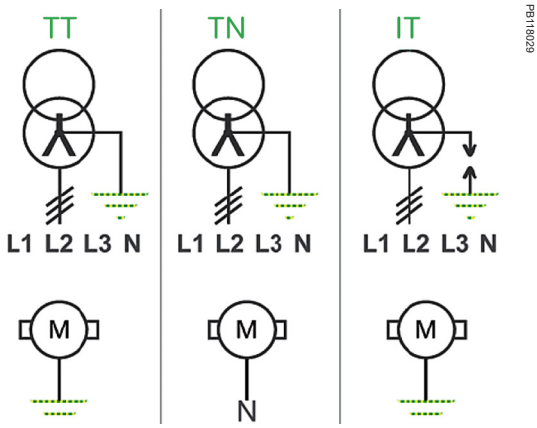
Insulation Monitoring Devices Technical Datasheet

An IT earthing system allows your electrical distribution system to continually operate, even in the presence of an insulation fault, without endangering people or property. Required as part of an IT earthing system, an insulation monitoring device (IMD) detects the initial fault so you can make repairs before a second fault occurs, which could trigger protective devices and halt operations.

Insulation Monitoring of IT / Ungrounded Networks

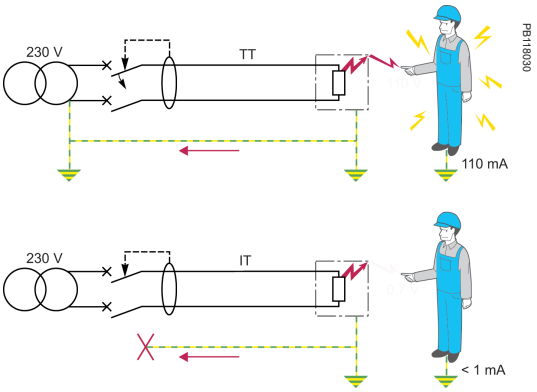
Unlike the TT or TN earthing systems, the neutral of the transformer is isolated from the ground for an IT earthing system (also called Ungrounded system).

This is applicable to both Low Voltage systems (up to 1000VAC, 1500VDC) and medium Voltage (up to 63 kV on IMDs only)

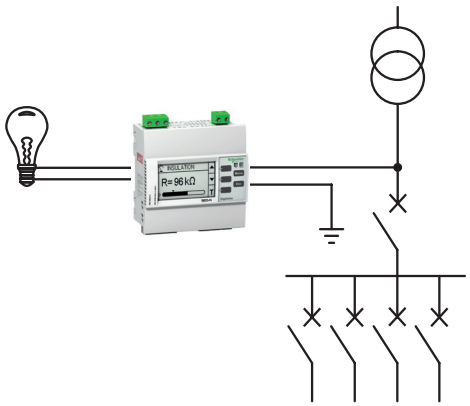


The main interest of IT systems is that in case of one insulation fault.

- Enhanced continuity of service of the network (no trip if there is one insulation fault on the network).
- Reduced risk of electric shock.
- Reduced risk of fire or explosion (low faulty current in case of insulation fault).
- Reduced stress on the network and increased equipment life (low faulty current in case of insulation fault).



- In TT or TN systems, in a situation with an insulation fault, the faulty current will not be negligible and will cause trip of the protections.
- For this reason, Insulation Monitoring Devices are used on IT networks in order to detect a first insulation fault so that the fault can be repaired; hence avoiding situations with several insulation faults and maintaining the continuity of service on the network.
- Using an Insulation Fault Locator (IFL) allows the operator to locate the fault in multiple feeders installations.



Example of simple insulation monitoring system

The Vigilohm catalog offers a range of products suitable for these various applications, from the simplest insulation monitoring systems to the most advanced ones, including individual insulation monitoring per feeder and communication with supervision.

Insulation Monitoring of IT / Ungrounded Networks

IT earthing systems are used for applications requiring continuity of service, such as:

- Healthcare: critical rooms in medical premises such as operating theaters, intensive care units, recovery rooms.
- Industry: critical processes in cement, steel, aluminium, oil and gas, chemical factories, food processing, car manufacturing, (painting area, other...) water, and waste water.
- Infrastructure: control tower and take-off path in airports, railways, seaports, tunnels, and signaling networks in rail.
- Utilities: power plants and control command systems.
- Photovoltaic: solar farms.
- Marine: electrical distribution of any type of ship.
- DC applications such as electrical vehicle charging stations.
- Medium Voltage: cable monitoring, distribution in industrial sites, MV loads-transformers and motors.

