

THE ITD GMBH – PIONEERING AND FUTURE-ORIENTED

Introduction

These medical isolating transformers were specially designed for application with mobile equipment carts **pro-cart**, **classic-cart**, **compact-cart** and **endo-cart** from ITD GmbH. They serve as the central power supply for the electrical equipment on the cart. This ensures compliance of the ME system, which includes medical-electrical and/or non-medical/electrical equipment, with the essential requirements of EC Directive 93/42 EEC, Annex 1 Threats to the clinical environment and the safety of patients, as well as the safety of the user or third party, if applicable, are minimised to an acceptable risk. This is made possible using a toroidal transformer with double insulation in compliance with the creepage distances and clearances specified for this application. This results in a secure, galvanic separation between the in- and outlet and the leakage current of the entire ME system is minimised to the specified value.

For the configuration of ME systems in the patient environment and/or in rooms used for medical purposes, the isolating transformer is connected upstream according to the EC Directive for Medical Devices 93/42 EEC in order to ensure compliance with the requirements of EN 60601-1 (e.g. simultaneous use of IT devices such as PCs, monitors, printers, interfaces with medical-electrical equipment as well diagnosis, measuring, and testing equipment and a combination thereof).

The isolating transformers are equipped with an equipotential bonding bolt (POAG according to DIN 42801) for connecting to a special medical equipotential bonding present in the respective room. The protective conductor of the input socket forms a conductive connection with the corresponding contactors of the outlet socket. As a result, the device is equipped with an internal basic equipotential bonding.

The transformers are designed for continuous operation; the maximum power output is evident from the type designation. All devices are also equipped with an electronic inrush current limiting with additional fast half-wave failure recognition. Supply disruptions resulting from a complete mains voltage half-wave failure last less than 50 milliseconds. The blowing of the device fuse or pre-fuse in the building supply current is reliably avoided as a result.

In connection with the integrated insulation monitoring unit (identified by the earth leakage guard model designation), the permanent monitoring of the system for excess temperature in the toroidal transformer as well as insulation failures in the device itself or the attached ME system is guaranteed. The power supply does not shutdown in case of excess transformer temperature or the detection of an insulation failure. Excess temperature conditions or insulation failures are signalled visually and acoustically. All connecting lines are also pluggable encoded and secured against accidental unplugging. With the exception of the 2000VA variation, all types are switchable between 115V and 230V and, therefore, are internationally applicable.

All isolating transformers are provisioned with the CE mark, the legally regulated mark of conformity for product safety in Europe, which confirms conformity with the valid EC directives. The US and Canada also have special government regulations for products used in public buildings and the commercial sector. The OSHA (Occupational Safety and Health Administration) only recognizes the products and devices that have been approved by a recognized NRTL (Nationally Recognized Testing Laboratory) and labelled with a mark of conformity. In order to comply with these requirements, some isolating transformer types were certified according to the NRTL. This means that the North American market can be supplied with certified products.

OVERVIEW: THE „NEW GENERATION“ OF ISOLATING TRANSFORMERS

Safety

- The isolating transformer is a medical device according to Directive 93 /42 EEC and complies with standard DIN EN ISO 60601 (3rd Edition).
- Electronically regulated, fast half-wave failure recognition for compliance with DIN EN 61000-4-11.
- „CE“ labelling.
- Selected variations with NRTL certification (Nationally Recognized Testing Laboratory) for unobjectionable introduction in the USA or Canada.

Modularity

- As independent unit, autonomous retrofitting, dismantling, or replacement is possible at any time – for prompt reactions to market requirements as well as future safety.
- An adapter offers the optional retrofitting of an on / off switch in the power column or rack profile.
- IEC slots are located directly on the isolating transformer. Additional outlet strips can be added if necessary.
- Equipotential bonding bolts (according to DIN EN ISO 42801) serves for the connection of a medical equipotential bonding present in the room.

Service

- All connecting lines are pluggable encoded and secured against unplugging.
- The complete unit is replaceable at any time – without recovery of the equipment cart or high service costs.





