D.C. MEASURING CONVERTER

TYPE

"MLIT-V"

OPERATION MANUAL

CE

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1. General Utilization and Commissioning Directions

1.1 - Storage and Transportation

Must comply with the environmental conditions stated in the product's specification or by the applicable IEC standards.

1.2 - Installation

Must be properly made and in compliance with the operational ambient conditions stated by the Manufacturer.

1.3 - Electrical Connection

Must be made strictly according to the wiring diagram supplied with the Product, to its electrical characteristics and in compliance with the applicable standards particularly with reference to human safety.

1.4 - Measuring Inputs and Power Supply

Carefully check that the value of input quantities and power supply voltage are proper and within the permissible variation limits.

1.5 - Outputs Loading

Must be compatible with their declared performance.

1.6 - Protection Earthing

When earthing is required, carefully check its effectiveness.

1.8 - Safety Protection

Carefully check that all safety means are correctly mounted, apply proper seals where required and periodically check their integrity.

1.9 - Handling

Notwithstanding the highest practicable protection means used in designing M.S. electronic circuits, the electronic components and semiconductor devices mounted on the modules can be seriously damaged by electrostatic voltage discharge which can be experienced when handling the modules.
The damage caused by electrostatic discharge may not be immediately apparent, but the design reliability and the long life of the product will have been reduced. The electronic circuits produced by M.S. are completely safe from electrostatic discharge (8 kV IEC 255.22.2) when housed in their case; dismounting the modules without proper cautions expose them to the risk of damage.

1.10 - Maintenance

Make reference to the instruction manual of the Manufacturer; maintenance must be carried-out by specially trained people and in strict conformity with the safety regulations.

1.11 - Waste Disposal of Electrical & Electronic Equipment

(Applicable throughout the European Union and other European countries with separate collection program). This product should not be treated as household waste when you wish dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequence to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resource.

1.12 - Fault Detection and Repair

Internal calibrations and components should not be altered or replaced.
For repair, please ask the Manufacturer or its authorized Dealers.

Misapplication of the above warnings and instruction relieves the Manufacturer of any liability.

2. General Characteristics

The MLIT-V converters provide a measurement voltage fully isolated and safety

Direct connection to mains rating up to 4kV

Converter, connected to the system, acquires input value, and convert it in an current output: (0 ÷ 20)mA ≡ (-650V ÷ +650V), with full diagnostic capability.

A test signal generator is also included, to allow the correct working test

Make electric connection in conformity with the diagram reported on transducer enclosure.
The auxiliary power is supplied by a built-in module fully isolated and self protected.

2.1 – Auxiliary Supply

The auxiliary power is supplied by a built-in module fully isolated an self protected.

a) - 48(-20%) ÷ 132(+15%)Vdc (classe DC3) - 48(-15%) ÷ 110(+10%)Vaca (classe AC2)

Before energising the unit check that supply voltage is within the allowed limits.

7. Verifica Funzionale uscita di misura

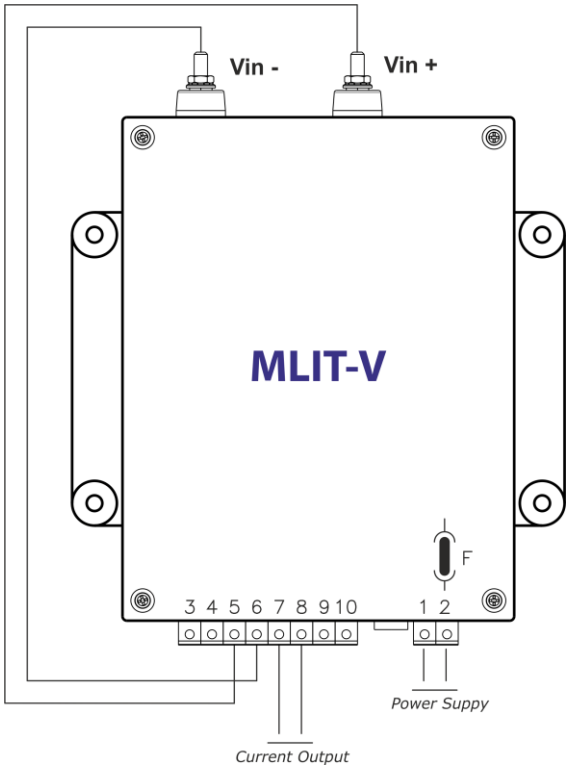
Following procedure allows the convertor operating check;
For measurement accuracy check an feeder/calibrator with appropriate performance is required.