Vigilohm Range Overview for Low Voltage Networks, Except Healthcare

Product		LV	MV
IMD		IMD-IM9 IMD-IM10 IMD-IM20 IMD-IM400 IMDIM400L * IMD-IM400C **	IMDIM400THR IMDIM400LTHR *
LV > 480 V AC		IM20 + IM20-1700 IM400 + IM400-1700 IM400C+ IM400-1700C IMD with Fault Locator IM400 / 400L /400C + PHT1000 and IFL12MC series + IFL12VA1T	1460872 (P1N)
IFL		IMDIFL12 IMDIFL12L * IMDIFL12C *** IMDIFL12MC *** IMDIFL12LMC * IMDIFL12MCT ****	None
TOROIDS		50437 (TA30) 50438 (PA50) 50439 (IA80) 50440 (MA120) 50441 (SA200) 50442 (GA300) 50420 (TOA80) 50421 (TOA120)	None
HRG, Cardew Mobile Locators		50278, (XRM) 50282, (XGR) 50494,498, 499 (Open CTs) 50159 (ZX Imp -HRG) 50170, 171, 172, 183 (Cardew)	Voltage Transformers 03811728N0 (6.6 kV) 03811746N0 (22 kV) 03811749N0 (33 kV)

L* Power supply 24-48 V AC/DC
C ** Tropicalized (conformal coated)
C *** Communication
MC *** Measurement & Communication
MCT **** Measurement & Communication & Tropicalized (conformal coated)

Vigilohm Range Overview for Low Voltage Networks, Except Healthcare

A simple range to meet your needs

Industrial networks

Monitoring and Control

Power Monitoring & SCADA system

Communication and Simple Monitoring

Gateway, Data logger & Web Server

Insulation Monitoring Devices

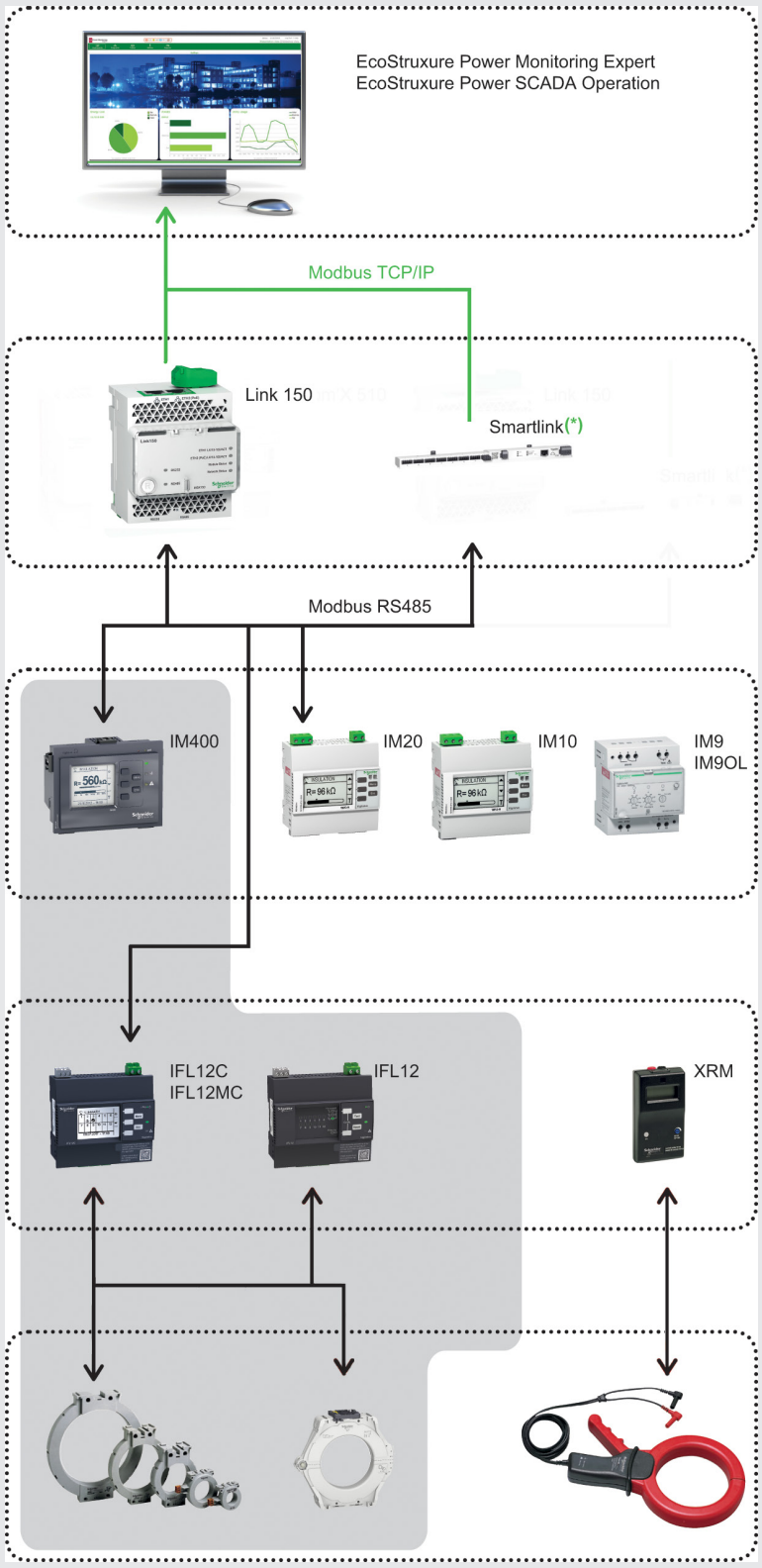
Identification of a leakage to ground in the complete system