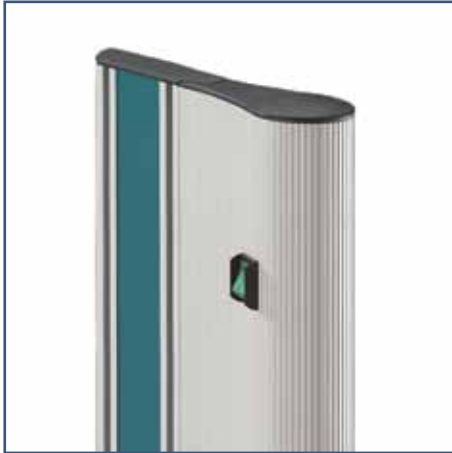
Isolating transformers

- The „heart“ is a high-quality toroidal core for regular continuous operation.
- Independent of the series in power classes 660/1000/1200/1600 and 2000 VA and available without insulation monitoring unit.
- All isolating transformers are switchable between 115 V and 230 V, with the exception of the 2000 VA variation.

ELG insulation monitoring unit

- Permanent monitoring of the isolating transformer for excess temperature and insulation failures in the medical device.
- Indication of excess temperature and insulation failures with an optical and acoustic signal.

BASIC CONFIGURATION AND EXPANSION POSSIBILITIES



On / off switch

An additional switch / cabling set offers the highly visible integration of an on / off switch in the cap of the mobile equipment cart **pro-cart** or in the power columns of **classic-cart** / **endo-cart** or **compact-cart**.





Socket strips and plug removal barriers

In addition to the slots already available on the isolating transformer, additional outlet strips and, if applicable, plug removal barriers can be housed in the support column of the **pro-cart** or in the power columns of the mobile equipment carts **classic-cart** / **endo-cart** or **compact-cart**.



IEC cable

Cables of varying lengths are available for connecting IEC outlet strips and IEC connector plugs.

ISOLATING TRANSFORMERS

Isolating transformer for **pro-cart**

The particular flat design of the integrated isolating transformer with 660 VA and 1200 VA also permits installation with Ø 100 mm. The isolating transformers are also available with an optional insulation monitoring unit.

Power:	660 VA and 1200 VA
Input- / Output voltage:	<ul style="list-style-type: none"> ■ 115 V / 115 V 50 Hz / 60 Hz or ■ 230 V / 230 V, 50 Hz / 60 Hz – reversible
Power input:	IEC 320 EURO input for use of country-specific power cables
Design:	Annular core transformer
Inrush current limitation:	Electronically regulated on nominal current
Safety class:	1
Isulating voltage:	<ul style="list-style-type: none"> ■ PRI – earth: 1500 V ■ SEC – earth: 1500 V ■ PRI – SEC: 4000 V
Fuse protection:	Primary, 2-phase with micro fuse
Test:	<ul style="list-style-type: none"> ■ CE labelling ■ NRTL approval (for 1200 VA)
Protection class:	IP20
Scope of delivery:	1 isolating transformer with 660 VA or 1200 VA, fitted with <ul style="list-style-type: none"> ■ basic trim ■ on / off switch ■ power cable earthed, 5mm ■ IEC slots, 6-way (IEC 320), plug removal barrier
How supplied:	Factory assembly only with integration of an on / off switch in the vertical profile



	Power	Insulation monitor	Product line	Order number
Isolating transformer for pro-cart	660 VA	No (to be ordered separately)	■	ZV.9356.999
	1200 VA			ZV.9357.999

Additional expanse possibilities:

- the reception of additional socket strips in the power column (see page 10).
- the integration of an on / off switch (see page 9).
- sets of conductive rolls of Ø 100 mm or Ø 125 mm (see catalogue for mobile equipment carts, page 115).
- country-specific mains supply lines are found in the catalogue for mobile equipment racks on page 178.
- the reception of an insulation monitoring unit (see page 9).

ISOLATING TRANSFORMERS

Isolating transformer for **classic-cart** / **endo-cart**

The particular flat design of the integrated isolating transformer with 660 VA, 1000 VA or 1600 VA also permits installation with Ø 100 mm. The isolating transformers are also available with an optional insulation monitoring unit.

Power:	660 VA / 1000 VA / 1600 VA
Input- / Output voltage:	<ul style="list-style-type: none"> ■ 115 V / 115 V, 50 Hz / 60 Hz or ■ 230 V / 230 V, 50 Hz / 60 Hz – reversible
Power input:	IEC 320 EURO input for use of country-specific power cables
Design:	Annular core transformer
Inrush current limitation:	Electronically regulated on nominal current
Safety class:	1
Isulating voltage:	<ul style="list-style-type: none"> ■ PRI – earth: 1500 V ■ SEC – earth: 1500 V ■ PRI – SEC: 4000 V
Fuse protection:	Primary, 2-phase with micro fuse
Test:	<ul style="list-style-type: none"> ■ CE labelling ■ NRTL approval (for 1600 VA and 1600 VA with insulation monitor)
Protection class:	IP20
Scope of delivery:	1 isolating transformer with 660 VA, 1000 VA or 1600 VA, fitted with <ul style="list-style-type: none"> ■ on / off switch ■ power cable earthed, 5m ■ IEC slots, 2 x 4-way (IEC 320), plug removal barrier ■ insulation monitor (depends on version, see order chart)
How supplied:	Factory assembly only with integration of an on / off switch in the power column



