

Trafox Superintend®



Residual Current
Monitoring System

Residual Current Monitoring System

VRE-08, VRE-16, VRE-32 and VRE-64 product family!

Contains Ethernet interface for monitoring and controlling the VRE device from anywhere using a web browser and Internet. New version v2.00 contains a Master mode and the possibility of changing the settings on the web interface.



Technical summary

Supply voltage	90-264 V 47-63 Hz	Channel CT testing	ON/OFF, ON by default
Power consumption	14,3 W	Alarm relay contact	one changeover contact, max. 8 A 250 VAC / 30 VDC
Measuring channels VRE-08/16/32/64	8/16/32/64 pcs	Warning relay contact	one changeover contact, max. 8 A 250 VAC / 30 VDC
Maximum length of the measuring cable	100 m	Operating temperature	0 ... +55 °C
Measuring range	0 mA - 20 A	Storage temperature	-20 ... +70 °C
Measuring accuracy		Humidity	< 95 %, non condensing
- closed transformer	±5 %, ±2 dgt	Installation	panel mounting (DIN 43700)
- split transformer	±10 %, ±2 dgt	Electrical safety standard	IEC 61010-1:2010 (3rd Edition)
Repeatability	±5 %, ±2 dgt	Complies with the following EMC standards	EN 61326-1 (2006), EN 61000-3-2 (2006), EN 61000-3-3 (1995)+A1(2001)+A2(2005)
Alarm range	5 mA - 10 A	RoHS	2002/95/EY
Alarm delay	0 - 95 s		
Warning level	OFF/1 - 100 % of alarm level		

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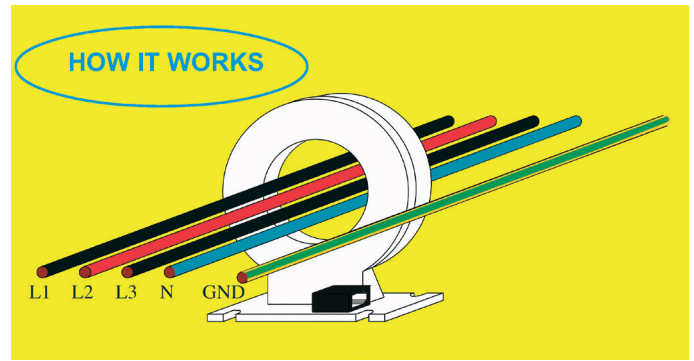
Predictive technology for

- Preventative maintenance
- Protection
- Data collection

Continuous monitoring of residual current has proved to be an effective method of maintaining preventative maintenance systems. The result of monitoring the electrical network is a more reliable and “cleaner” electrical system.

Continuously monitoring units detects faults and generates alarms for the following:

- insulation damage or degradation
- wiring errors
- neutral-to-ground faults
- connection of defective devices
- leakage currents insufficient to blow a fuse or to trip a circuit breaker.



Residual current is measured by a sensitive sum current transformer. Phase and neutral conductors of electrical systems go through the sum current transformer. If the electrical system has a separate grounding conductor, it has to stay outside the sum current transformer.

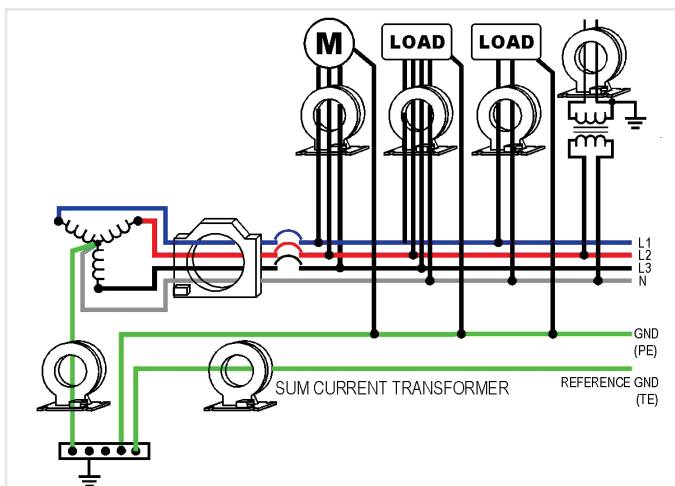
Only a small leakage current flows through the insulation impedance to ground when there is no fault in the electrical system. If a fault occurs, part of the current goes to the grounding conductor and the current leakage increases to a multiple value forming a so called fault current.

