INSTALLATION AND OPERATING MANUAL **EN**

MEDSYS 20

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EN CONTENTS

1. MANUFACTURER'S WARRANTY

SOCOMEC guarantees the SUPPLY against any lack of conformity or hidden defect found in the design or manufacture. The warranty period is 12 (twelve) months after commissioning of the SUPPLY without however being able to exceed 18 (eighteen) months from the date of delivery. The guarantee is not granted to the CUSTOMER until after final payment of the SUPPLY.

SOCOMEC's warranty is strictly limited to the SUPPLY and does not extend to the equipment in which the SUPPLY is incorporated or to the performance of this equipment. SOCOMEC's obligation can only have the effect of repairing or replacing, at its discretion and at its expense, in its workshops, all or part of the SUPPLY recognized as defective. Upon knowledge of the defect, the CUSTOMER will notify SOCOMEC in writing of the defects he attributes to the SUPPLY, provide all justifications as to their reality and specify the destination and conditions of use of the SUPPLY. SOCOMEC reserves the right to modify the SUPPLY in order to respond to the implementation of its guarantee.

The repair, replacement or modification of all or part of the SUPPLY during the warranty period may not have the effect of extending the duration thereof. Defective parts replaced free of charge are made available to SOCOMEC and become its property again; parts invoiced to the CUSTOMER, if applicable, are guaranteed for 3 (three) months under normal conditions of use.

The warranty is excluded:

- in the event of a defect or vice resulting either from the materials supplied by the CUSTOMER, or from a design imposed by the latter,
- in the event of deterioration or accident attributable to transport or resulting from negligence, faulty installation, supervision or maintenance by the CLIENT or by a third party,
- in case of use, installation or storage of the SUPPLY in abnormal conditions or not in accordance with SOCOMEC prescriptions or the rules of the art,
- if the CUSTOMER has made or made changes, adjustments or repairs to the SUPPLY without the express consent of SOCOMEC,
- in the event of damage resulting from fortuitous events, force majeure or faulty acts of the CLIENT or a third party,

The warranty does not cover the replacement or repair of parts which would result from normal wear and tear of the SUPPLY.

2. GENERAL INFORMATION

MEDSYS equipment is designed to meet electrical distribution applications in the medical environment.

They ensure the availability of the power supply, especially in group 2 premises.

They ensure high availability and high quality of electrical distribution and their design facilitates preventive maintenance of the equipment in accordance with the requirements of NFC 15-211 and HD 60364-7-710.

In order to be able to install the medsys 20 in medical rooms with criticalities 1 & 2, it is imperative that the isolation transformer is connected.

MEDSYS equipment has been tested and qualified by the Tesla Power Lab.

- Continuity and availability: the MEDSYS cabinet ensures the power supply for criticality rooms of Group 0, 1 and 2.
- Scalability and maintainability: the design of the box guarantees ease of maintenance operations and scalability of additional terminal circuits.

3. SAFETY RECOMMENDATIONS

- Read these instructions carefully before handling or commissioning the equipment.
- Only qualified personnel can work on this equipment.
- This document is intended to provide accurate information.
- These instructions should not be considered sufficient for persons who are not qualified to operate or maintain this equipment.
- No liability will be assumed by SOCOMEC for the consequences arising from the use of this document.
- Perform a lockout action before performing inspections, tests, or work on this equipment.
- Failure to follow these precautions will result in property damage, serious injury, or death.
- The proper functioning of this equipment depends on correct installation. Refer to the electrical installation standards in force. Neglecting basic installation techniques will result in property damage, serious injury, or death.
- Do not make any modifications to the equipment. Failure to observe this precaution will result in property damage, personal injury, and voiding the warranty.
- Any repair intervention must be carried out using original components.
- The original components are available from the SOCOMEC sales network.
- The MEDSYS box must be used in full accordance with its documentation and in compliance with the standards and directives in force.
- The MEDSYS box meets the applicable criteria of the NFC 15-211 standard

4. STAFF QUALIFICATIONS

Servicing personnel must be familiar with the installation, commissioning and operation of the bay and be aware of potential hazard sources. They must also be fully trained and qualified for the repair, maintenance and commissioning of the equipment.
This qualification should cover:

- The mechanical installation of the product: Certified installers with basic skills in electrics
- The electrical installation of the product: Certified electricians
- Commissioning: Certified electricians

Warning!
- For all manipulations on a component, ensure that it is isolated (follow the procedures for locking out electrical equipment).
- A short circuit can present a danger to human life and destroy equipment. Therefore, it is vitally important to use appropriate tools and instruments for commissioning or inspecting the MEDSYS array.

