



*Energy
for life*

CATALOG



Industrial / I.T.E.

LOOKING TO THE FUTURE

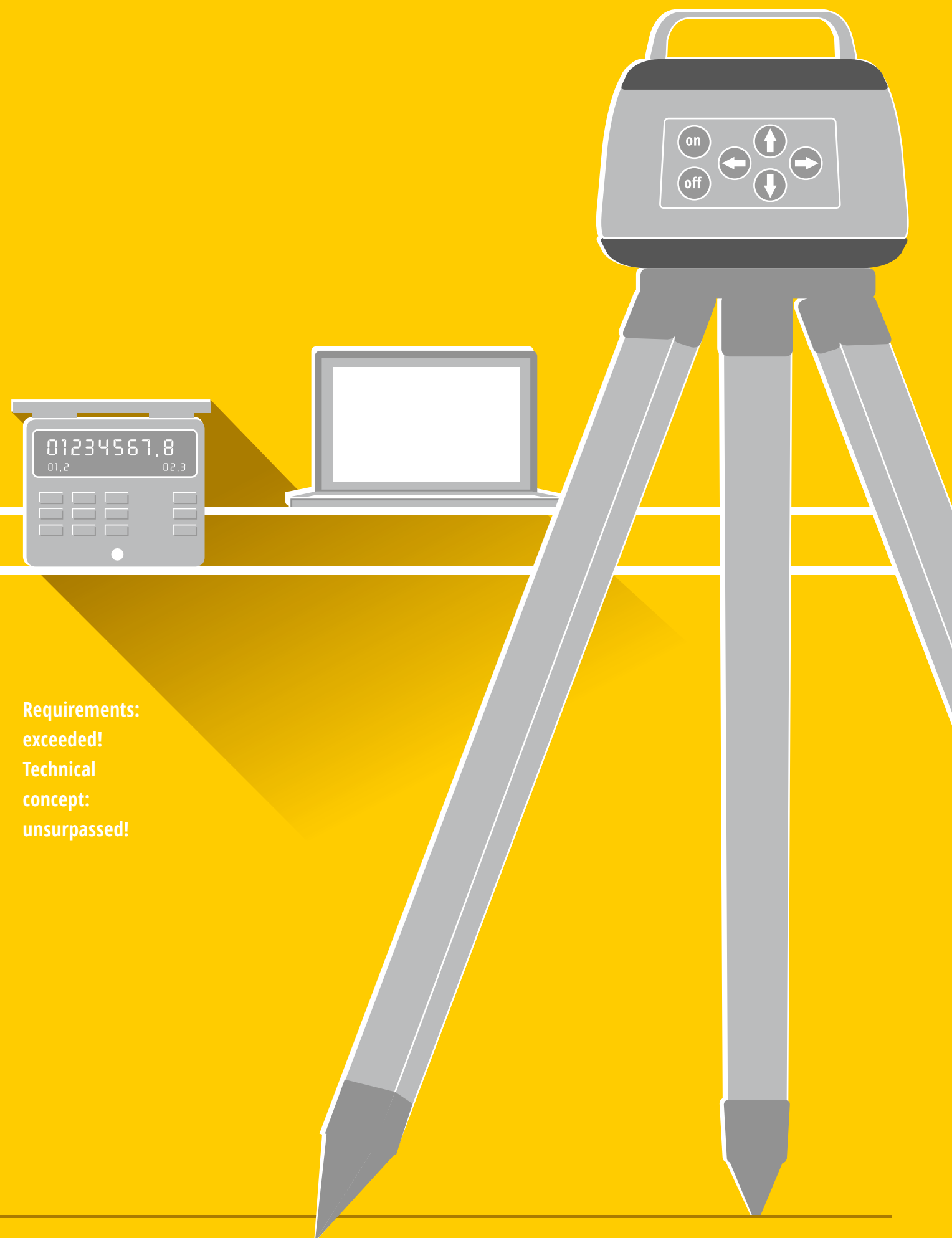
Many applications, whether static or mobile, today require a safe and reliable power supply. FRIWO's I.T.E. (information technology equipment) power supply units have always set standards. And the new, next-generation FOX platform allows the company to exceed the high quality standards that its customers have come to expect. FOX power supply units are smaller, more powerful and more efficient than their predecessors. FRIWO's new technical concept has again increased energy density. Thanks to a patented interchangeable adapter system, its devices are suitable for use under the toughest conditions and in the harshest environments. New: the optional IP42 adapter from FRIWO is an interchangeable adapter system that offers additional protection for use in damp environments.