Measuring points

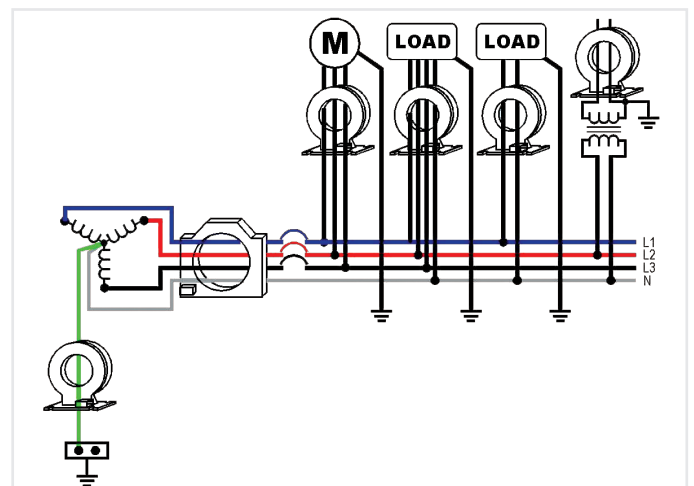
An independent alarm threshold setting and delay can be set to each measuring point. An alarm is received immediately from the measuring point when the fault occurs. Detecting the location of the fault is easy and fast.

The VRE-08, VRE-16, VRE-32 and VRE-64 devices also contain an alarm warning function. With it the ground faults can be found on earlier stage, when the fault current is rising but has not reached the unacceptable level yet. The warning signal (LED indicator and relay message) is generated, if the channel's fault current level exceeds the warning level set to the channel (1 – 100 % of the channel's alarm level).