Optional equipment with the insulation monitor ELG (including temperature monitoring)

<ul style="list-style-type: none"> ■ Operate value: 53 kOhm ± 5% ■ Test resistance: 33 kOhm ■ Input voltage: 150 V / 230 VAC ± 15%, 50 Hz / 60 Hz ■ Alternating current internal resistance: 220 kOhm 	<ul style="list-style-type: none"> ■ Direct current internal resistant: 320 kOhm ■ Measured direct voltage: 12 V ± 0,3 V ■ Max. measured current: < 0,5 mA ■ Max. permissible external direct voltage: 250 V DC
---	--

	Power	Insulating monitor	Product line	Order number
Isolating transformer for classic-cart / endo-cart	660 VA	No		ZV.9350.999
		Yes		ZV.9351.999
	1000 VA	No		ZV.9352.999
		Yes		ZV.9353.999
	1600 VA	No		ZV.9354.999
		Yes		ZV.9355.999

Additional expense possibilities:

- the reception of additional socket strips in the power column (see page 10).
- the integration of an on / off switch (see page 9).
- sets of conductive rolls of Ø 100 mm or Ø 125 mm (see catalogue for mobile equipment carts, page 115).
- country-specific mains supply lines are found in the catalogue for mobile equipment racks on page 178.

ISOLATING TRANSFORMERS

Isolating transformers for **compact-cart**

The particular flat design of the integrated isolating transformer with 1200 VA, 1600 VA or 2000 VA also permits installation with Ø 100 mm. The isolating transformers are also available with an optional insulation monitoring unit.

- Power: 1200 VA / 1600 VA / 2000 VA
- Input- / Output voltage:
 - at 1200 VA / 1600 VA: 115 V / 115 V or 230 V / 230 V, 50 Hz / 60 Hz – reversible
 - at 2000 VA: 230 V / 230 V, 50 Hz / 60 Hz
- Power input: IEC 320 EURO input for use of country-specific power cables
- Design: Annular core transformer
- Inrush current limitation: Electronically regulated on nominal current
- Safety class: 1
- Isulating voltage:
 - PRI – earth: 1500 V
 - SEC – earth: 1500 V
 - PRI – SEC: 4000 V
- Fuse protection: Primary, 2-phase with micro fuse
- Test:
 - CE labelling
 - NRTL approval (for 1600 VA and 1600 VA with insulation monitor)
- Protection class: IP20
- Scope of delivery: 1 isolating transformer with 1200 VA, 1600 VA or 2000 VA, fitted with
 - on / off switch
 - power cable earthed, 5m
 - IEC slots, 2 x 4-way (IEC 320), plug removal barrier
 - insulation monitor (depends on version, see order chart)
- How supplied: Factory assembly only with integration of an on / off switch in the power column



Optional equipment with the insulation monitor ELG (including temperature monitoring)

- Operate value: 53 kOhm ± 5%
- Test resistance: 33 kOhm
- Input voltage: 150 V / 230 VAC ± 15%, 50 Hz / 60 Hz
- Alternating current internal resistance: 220 kOhm
- Direct current internal resistant: 320 kOhm
- Measured direct voltage: 12 V ± 0,3 V
- Max. measured current: < 0,5 mA
- Max. permissible external direct voltage: 250 V DC

	Power	Insulating monitor	Product line	Order number
Isolating transformer for compact-cart	1200 VA	No		ZV.9358.999
		Yes		ZV.9359.999
	1600 VA	No		ZV.9362.999
		Yes		ZV.9363.999
	2000 VA	No		ZV.9360.999
		Yes		ZV.9361.999

Additional expanse possibilities:

- the reception of additional socket strips in the power column (see page 10).
- the integration of an on / off switch (see page 9).
- sets of conductive rolls of Ø 100 mm or Ø 125 mm (see catalogue for mobile equipment carts, page 115).
- country-specific mains supply lines are found in the catalogue for mobile equipment racks on page 178.