Minimal leakage current means that FRIWO's power supply units are also ideally suited for use with measurement technologies, because they prevent unwanted influences that distort measured values. The FOX product family already meets the U.S. Department of Energy's stringent 2016 DOE energy-efficiency standards, which include stricter requirements regarding the efficiency and standby loss of power supply units. The harmonization of European thresholds with the U.S. standard in 2017 is currently under discussion. As a result, FRIWO already offers devices that exceed future statutory requirements, ensuring the worldwide use of your application. Choosing FOX today is an investment in the future, offering security tomorrow and beyond.

A further increase in energy density.
Because FRIWO can.



Requirements:
exceeded!
Technical
concept:
unsurpassed!



Characteristics

- Efficiency level VI
- Overload protection
- Overvoltage protection
- Continuously short circuit proof

Technical data

Input voltage	100 – 240 V ± 10 %
Frequency	50 – 60 Hz
Input current	160 – 80 mA (FOX6-X) 250 mA (FOX12-X)
Leakage current	≤ 10 µA (FOX6-X) ≤ 200 µA (FOX12-X)
Output voltage tolerance	± 5 %
Turn-on delay	≤ 2 s
Stand-by	≤ 0.1 W
Efficiency (typ. full load)	≥ 80 % (FOX6-X) ≥ 83 % (FOX12-X)
MTBF	200.000 h

Environmental specifications

Operating temperature	0 – 45° C (FOX6-X) 0 – 40° C (FOX12-X)
Humidity	10 – 95 %
Storage temperature	-40 – 70° C
Operating altitude	2000 m

Safety specifications

Standards	IEC 60950, IEC 60065, IEC 60335-1
Approvals	EU, USA, AUS, JPN
Safety class	II
EMC	EN 55022, EN 55024

Mechanical data

Dimensions	55,0 x 31,5 x 41,0 mm (FOX6-X) 75,0 x 31,5 x 41,0 mm (FOX12-X)
Weight	112 g (FOX6-X) 127 g (FOX12-X)
Connectors	AC input: Interchangeable primary adapter system DC output: Secondary adapter system

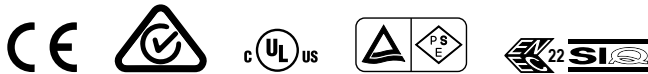
Switchmode power supplies

INDUSTRIAL / I. T. E.

with interchangeable adapter system.
All products conform to IEC 60950.

FOX6-X

FW8002



Characteristics

- Efficiency level VI
- Overload protection
- Overvoltage protection
- Continuously short circuit proof

Technical data

Input voltage	100 – 240 V ± 10 %
Frequency	50 – 60 Hz
Input current	400 – 200 mA (FOX18-X) 600 – 300 mA (FOX30-X)
Leakage current	≤ 10 µA
Output voltage tolerance	± 5 %
Turn-on delay	≤ 1 s (FOX18-X) ≤ 2 s (FOX30-X)
Stand-by	≤ 0.1 W
Efficiency (typ. full load)	≥ 86 % (FOX18-X) ≥ 87 % (FOX30-X)
MTBF	200.000 h

Environmental specifications

Operating temperature	0 – 50° C (FOX18-X) 0 – 45° C (FOX30-X)
Humidity	10 – 95 %
Storage temperature	-40 – 70° C
Operating altitude	2000 m

Safety specifications

Standards	IEC 60950, IEC 60335-1, IEC 60065
Approvals	EU, USA, AUS, JPN
Safety class	II
EMC	EN 55022, EN 55024

Mechanical data

Dimensions	77.0 x 50.0 x 34.0 mm (FOX18-X) 90.0 x 55.0 x 34.0 mm (FOX30-X)
Weight	157 g (FOX18-X) 187 g (FOX30-X)
Connectors	AC input: Interchangeable primary adapter system DC output: Secondary adapter system

Switchmode power supplies

INDUSTRIAL / I. T. E.

with interchangeable adapter system.
All products conform to IEC 60950.