5. DELIVERY, HANDLING, STORAGE

5.1. Delivery

Warning:
- Check the details of the order before making any complaints.
- If the equipment shows visible signs of transport damage then it should not be installed or put into service. Please check the integrity of the equipment.
- For insurance reasons, visible defects such as external damage to the packaging and/or product must be notified to the sender within 7 days. The manufacturer's representative and local office should also be notified of the damage.

5.2. Handling

Attention!
- The use of appropriate equipment for transporting goods is necessary.
- Do not return the MEDSYS box.
- The MEDSYS box must be transported in a horizontal position in an appropriate manner.
- During transport and storage, the MEDSYS box must remain in its original packaging.

5.3. Storage

Warning:
The MEDSYS cabinet must be stored in a non-humid environment, protected from dust and condensation, and exposed to slight variations in temperature.
- During the storage period, the MEDSYS box must remain in the original packaging.
- The MEDSYS cabinet must be stored in a non-humid environment, protected from dust and condensation, and exposed to slight variations in temperature.
- Respect the climatic conditions in accordance with standard en 50178.
- Ambient temperature for transport and storage: -25°C to +60°C.

6. TECHNICAL SPECIFICATIONS

RANGE		MEDSYS 20A	MEDSYS 20B
PRODUCT CODE		80101100	80103210
ENVIRONMENTAL CONDITIONS			
Ambient operating temperature		0°C to +35°C without derating	
Storage temperature		0°C to +50°C	
Relative humidity / altitude		Max. 90% without condensation at 35°C / 1000 m without derating	
ELECTRICAL SPECIFICATIONS			
Rated current In	@ 35°C	50A	
Rated voltage Ue		230 V	
Insulation voltage Ui (power circuit)		300 V	
Impulse withstand voltage Uimp (power circuit)		4kV	
Nominal frequency		50 Hz / 60 Hz	
Fuse protected short-circuit withstand current Icc	Rating	50 A	
	Type	gG	
Withheld short-circuit current at 230 V 50 Hz		10 kA RMS	
Recommended cross-section of copper cable	Input cables	16 mm^2	
	Output cables	2,5 mm^2	
MECHANICAL SPECIFICATIONS			
Degree of protection		IP54	
Mechanical resistance of the housing		IK07 (on Enclosure, components excluded)	
Dimensions H x W x D (mm)		632 x 404 x 130	
STANDARDS			
Low-voltage switchgear and controlgear		EN/IEC 61439-2 (2011)	
Electrical installations in medical facilities	French Standard	NF C15-211 (2009)	
	International standard	IEC 60364-7-710 (2002)	
European directives		Low Voltage Directive 2014/35/EU	
		Electromagnetic Compatibility Directive 2014/30/EU	

7. INSTALLATION AND COMMISSIONING

Equipment: before any intervention, refer to the device manuals.

- The equipment is designed for indoor use only.
- The cabinet is designed to be installed in a vertical position. Before installing the equipment, make sure the wall is flat and the cabinet fixing points.
- If the installation surface is not level enough, we recommend the use of rigid profile rails and level wedges.
- The support on which the box is fixed must be made of non-flammable materials. No flammable material should be in the environment of the product. If the cabinet is installed indoors, it is recommended to use a smoke detection system.
- Provide a verification test of the fault information loop
- Protection of the MEDSYS cabinet must be provided in the installation upstream of the cabinet.
- When putting into service, make sure that there is no risk of electromagnetic disturbances linked to emissive equipment.
- ISOM DIGIWARE settings see chapter 10.1 Permanent insulation monitor.

7.1. Terminal blocks and connection interfaces

7.1.1. Terminal blocks and connection interfaces

The connection of the incoming cables can be made by copper cables.

The cables can be entered from above or from below.