Connect the DC test generator terminals as show:

Output terminal "5(+)" with input terminal "Vin +".
Output terminal "6(-)" with input terminal "Vin -".

Feed with auxiliary voltage.

Verify that on output terminals a current of 14.6mA (±5%) is Present.



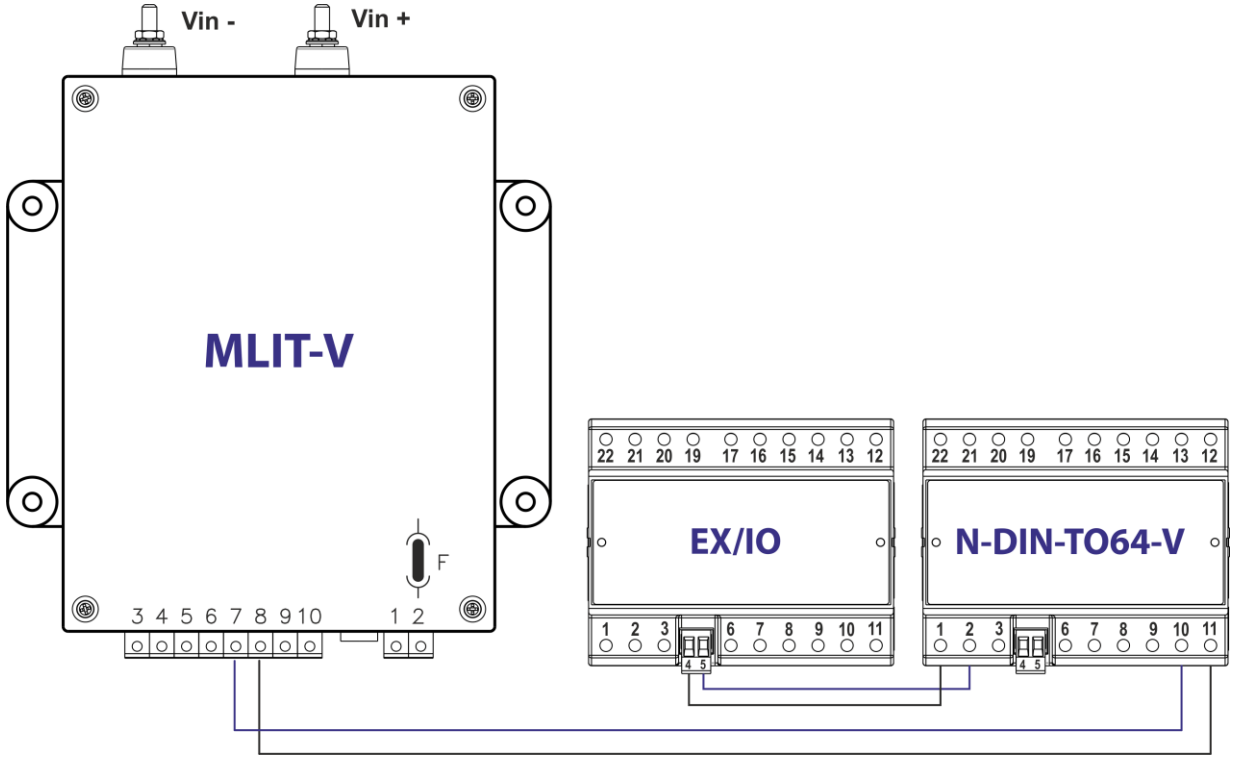
8. Diagnostic

Diagnostic alarm relay (normally energized) reports:

