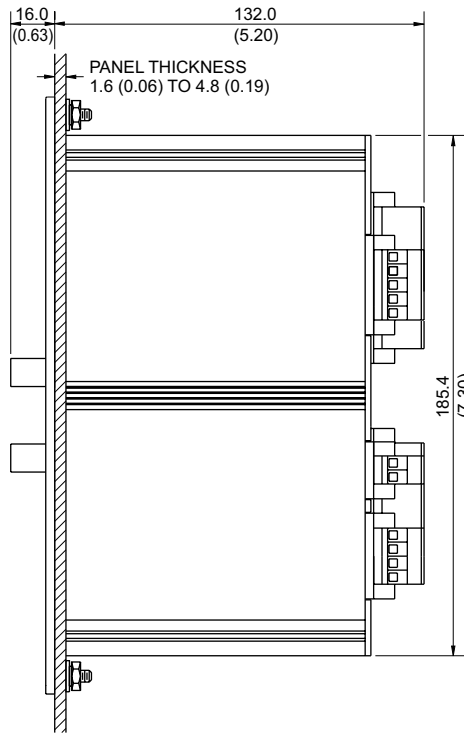
Software: *	
SE-FLASH	Firmware Upgrade Program
SE-MON330	SE-330 Data-Display Program for PC
SE-PDA330	SE-330 Data-Display Program for PDA

* Available at www.startco.ca.