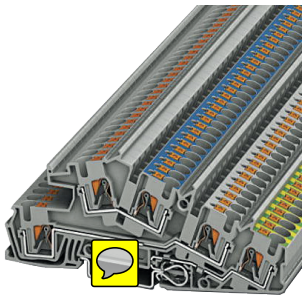
The connection of the input cables is made directly on the switch. For the type of connection, please consult the manufacturer's instructions.

HAGER SA263 incoming trip switch tightening torque: 2Nm / SCHNEIDER A9S70663 incoming trip switch tightening torque: 3.5Nm (maximum section: 16mm² Cu)

HAGER outlets tightening torque: 2.8Nm (max section: 2.5 / 4mm² Cu) / SCHNEIDER outlets tightening torque: 2 Nm (max section: 2.5 / 4mm² Cu)

MEDSYS 30CD cabinets come in two versions; an IP21 version with an open cabinet to protect modular appliances and an IP54 version with a door to protect modular appliances.

7.1.2. Outgoing circuit terminals



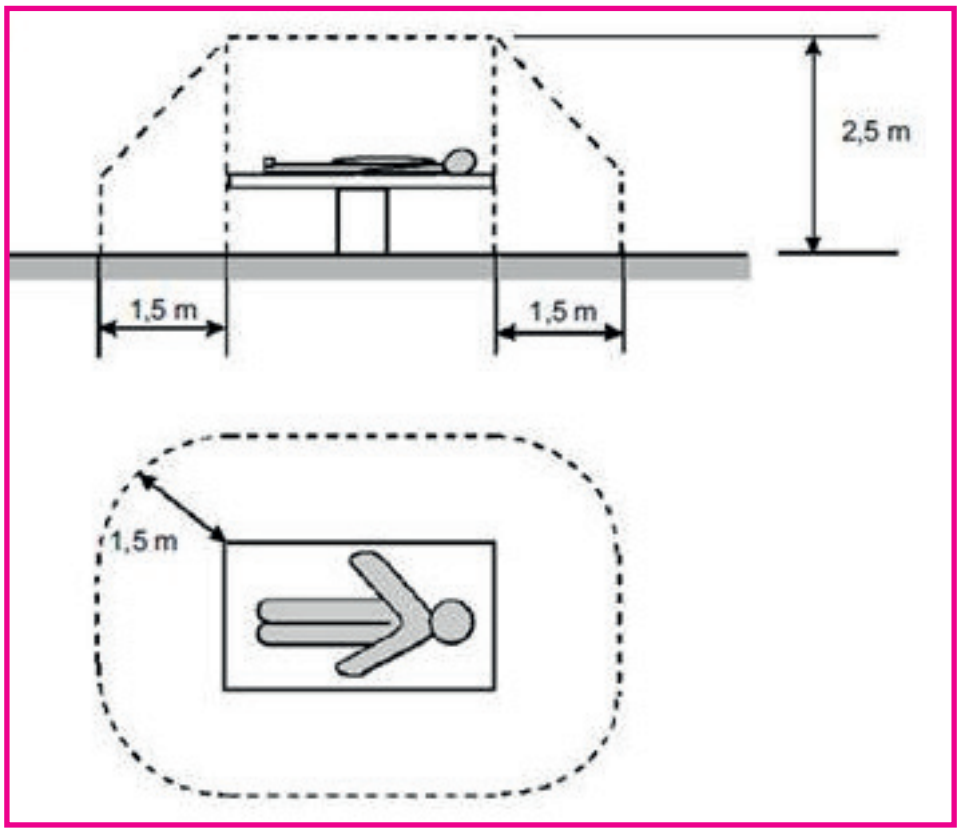
Triple-level terminals are dedicated to the connection of outgoing circuits.
The terminal section is 4mm² max.

Refer to the manufacturer's instructions for the product characteristics.

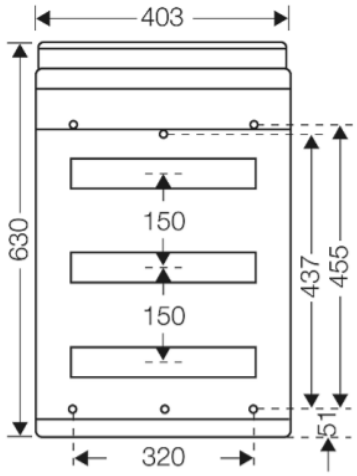
The maximum length of the pipes downstream of each feeder must be less than or equal to 19m for curve C circuit breakers (for other types of circuit breaker, please consult us).