Insulation Fault Locators

Identification of the faulty feeder

Toroids

Used along with the Fault Locators



Vigilohm Range Overview for Medium Voltage Networks

A simple range to meet your needs

Industrial networks

Monitoring and Control

Power Monitoring & SCADA system

EcoStruxure Power Monitoring Expert
EcoStruxure Power SCADA Operation

Modbus TCP/IP

Communication and Simple Monitoring

Gateway, Data logger & Web Server

Link 150

Modbus RS485

Insulation Monitoring Devices

Identification of a leakage to ground in the complete system

IM400THR
IM400LTHR

Voltage adaptor

P1N

Voltage transformer

03811725N0

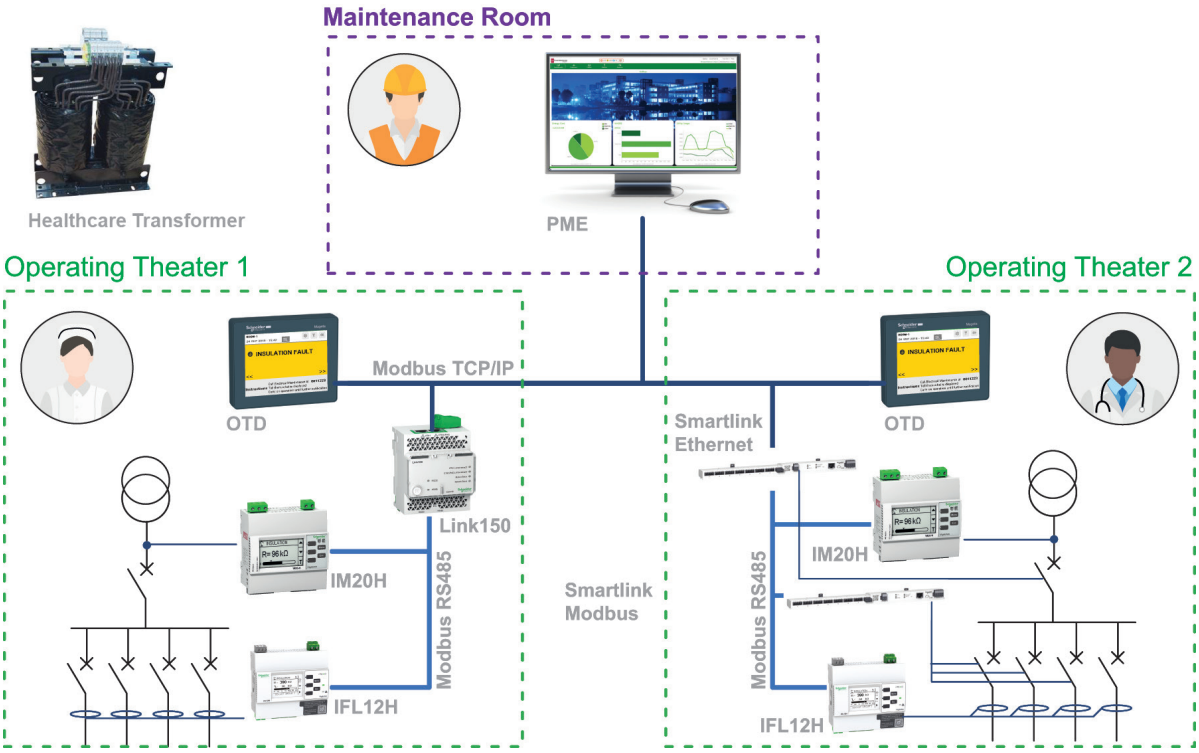
Vigilohm Range Overview for Healthcare

Example of Healthcare network monitored by Vigilohm Insulation Monitoring Devices in compliance with IEC 60364-7-710.