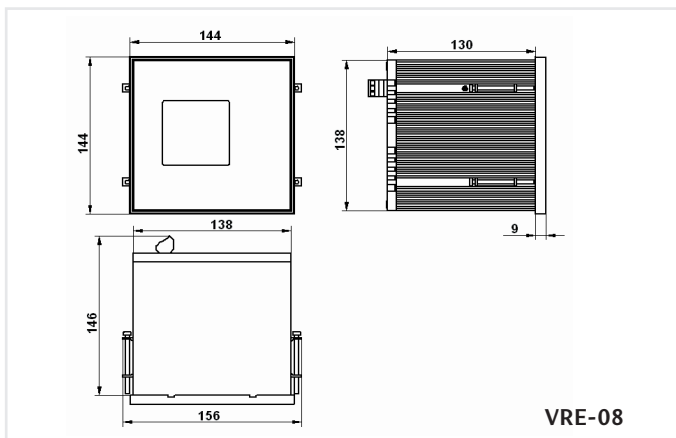
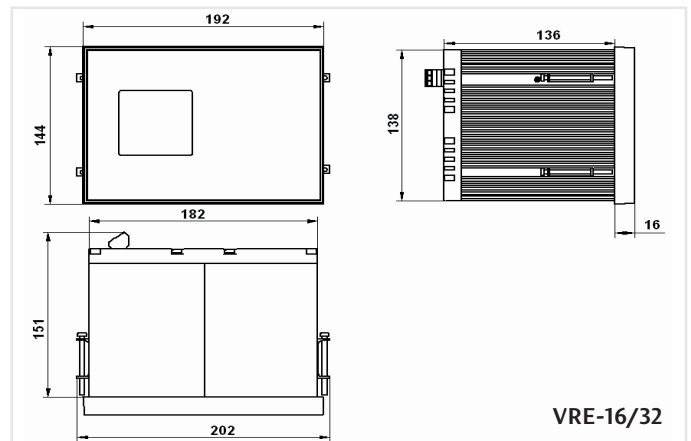
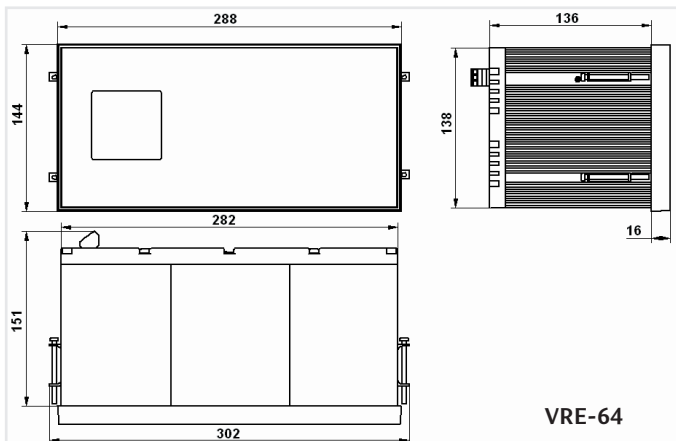
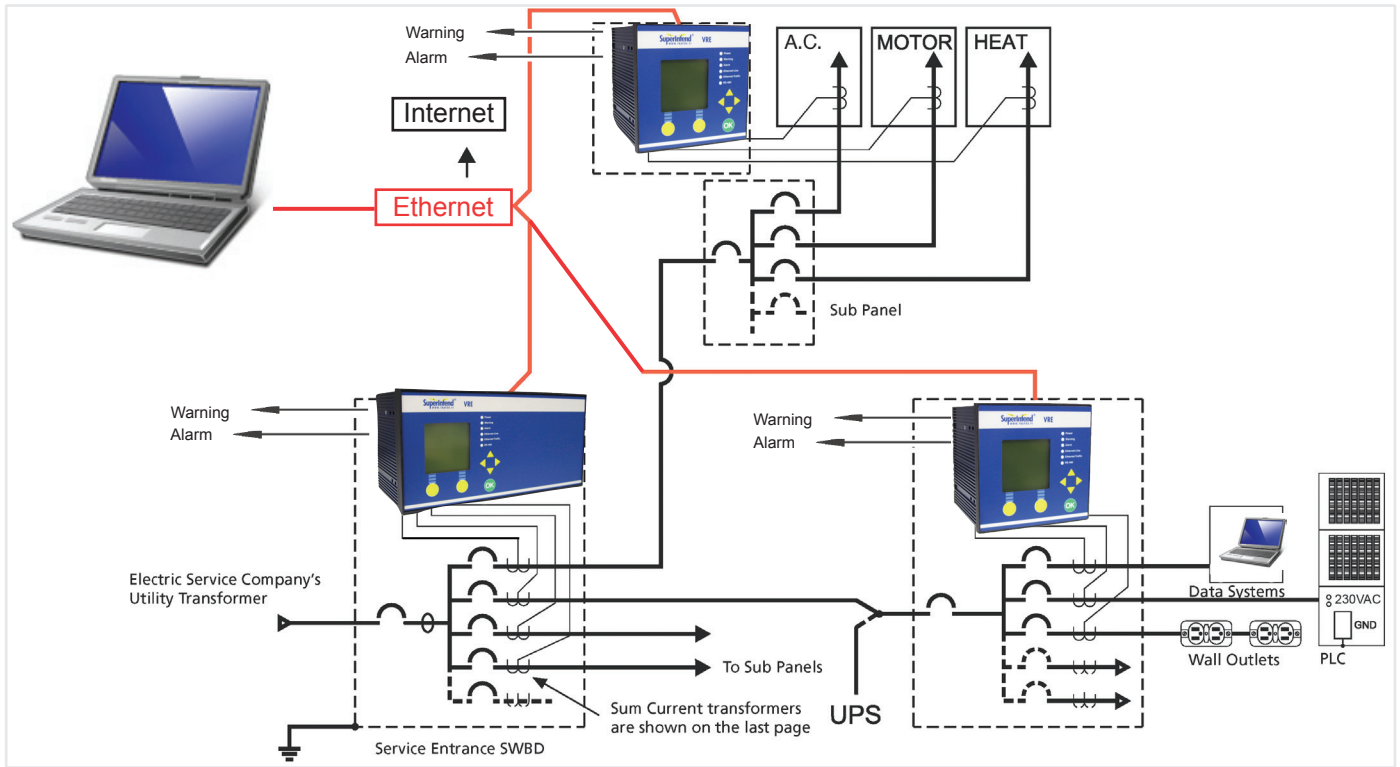
Isolated electrical system