Insulation monitor ELG for **pro-cart**

The functionality of the isolating transformer for **pro-cart** can also be expanded with insulation monitor ELG. This can be connected using simple Plug and Play technology. It only takes up one socket on the EURO socket strip. This involves a visual and acoustic signal that alerts the user to falling insulation resistance in the entire system over the critical range by means of an illuminated diode. An acoustic alert is also given if there is a hazard. It is also possible to check the overall status of the system before every examination or operation. However, this does not replace the test / maintenance intervals laid down for individual units.

Supply voltage:	230 V / AC ±15 %
Operate value:	53 kOhm
Test resistance:	33 kOhm
Alternating current internal resistance:	220 kOhm
Direct current internal resistance:	320 kOhm
Max. measured voltage:	12 V
Max. measured current:	< 0,5 mA
Max. permissible external direct voltage:	250 V DC

Assembly:	In the front slots of the support column
Scope of delivery:	1 insulation monitor ELG including cover strip and mounting hardware



Please note:
Upon request, the insulation monitor ELG is also supplied for **pro-cart** with a supply voltage of 115 V.

	Installation height	Product line	Order number
Insulation monitor ELG for pro-cart	7 U (224 mm)	■	PT.2008.991

On / off switch (in the support column or in the power column)

In connection with an isolating transformer, the integration of an on / off switch in the power columns of the **classic-cart / endo-cart** and **compact-cart** as well as in the cap of the equipment cart **pro-cart** is possible.

Scope of delivery:	1 on / off switch with cabling set
How supplied:	Factory assembly only



		Product line	Order number
On / off switch (in the support column or in the power column)	1	■	PT.0290.999
	2	■ ■	GW.0525.999
	3	■	CC.0337.999

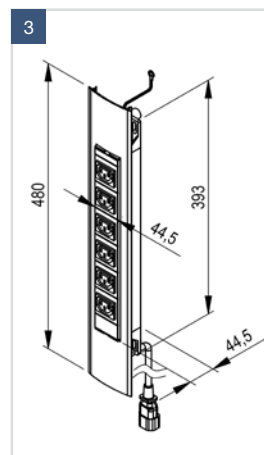
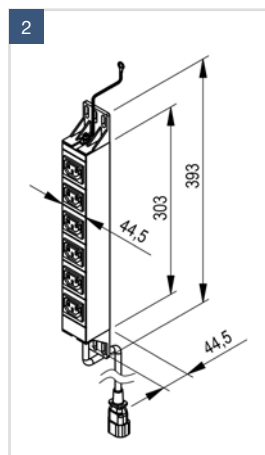
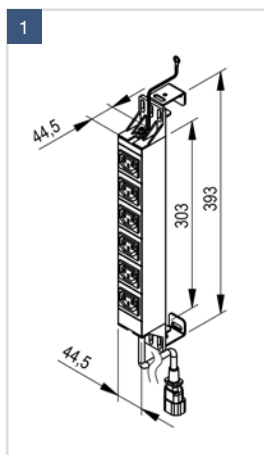
ACCESSORIES

EURO socket strips, 6-way

Rated value: 10 A / 250 VAC

Standard: IEC 320

Scope of delivery: 1 socket strip with earth line and mounting hardware



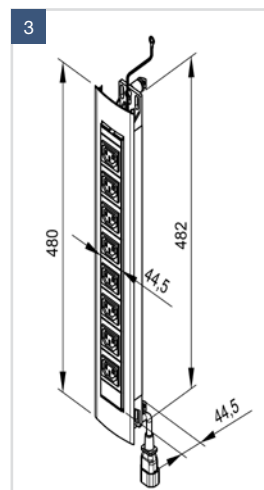
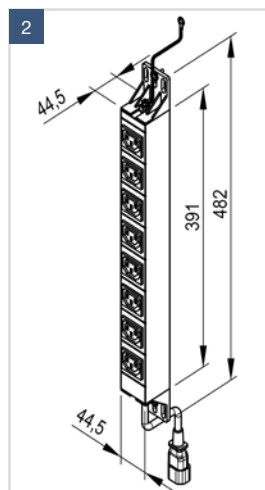
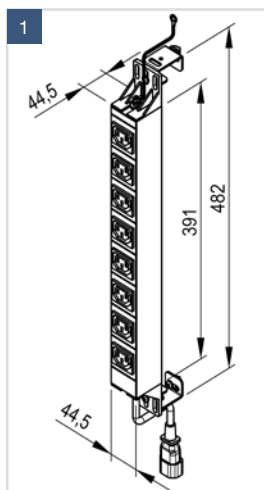
EURO socket strip, 6-way	Connecting cable	Product line	Order number
1 Installation in support column pro-cart	with input plug ¹⁾		ZV.9433.999
2 Installation in power column classic-cart / endo-cart	with input plug ¹⁾		ZV.9501.999
3 Installation in power column compact-cart	with input plug ¹⁾		ZV.9562.999