FOX18-X

FW8001



Characteristics

- Efficiency level VI
- Overload protection
- Overvoltage protection
- Continuously short circuit proof

Technical data

Input voltage	100 – 240 V ± 10 %
Frequency	50 – 60 Hz
Input current	120 mA (Article no. 1898582) 160 mA (Article no. 1897843) 250 mA (Article no. 1897730)
Leakage current	≤ 10 µA (FOX6-X-USB) ≤ 90 µA (FOX12-X-USB)
Output voltage tolerance	± 5 %
Turn-on delay	≤ 2 s
Stand-by	≤ 0.1 W
Efficiency (typ. full load)	≥ 76 % (FOX6-X-USB) ≥ 80 % (FOX12-X-USB)
MTBF	200.000 h

Environmental specifications

Operating temperature	0 – 45° C
Humidity	10 – 95 %
Storage temperature	-40 – 70° C
Operating altitude	2000 m

Safety specifications

Standards	IEC 60950, IEC 60065, IEC 60335
Approvals	EU, USA, AUS, JPN
Safety class	II
EMC	EN 55022, EN 55024

Mechanical data

Dimensions	55.0 x 31.5 x 41.0 mm (FOX6-X-USB) 75.0 x 31.5 x 41.0 mm (FOX12-X-USB)
Weight	50 g (FOX6-X-USB) 65 g (FOX12-X-USB)
Connectors	AC input: Interchangeable primary adapter system DC output: USB socket type A

Switchmode power supplies

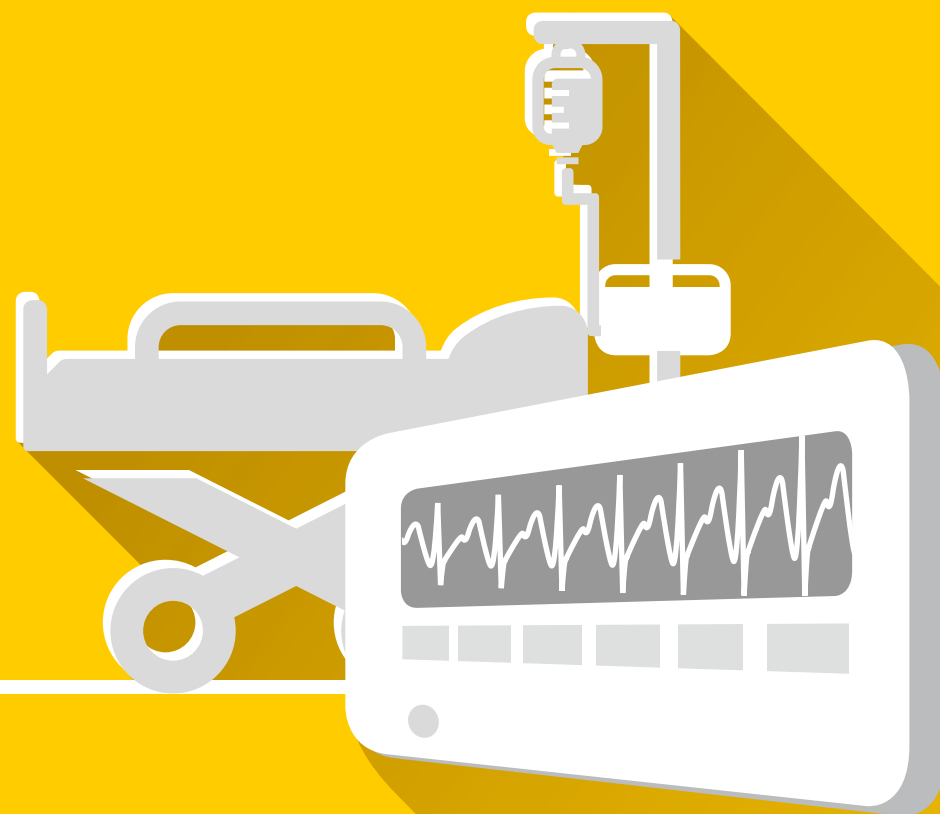
INDUSTRIAL / I. T. E.

with interchangeable adapter system.
All products conform to IEC 60950.

FOX6-X-USB

FW8002/USB





Power supply
units you can
trust: Robust.
Safe. Durable.