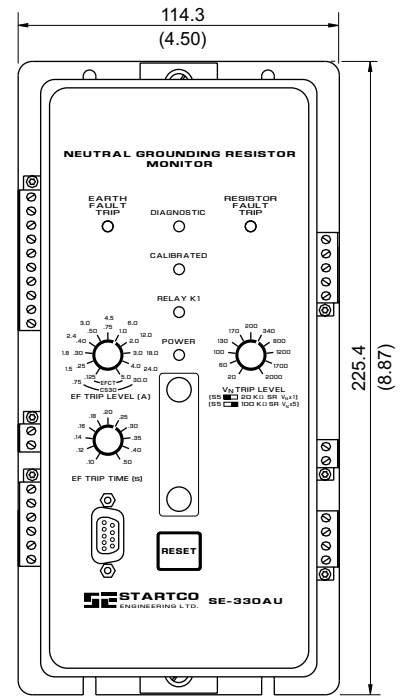
DIMENSIONS



**SE-330AU
PANEL-MOUNT FRONT VIEW**

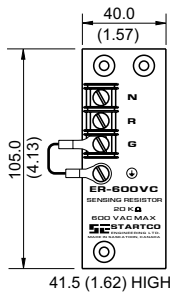


**SE-330AU
PANEL-MOUNT SIDE VIEW**

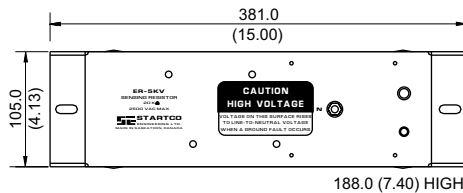


**SE-330AU
SURFACE-MOUNT FRONT VIEW**

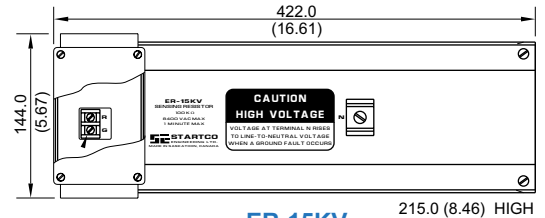
NOTE 1



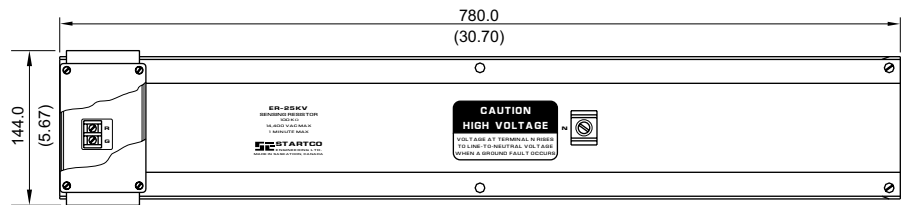
**ER-600VC
TOP VIEW**



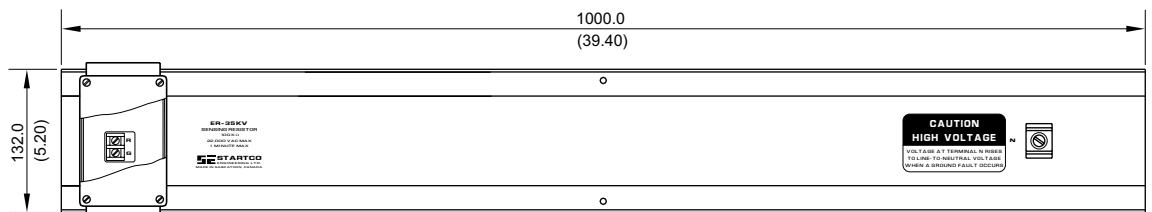
**ER-5KV
TOP VIEW**



**ER-15KV
TOP VIEW**



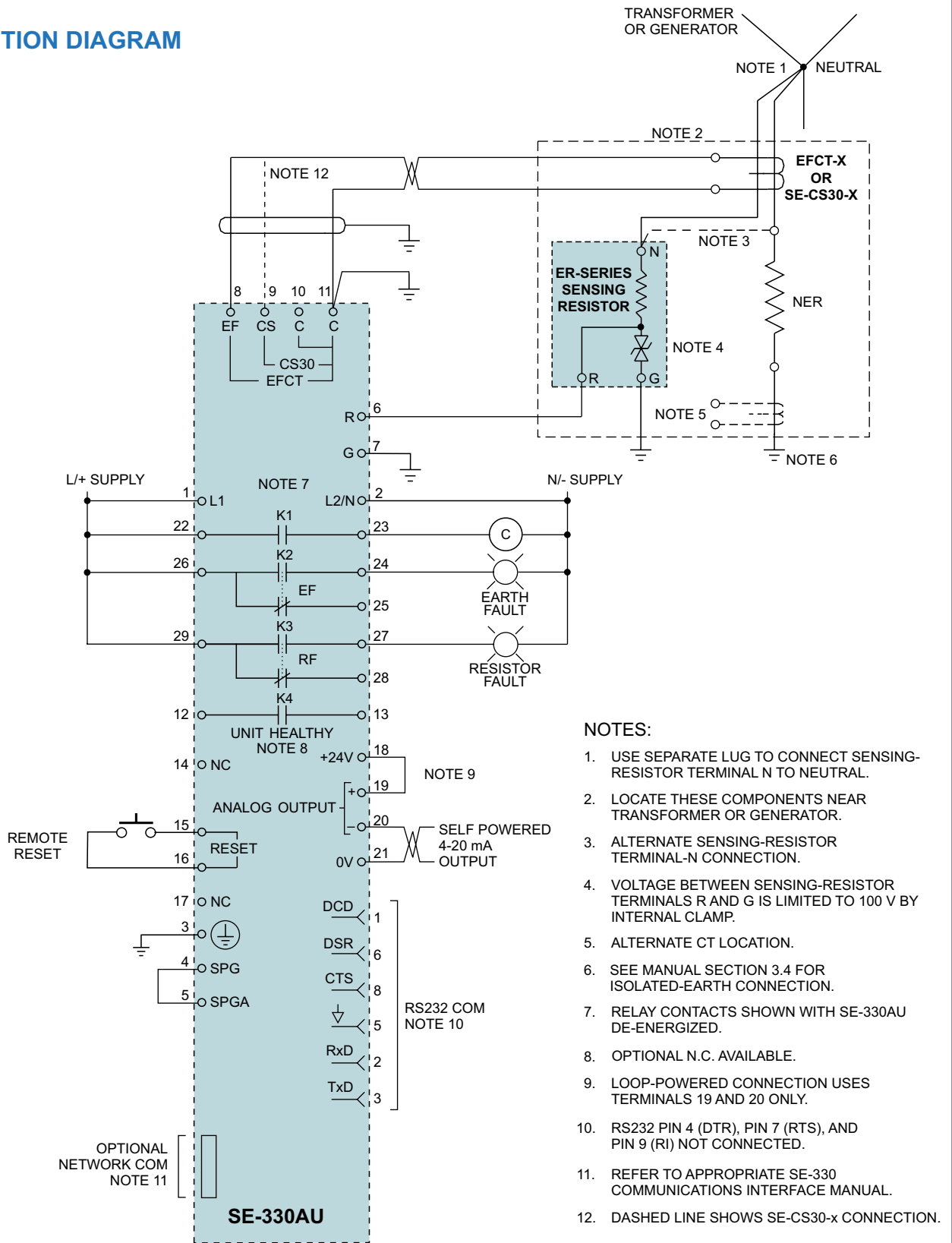
**ER-25KV
TOP VIEW**



**ER-35KV
TOP VIEW**

- NOTES:
- FORWARD PROJECTION 138.0 (5.43).
 - DIMENSIONS IN MILLIMETRES (INCHES).
 - CAD DRAWINGS AVAILABLE AT www.startco.ca.

CONNECTION DIAGRAM



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This product has a variety of applications. Those responsible for its application must take the necessary steps to assure that each installation meets all performance and safety requirements including any applicable laws, regulations, codes, and standards.

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