The same hospital may have differing architectures, as shown below.

Operating Theater 1 uses Link 150 to send data to the supervision system.
Operating Theater 2 uses Smartlink to send data to the supervision system,knowing that Smartlink can also collect data from the circuit breaker, tripped or not.

PB118032



Medical staff is informed of electrical faults in the operating theater room through the local HMI

Technical staff is informed of any fault in the various operating theaters via a supervision system such as EcoStruxure Power Monitoring Expert.

This range of products, dedicated to Medical premises, meets requirements from IEC61364-7-710.

IMD and IFL are also “MED” certified, as they meet their product standard:

- IEC61557-8, annex A & B for IMDs and the remote panel
- IEC61557-9, annexA for IFLs

Commercial reference numbers required for the healthcare application:	
Isolation Transformer	IMD-IT-S63-H,or IMD-IT-S80-H, or IMD-IT-S100-H
IMDs	IMD-IM10-H, or IMDIM15H, or IMD-IM20/-H
Remote panel	50168 (HRP) or IMDLRDH
Locator	IMDIFL12H
Toroids	with IM20-H: METSECT5CC004 or METSECT5CC005 with IFL: 50437 (TA30)
Gateway Link150	Link150

Vigilohm Range Commercial Reference Numbers

Commercial ref. no.	Description
Vigilohm Insulation Monitoring	
50159	ZX impedance
50168	HOSPITAL REMOTE PANEL
50169	CARDEW Holder
50170	CARDEW 250V CA Surge arestor
50171	CARDEW 440V CA Surge arestor
50172	CARDEW 660V CA Surge arestor
50183	CARDEW 1000V CA Surge arestor
50248	PHT1000
50278	XRM
50281	XGR 115-127VCA
50282	XGR 220-240VCA
50283	XGR 380-415VCA
50420	TOA80 open toroid
50421	TOA120 open toroid
50437	TA30 toroid
50438	PA50 toroid
50439	IA80 toroid
50440	MA120 toroid
50441	SA200 toroid
50442	GA300 toroid
50494	XP15 Open CT for XRM
50498	XP50 Open CT for XRM
50499	XP100 Open CT for XRM
1460872	Voltage Adaptor P1N
IMDCP100	Current Probe 100mm
IMDCP15	Current Probe 15mm
IMDCP50	Current Probe 50mm
IMDIFL12	Ins Fault locator Entry
IMDIFL12C	Ins Fault locator Entry Com
IMDIFL12H	Ins Fault locator HC

Commercial ref. no.	Description
IMDIFL12L	Ins Fault locator Entry 24-48VDC
IMDIFL12LMC	Ins Fault locator Adv 24-48VDC
IMDIFL12MC	Ins Fault locator Adv
IMDIFL12MCT	Ins Fault locator Adv Tropic
IMDIFL12VA1T	Voltage Adaptor for IFL12MC series_1000V
IMDIFLK1	Mobile Ins Fault locator 1 feeder
IMDIFLK12	Mobile Ins Fault locator 12 feeders
IMD-IM10	IM10
IMD-IM10-H	IM10 H
IMDIM15H	IM15 H
IMD-IM20	IM20
IMD-IM20-1700	Voltalge Adaptor for IM20
IMD-IM20-H	IM20 H
IMD-IM400	IM400
IMD-IM400-1700	Voltage adaptor for IM400
IMD-IM400-1700C	Voltage adaptor for IM400 Conformal coated
IMD-IM400C	IM400C
IMDIM400L	IM400L
IMDIM400LTHR	IM400LTHR
IMDIM400THR	IM400THR
IMD-IM400VA2	Voltage adaptor for PV application Coated
IMD-IM9	IM9
IMD-IM9-OL	IM9OL
IMD-IT-S63-H	Single Phase, Isolated Transformer, 6,3KVA
IMD-IT-S80-H	Single Phase, Isolated Transformer, 8KVA
IMD-IT-S100-H	Single Phase, Isolated Transformer, 10KVA
IMDLRDH	Remote Display Hospital

Please see your Schneider Electric representative for complete ordering information.

www.se.com

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Capital social 928 298 512 €
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As standards, specifications and designs develop from time to time, please ask for confirmation of the information given in this document.

Over 75 % of Schneider Electric products have been awarded the Green Premium ecolabel.

Green Premium™