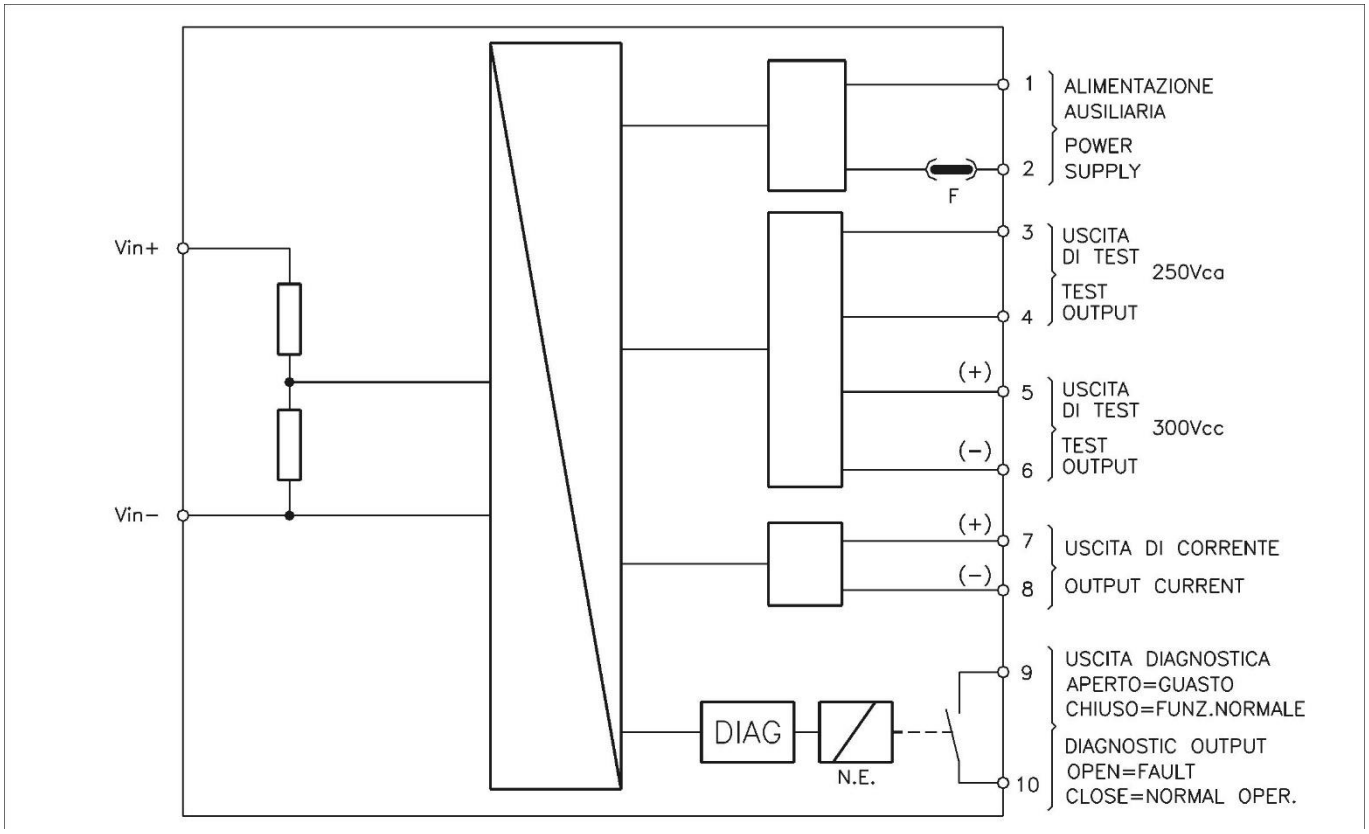
Output contact	*Closed*	=	Normal operation
	Open	=	Internal malfunction or failure auxiliary power. Or at least the non-operation of the converter

In case of internal fault contact Microelettrica Scientifica or its authorized reseller.