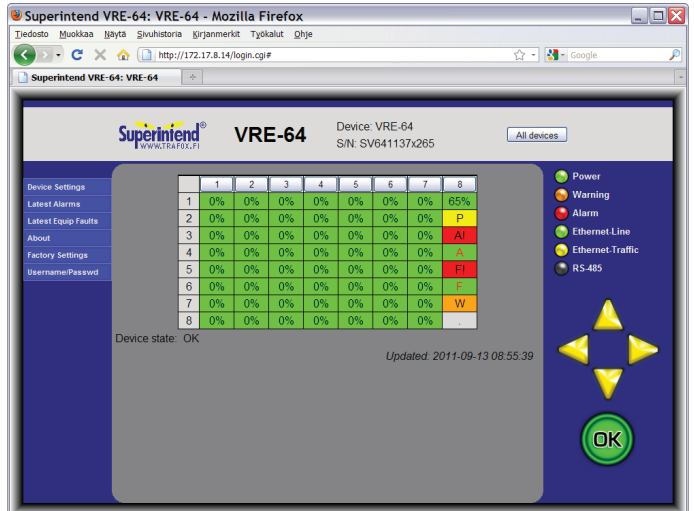
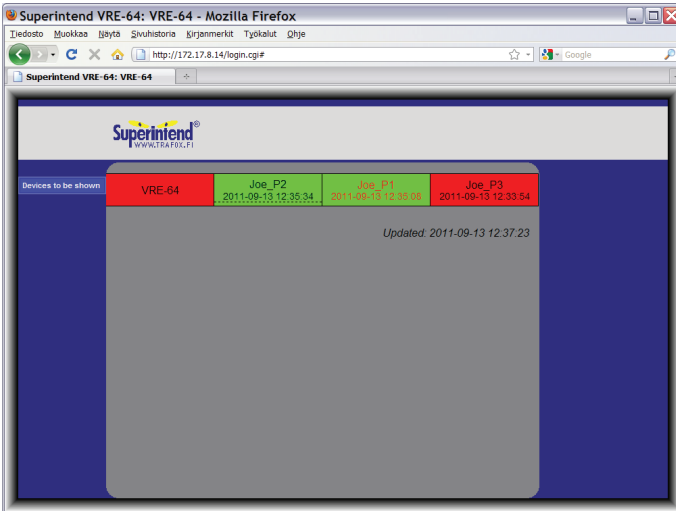