Medical

DIAGNOSIS: MAXIMUM SAFETY

Power pack: That description applies doubly to FRIWO's power supply units for medical technology. Its product range sets standards in terms of performance and durability, because maximum safety for patients and medical staff is all that counts.

FRIWO's medical products are designed for the most sensitive applications and for use under the harshest conditions. They must continue to work perfectly despite falls in the emergency room while protecting patients by offering the lowest possible levels of leakage current. FRIWO develops and manufactures power supply units you can trust. In order to ensure maximum patient safety, FRIWO medical technology devices are equipped with its 2 x MOPP (Means of Patient Protection) safety system and feature a minimal leakage current of $\leq 10 \mu\text{A}$ as well as double-sealed casings. What is more, FRIWO's power supply solutions already meet the stricter requirements of the 4th edition of IEC 60601-1-2.

A particular highlight of the FOX product family is its interchangeable adapter system with IP42 protection (against drops of water and dampness), which is available as an optional accessory. In practice, this means that the devices can be cleaned using wet cloths – an invaluable advantage in sterile environments. FRIWO's additional features make its products easier to use, day in, day out.

On the safe side, despite increasing regulatory requirements: The FOX product family already meets the U.S. Department of Energy's stringent 2016 DOE efficiency standards for medical applications, even though this segment is not currently covered by the regulation. Along with the extremely high efficiency of the devices, this applies to low standby loss of $\leq 0.09 \text{ W}$ in particular. Choosing FOX today is an investment in the future, offering security tomorrow and beyond.



High performing, rugged, and
simply capable.



Characteristics

- Efficiency level VI
- Overload protection
- Overvoltage protection
- Continuously short circuit proof

Technical data

Input voltage	100 – 240 V ± 10 %
Frequency	50 – 60 Hz
Input current	160 – 80 mA (FOX6-XM) 250 mA (FOX12-XM)
Leakage current	≤ 10 µA (FOX6-XM) ≤ 200 µA (FOX12-XM)
Output voltage tolerance	± 5 %
Turn-on delay	≤ 2 s
Stand-by	≤ 0.1 W
Efficiency (typ. full load)	≥ 80 % (FOX6-XM) ≥ 83 % (FOX12-XM)
MTBF	200.000 h

Environmental specifications

Operating temperature	0 – 45° C
Humidity	10 – 95 %
Storage temperature	-40 – 70° C
Operating altitude	3000 m

Safety specifications

Standards	IEC 60601-1
Approvals	EU, USA, AUS, JPN
Safety class	II
EMC	EN 55022, EN 55024, EN 60601-1-2
Medical protection	2 x MOPP

Mechanical data

Dimensions	55,0 x 31,5 x 41,0 mm (FOX6-XM) 75,0 x 31,5 x 41,0 mm (FOX12-XM)
Weight	112 g (FOX6-XM) 127 g (FOX12-XM)
Connectors	AC input: Interchangeable primary adapter system DC output: Secondary adapter system

Switchmode power supplies

MEDICAL

with interchangeable adapter system.
All products conform to IEC 60601-1.

FOX6-XM





Characteristics

- Efficiency level VI
- Overload protection
- Overvoltage protection
- Continuously short circuit proof

Technical data

Input voltage	100 – 240 V ± 10 %
Frequency	50 – 60 Hz
Input current	400 – 200 mA (FOX18-XM) 600 – 300 mA (FOX30-XM)
Leakage current	≤ 10 µA
Output voltage tolerance	± 5 %
Turn-on delay	≤ 1 s (FOX18-XM) ≤ 2 s (FOX30-XM)
Stand-by	≤ 0.1 W
Efficiency (typ. full load)	≥ 86 % (FOX18-XM) ≥ 87 % (FOX30-XM)
MTBF	200.000 h

Environmental specifications

Operating temperature	0 – 50° C (FOX18-XM) 0 – 45° C (FOX30-XM)
Humidity	10 – 95 %
Storage temperature	-40 – 70° C
Operating altitude	3000 m

Safety specifications

Standards	IEC 60601-1
Approvals	EU, USA, AUS, JPN
Safety class	II
EMC	EN 55022, EN 55024, EN 60601-1-2
Medical protection	2 x MOPP

Mechanical data

Dimensions	77.0 x 50.0 x 34.0 mm (FOX18-XM) 90.0 x 55.0 x 34.0 mm (FOX30-XM)
Weight	157 g (FOX18-XM) 187 g (FOX30-XM)
Connectors	AC input: Interchangeable primary adapter system DC output: Secondary adapter system

Please find adapters and accessories on page 82.
For notes on connection and safe operation, please refer to the operating instructions.