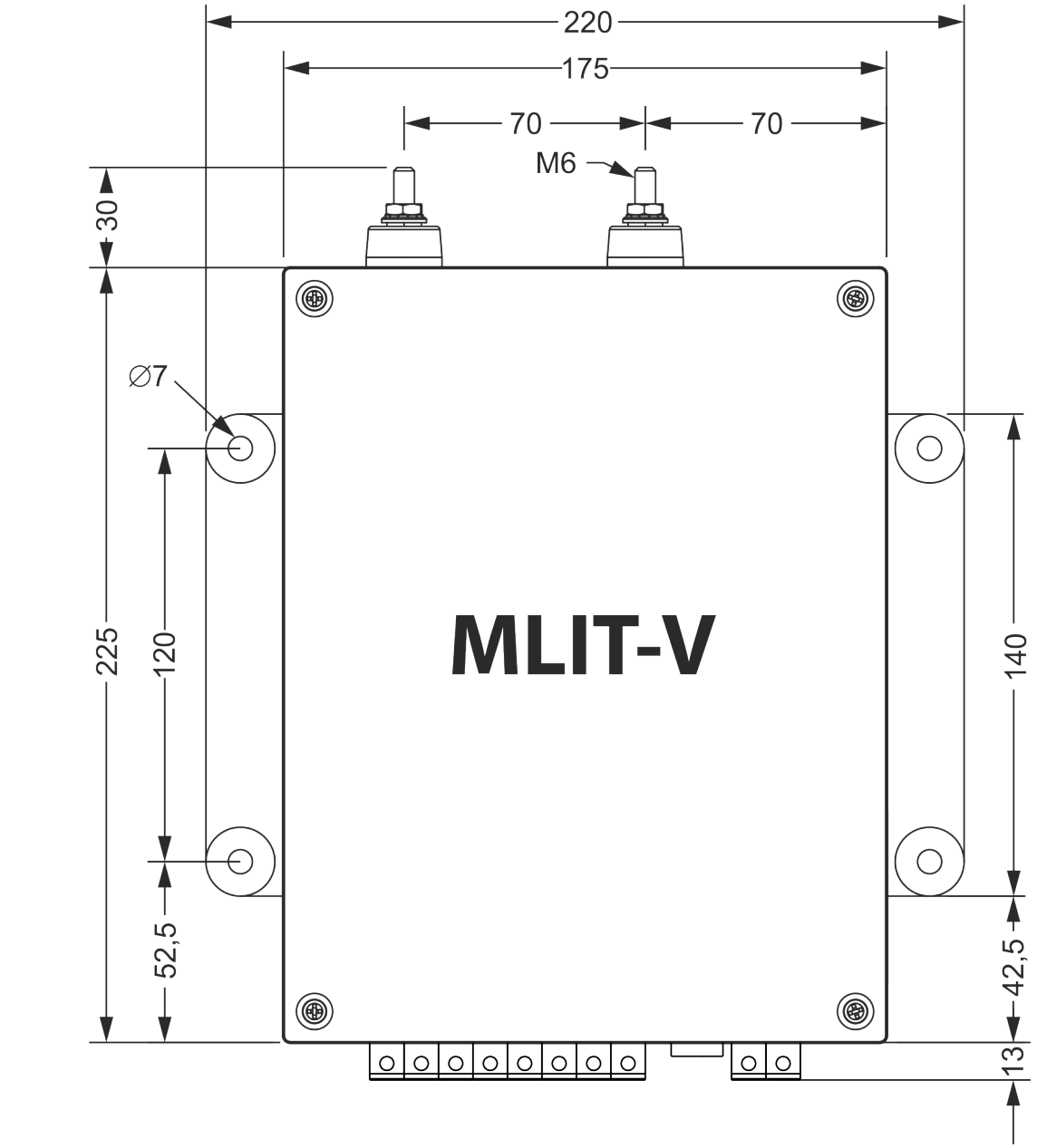
9. Wiring Diagram – MLIT-V → N-DIN-TO64V