TT-electrical system



Remote/stand-alone monitoring system

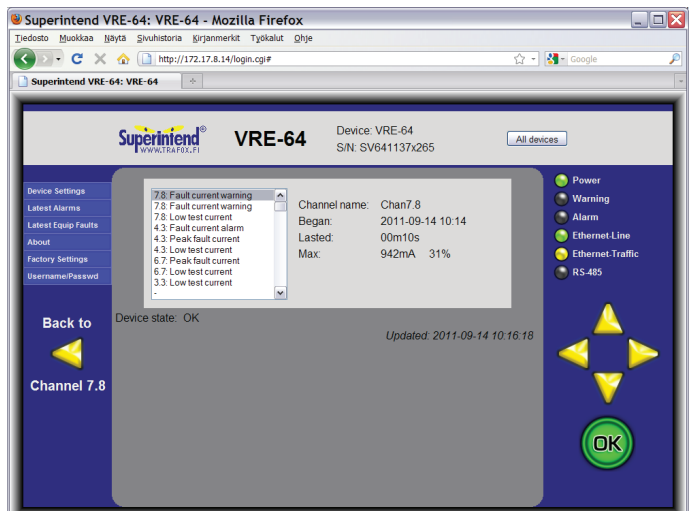
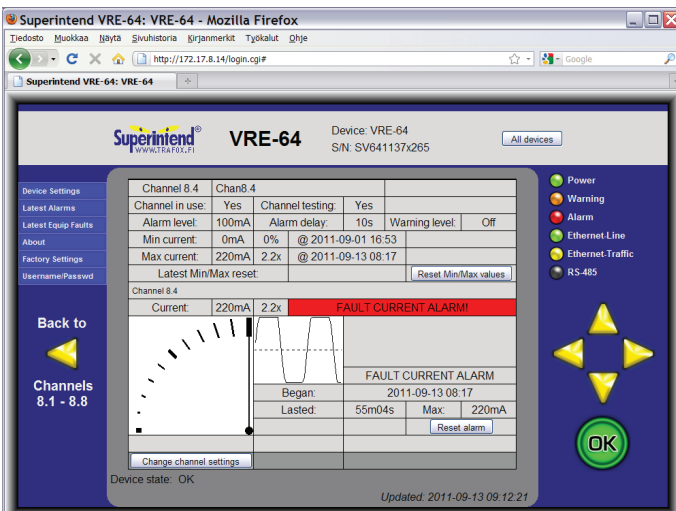




With a VRE device equipped with the Master functionality, you can see at one glance the status of totally 32 VRE devices at maximum. Via the Internet, you can control all your VRE devices from anywhere using any computer equipped with a web browser.

The colour of the device cell tells the alarm status of the device. You can view the channel-specific information of any device by clicking the device cell on the Master view.

On the main view of a VRE device you can see the status of all channels of the device. The colour of the channel cell tells the alarm status of the channel, so here you can see at one glance the channel which has caused the possible alarm.



Some detailed information of one channel is shown on the channel-specific view. In addition to the momentary fault current level, the channel view shows the fault current waveform, alarm status of the channel and minimum/maximum fault current history. Channel settings are shown and it is also possible to change them.

The list of the latest alarms and equipment faults can be viewed on the web interface. It is also possible to change the basic settings of the VRE device and restore some or all settings to the factory default values. Also username and passwords can be modified on the web interface.