Switchmode power supplies

MEDICAL

with interchangeable adapter system.
All products conform to IEC 60601-1.



Characteristics

- Efficiency level VI
- Overload protection
- Overvoltage protection
- Continuously short circuit proof

Technical data

Input voltage	100 – 240 V ± 10 %
Frequency	50 – 60 Hz
Input current	160 mA (FOX6-XM-USB) 250 mA (FOX12-XM-USB)
Leakage current	≤ 10 µA
Output voltage tolerance	± 5 %
Turn-on delay	≤ 2 s
Stand-by	≤ 0.1 W
Efficiency (typ. full load)	≥ 76 % (FOX6-XM-USB) ≥ 80 % (FOX12-XM-USB)
MTBF	200.000 h

Environmental specifications

Operating temperature	0 – 45° C
Humidity	10 – 95 %
Storage temperature	-40 – 70° C
Operating altitude	3000 m

Safety specifications

Standards	IEC 60601-1
Approvals	EU, USA, AUS, JPN
Safety class	II
EMC	EN 55022, EN 55024, EN 60601-1-2
Medical protection	2 x MOPP

Mechanical data

Dimensions	55.0 x 31.5 x 41.0 mm (FOX6-XM-USB) 75.0 x 31.5 x 41.0 mm (FOX12-XM-USB)
Weight	50 g (FOX6-XM-USB) 65 g (FOX12-XM-USB)
Connectors	AC input: Interchangeable primary adapter system DC output: USB socket type A

Switchmode power supplies

MEDICAL

with interchangeable adapter system.
All products conform to IEC 60601-1.

FOX6-XM-USB

FW8002/USB





Characteristics

- Efficiency level VI
- Overload protection
- Overvoltage protection
- Continuously short circuit proof

Technical data

Input voltage	100 – 240 V
Frequency	50 – 60 Hz
Input current	1700 – 850 mA (DT80-M) 2000 – 700 mA (DT150-M)
Leakage current	≤ 100 µA
Output voltage tolerance	± 5 %
Stand-by	≤ 0.5 W
Efficiency (typ. full load)	≥ 90%
MTBF	200.000 h

Environmental specifications

Operating temperature	0 – 40° C
Humidity	10 – 95 %
Storage temperature	-40 – 70° C
Operating altitude	3000 m

Safety specifications

Standards	IEC 60601-1
Approvals	EU, USA
Safety class	II
EMC	EN 60601-1
Medical protection	2 x MOPP

Mechanical data

Dimensions	79.0 x 149.0 x 50.0 mm (DT80-M) 62.0 x 210.0 x 38.5 mm (DT150-M)
Weight	350 g (DT80-M) 622 g (DT150-M)
Connectors	AC input: 2 pole, IEC 60320-C8 socket DC output: Secondary adapter system (DT80-M) Lead with coax connector 11.0 x 6.5 x 3.0 mm (DT150-M)