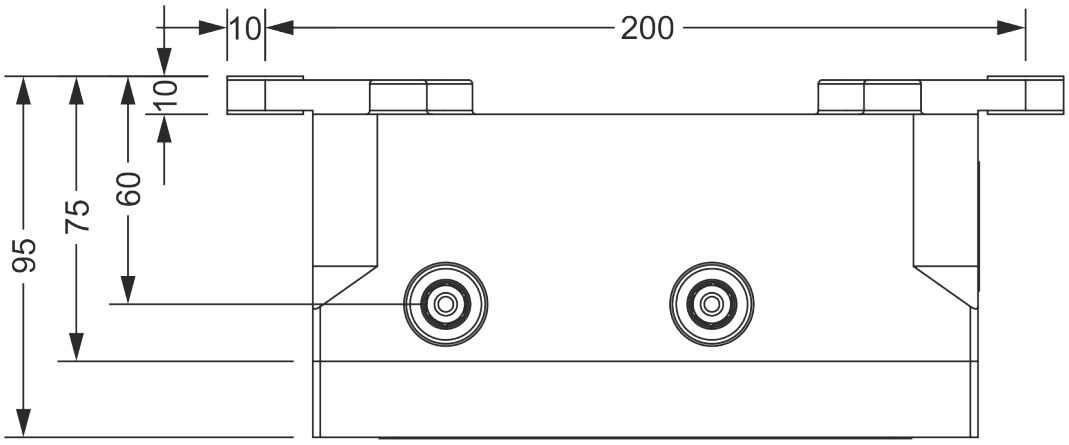


10. Wiring Diagram



11. Overall Dimensions





12. Elecrical Characteristics

Reference Standard CE Directive - EN/IEC61000 – EN60870-2-1 - RFI.DMA/IM.LA/SSE.360		
Dielectric test voltage	IEC60255-5	18.5kV, 50/60Hz, 1 min.
Impulse test voltage	IEC60255-5	40kV (c.m.), 20kV (d.m.) – 1,2/50μs
Insulation Resistance	> 100MΩ	

Enviromental Rif.Std. (IEC 68-2-1 – 68-2-2 - 68-2-33 - 60870-2-2)		
Operation ambient temperature	EN 60870-2-2	-10 °C / +55 °C
Storage temperature		-25°C / +70°C
Environmental testing (Cold)	IEC 60068-2-1	
(Dry heat)	IEC 60068-2-2	
(Change of temperature)	IEC 60068-2-14	
(Damp heat, steady state)	IEC 60068-2-78	RH 95% Without Condensing AT 40°C
Operative conditions	EN60870-2-2 Class C1 (3k5)	
Resistance to vibration and shock (bump-shock)		
Sismatic stress resistance		

CE EMC Compatibility (EN61000-6-2 - EN61000-6-4 - EN50263)				
Electromagnetic emission	EN 55011		30-1000 MHz	
Conducted disturbances immunity test	EN 55022	livel 3	0.15-80 MHz	10 V
Radiated electromagnetic field immunity test	IEC 61000-4-3	livel 3	80-2000 MHz	10 V/m
	ENV50140		900 MHz/200 Hz	10 V/m
Electrostatic discharge test	IEC 61000-4-2	livel 3	6 kV contact / 8 kV air	
Power frequency magnetic test	IEC 61000-4-8		100 A/m	50/60 Hz
Pulse magnetic field	IEC61000-4-9		1000A/m, 8/20μs	
I Damped oscillatory magnetic field	IEC 61000-4-10		100 A/m, 0.1-1 MHz	
Immunity to conducted common mode disturbance 0Hz-150KHz	IEC61000-4-16	level 4		
Electrical fast transient/burst (Fast Trasient)	IEC 61000-4-4	livel 4	2 kV, 5 kHz	
HF disturbance test with damped oscillatory wave (1MHz burst test)	IEC60255-22-1	class 3	400pps, 2,5kV (m.c.), 1kV (d.m.)	
Surge immunity test	IEC 61000-4-5	livel 4	2 kV(m.c.), 1 kV(d.m.)	
Voltage interruptions	IEC 61000-4-11		20 ms	
Resistance to vibration and shock	IEC60255-21-1		10-500Hz	1g
	IEC60255-21-2			

Characteristics	
Accuracy at reference value of influencing factors	Class 0,5
Power Supply	48(-20%) ÷ 132(+15%)Vcc (class DC3) EN60870-2-1 48(-15%) ÷ 110(+10%)Vca (class AC2)
Average power supply consumption	≤ 7 VA
Sampling frequency	5kHz
Rated Voltage	650V
Input impedence	22MΩ
Measurements dynamic	(-650 ÷ +650)V
Outputs	(0 ÷ 20)mA ≡ (-650 ÷ +650)V
Maximum burder	500Ω
A.C. test characteristics	c.a. = 250Vca ±20% (maximum current 1mA)
D.C. test characteristics	c.c. = 300Vcc ±20% (maximum current 1mA)
Output relays	rating 6 A; Vn = 250 V A.C. resistive switching = 1500VA (400V max) make = 30 A (peak) 0,5 sec.; break = 0.2 A, 110 Vcc, L/R = 40 ms (100.000 op.) – Meccanichal life 10^6op.
Enclosure	Material: BMCRF9 protection degree IP44
Connections terminals	Bolt type terminals (M6) for inputs / Screw type 4mm ^{2}

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