Single channel Residual Current Monitoring System

VR-14



UL-508, UL1053,
VR-14 and sum current transformer

Technical summary

Digital display of current and set values

Measuring range: 14,3 W

Model VR-14E/10 10mA-10A

Model VR-14E/100 100mA-100A

Installation: DIN opening in panel boards

Flush mounting with mounting kit

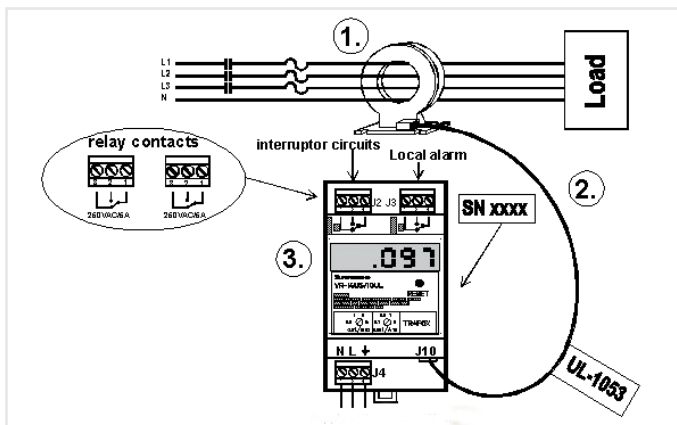
DIN 35 rail

IP 54 (Nema 4) window for flush mounting

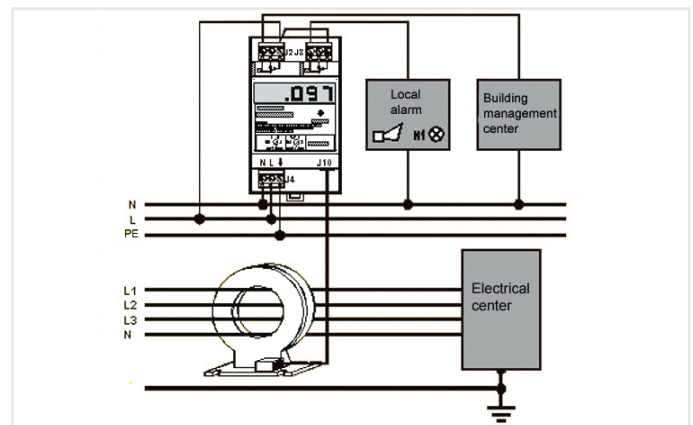
Automatic self-testing

The benefit of using earth leakage current monitoring system is having a better personal and fire safety. Insulation faults can be predicted and preventative maintenance can be done in time.

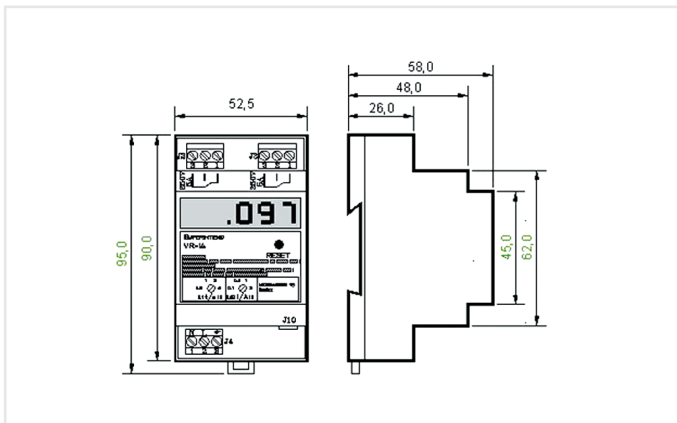
Use of VR-14E monitoring system



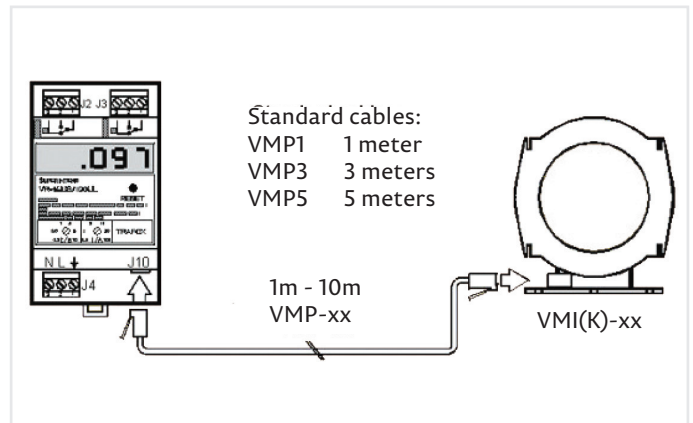
Ground fault protection can be used for equipment protection only - not for personal protection.



Residual current monitoring.



Also available a flush mounting kit for panel board installation. Weight 230g.