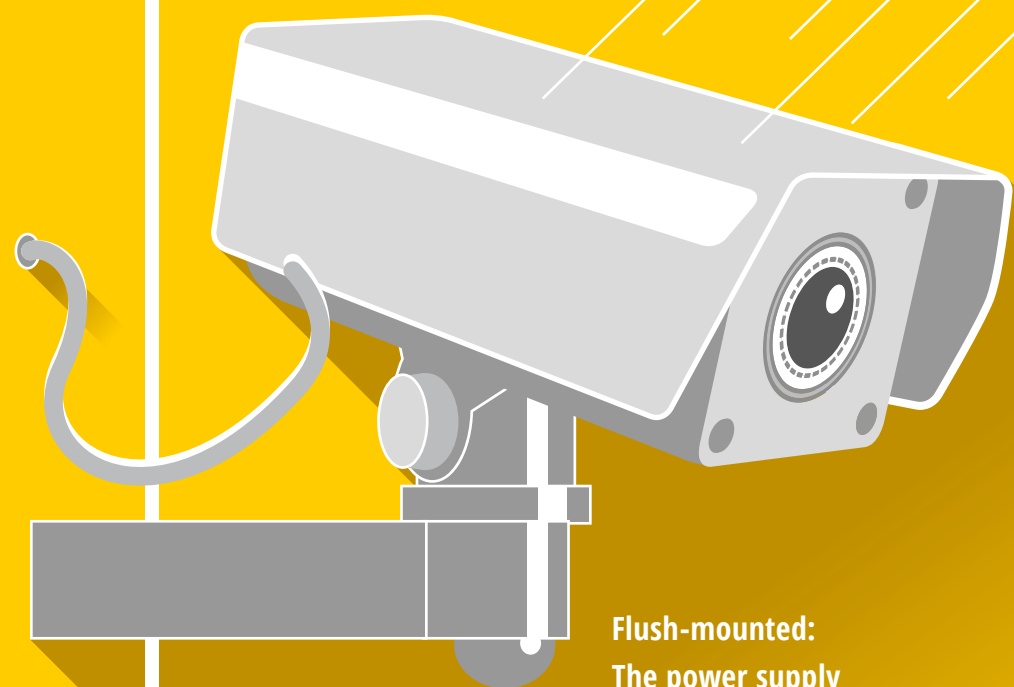
Switchmode power supplies

MEDICAL

Desktop

All products conform to IEC 60601-1.

DT80-M



Flush-mounted:
The power supply
unit can be fully
hidden in walls.

Flush-mounted

SEEING THE UNSEEN

The FRIWO flush-mounted range: Compact, highly efficient switch mode power supply units, with an optimum size for easy mounting. With a maximum diameter of just 51 mm, these units are ideal for installation in all standard flush-mounted sockets and can be fully hidden in walls. FRIWO's flush-mounted power supply units offer numerous advantages, from protection against vandalism to reduced cleaning in applications that require high levels of hygiene. This has made them a firm favorite for building technology, security and sanitary applications. Their cast housing means they are ideally suited for use in damp environments (protection class IP67).

Along with 6 W, 12 W and 18 W cast devices, the flush-mounted range includes the UP USB. This power supply unit features two USB interfaces in one standard socket, allowing you to charge a broad range of home and office devices directly from the wall, while reducing the need for additional chargers and annoying tangled cables.



All the devices in the UP range have a 90 to 264 V AC wide range input, making them suitable for use anywhere in the world. The devices are protection class II compliant, voltage controlled, current-limited and continuously short-circuit-proof, which means they offer a high level of operational safety combined with a long operational life. They also comply with the latest guidelines. Thanks to idle consumption of ≤ 300 mW and high efficiency at every power level, the units comply with the current threshold values of various energy efficiency programs, such as Energy Star, MEPS or ErP. Flush-mounted power supply units with custom outputs or special leads are also possible on request.



**For easy installation and
protection against vandalism.**



**Designed for maximum vibration,
shock and temperature resistance.**

**No active
fan – but still
always cool.**

Open frame

TOP RATINGS, WORLDWIDE

The FRIWO OF product range: Compact, open-frame power supplies for the most demanding applications. Designed for maximum vibration, shock and temperature resistance, the incredible operating life of these devices sets new standards. Support also comes from their compact design, which dispenses with active fans. All the devices are purely convection cooled, which makes them far quieter in operation and avoids the need for a component that is prone to failure. These highly efficient power supply units suffer almost no loss of power in standby mode, and the extremely low leakage current helps achieve maximum patient safety in medical technology applications as well as accurate readings in measurement applications, among numerous other advantages. All the devices in the OF range have a 90 to 264 V AC wide-range input, making them suitable for global use. They are protection class I compliant, voltage controlled, current-limited and continuously short-circuit-proof. The OF250 and OF450 models feature an additional auxiliary output, which

allows the application to be switched on and off easily, regardless of where the power supply unit is located. That offers more freedom in the design process and creates the potential for energy savings.

The open design of the product range makes the units extremely adaptable and allows for custom, made-to-measure solutions. Many of the devices in the standard portfolio are all-in-one solutions, certified for medical, household and IT applications.



NOTES



*Energy
for life*

FRIWO®

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