EURO socket strips, 8-way

Rated value: 10 A / 250 VAC

Standard: IEC 320

Scope of delivery: 1 socket strip with earth line and mounting hardware



EURO socket strip, 8-way	Connecting cable	Product line	Order number
1 Installation in support column pro-cart	with input plug ¹⁾		ZV.9375.999
2 Installation in power column classic-cart / endo-cart	with input plug ¹⁾		ZV.9376.999
3 Installation in power column compact-cart	with input plug ¹⁾		ZV.9377.999

Plug removal barrier

The plug removal barrier prevents the plugs from being inadvertently pulled out of the socket strip and avoids unauthorized equipment from being plugged in (in compliance with the requirements of standard DIN EN 60601).

Assembly:	In front of the socket strip installed in the power column				
Mounting:	Inside on the vertical extrusion				
Material:	Sheet steel				
Finish:	RAL 7035 light grey powder-coated				
Scope of delivery:	<table border="1"> <tr> <td>1</td> <td>2 brackets and mounting hardware</td> </tr> <tr> <td>2</td> <td>1 plug removal barrier with trim and mounting hardware</td> </tr> </table>	1	2 brackets and mounting hardware	2	1 plug removal barrier with trim and mounting hardware
1	2 brackets and mounting hardware				
2	1 plug removal barrier with trim and mounting hardware				



	Suitable for	Product line	Order number
Plug removal barrier	6- / 8-way EURO socket strips		GW.0633.991
			CC.0278.991

EURO power cable

The EURO power cable is used to connect the EURO socket strip with the EURO plug of the unit.

Construction:	IEC EURO socket --> IEC EURO plug
Finish:	Dark grey
Scope of delivery:	1 EURO power cable



	Length	Product line	Order number
EURO power cable	0,6 m		ZV.9773.799
	1,0 m		ZV.9960.799
	1,5 m		ZV.9371.799
	2,0 m		ZV.9372.799
	2,5 m		ZV.9373.799

ACCESSORIES

Equipotential plug S6 DIN 42801

Doctor and patient are at risk when uncontrolled leakage currents occur. These are caused by potential differences between electrical equipment and external conductive parts in rooms used in medical settings. Installing uninterrupted potential equalization is the safest solution .

Material: Brass nickel-plated, sheet steel
Scope of delivery: 1x (4x, 8x or 9x) equipotential plug S6 DIN 42801
 1x (4x, 8x or 9x) colour marking disc yellow / green
 1 x mounting bracket with mounting hardware



Equipotential plug S6 DIN 42801		Product line	Order number
1	Panel with 6 equipotential plugs		PT.0197.999
2	Panel with 9 equipotential plugs		ZV.9802.999
3	Panel with 8 equipotential plugs		CC.0276.999

Equipotential cable

The equipotential cable is used to connect installed units with the equipotential plug.

Features: Very flexible cable 6 mm² with green and yellow PVC insulation; provided with the inclined equipotential socket KBT6 Din on both sides.

Material: ■ Equipotential socket: brass nickel-plated
 ■ Cable: copper

Scope of delivery: 1 cable with inclined socket on both sides



	Length	Product line	Order number
Equipotential cable	0,3 m		ZV.9941.999
	0,5 m		ZV.9942.999
	1,0 m		ZV.9943.999
	1,5 m		ZV.9488.999
	5,0 m		ZV.9944.999



carry 'n' hold

STATIONARY CARRIER SYSTEMS

work 'n' roll

MOBILE EQUIPMENT CARTS



ITD GmbH
Grünwalder Weg 13 a
82008 Unterhaching
GERMANY
Tel.: +49 89 61 44 25-0
Fax: +49 89 61 44 25-20
sales@itd-cart.com
www.itd-cart.com

You will find information on our stationary carrier systems **modul-port** and the mobile equipment carts in the dedicated separate catalogues. You can download it by clicking on www.itd-cart.com or you can request a copy from the address below.