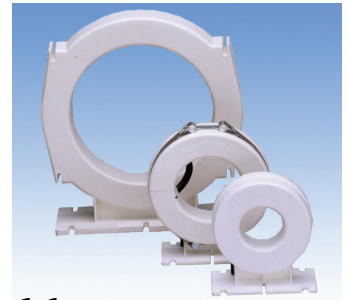
Model	Measuring range	Alarm settings	Alarm delay settings
VR-14E/10	10mA-10A	30mA, 100mA, 300mA, 1A, 3A, 10A	0.2s, 0.5s, 1s, 3s, 5s, 10s
VR-14E/100	100mA-100A	300mA, 1A, 3A, 10A, 30A, 100A	0.2s, 0.5s, 1s, 3s, 5s, 10s

Supply voltage and power: 230VAC 1.5VA

Relay contacts: 2 separate single pole double throw dry contacts max. 250VAC 5A

Sum Current Transformers

Type	Closed core model						Weight kg	Metric sizes Cu conductors
	D mm	A mm	B mm	C mm	E mm	F mm		
VMI-25	25	46	26	53	35	-	0,15	4x25
VMI-35	38	90	46	96	70	38	0,30	4x50
VMI-60	62	90	46	125	70	38	0,54	4x150
VMI-95	97	146	50	161	102	38	0,80	6x240
VMI-130	133	196	54	200	138	42	1,25	8x240
VMI-200	200	266	68	255	200	50	1,50	12x240

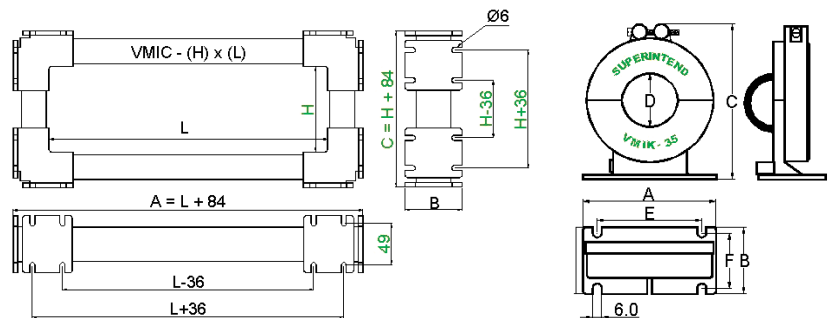


CE

UL-508, UL1053, UL1244
 Max. voltage 1000V
 Continuous thermal limiting current 100A.
 Thermal limiting current, 1 sec. 100kA.
 Dynamic limiting current, peak value 250kA.

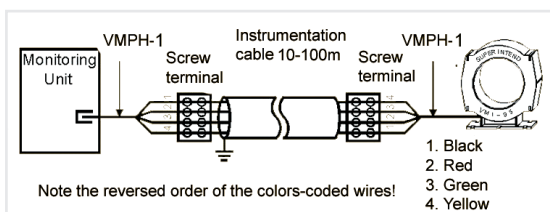
Type	Split core model						Weight kg	Metric sizes Cu conductors
	D mm	A mm	B mm	C mm	E mm	F mm		
VMIK-25	23	46	26	67	35	-	0,21	4x25
VMIK-35	35	90	46	110	70	38	0,36	4x50
VMIK-60	60	90	46	140	70	38	0,60	4x150
VMIK-95	95	146	50	161	102	38	0,98	6x240
VMIK-130	130	196	54	198	138	42	1,45	8x240
VMIK-200	198	266	68	255	200	50	1,70	12x240

Type	Window type, standard sizes	
	H mm	L mm
VMIC(K) 105 x 204	105	204
VMIC(K) 105 x 356	105	356
VMIC(K) 154 x 204	154	204
VMIC(K) 154 x 356	154	356
VMIC(K) 154 x 508	154	508
VMIC(K) 204 x 204	204	204
VMIC(K) 204 x 356	204	356
VMIC(K) 204 x 610	204	610





In custom made models, please give length and height information.
 Maximum and minimum measures of custom made busbar transformers (window type) are:
 min H 50mm max H 204mm
 min L 50mm max L 660mm

Interconnection cable from VRE to sum current transformers Installation with screw terminal:



Type	Standard measuring cables
	Length
VMP1	1 m
VMP3	3 m
VMP5	5 m
VMP10	10 m

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Muuntosähkö

Trafox is a brand of Muuntosähkö Oy. We develop, manufacture and customise high-quality transformers, chokes, filters and Trafox Superintend® monitoring devices for a large number of applications.

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