7.1.3. Installation

For the installation of the equipment, the IEC 60364-7-710 standard must be respected, see indications below:



Detail mass



Box walls

8xø7-12 mm
8xø7-14 mm
4xø12-20 mm
1xø16,5-29 mm
8xøM20

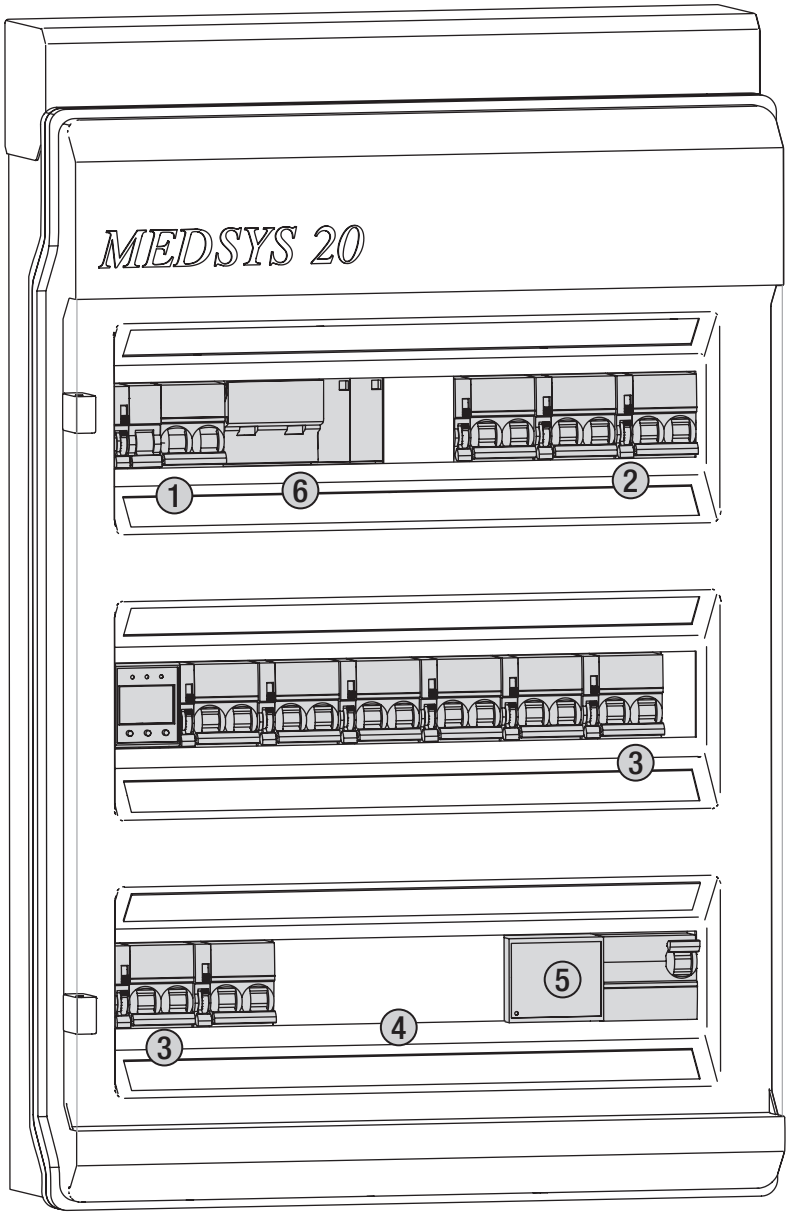
8xø7-12 mm
8xø7-14 mm
4xø12-20 mm
1xø16,5-29 mm
8xøM20

Operating and ambient conditions

8. GENERAL DESCRIPTION OF MEDSYS ENCLOSURE

8.1. Construction of MEDSYS 20 cabinet

This low voltage system has been designed and verified in accordance with NFC 15-211, EN / IEC 61439-2 standards.



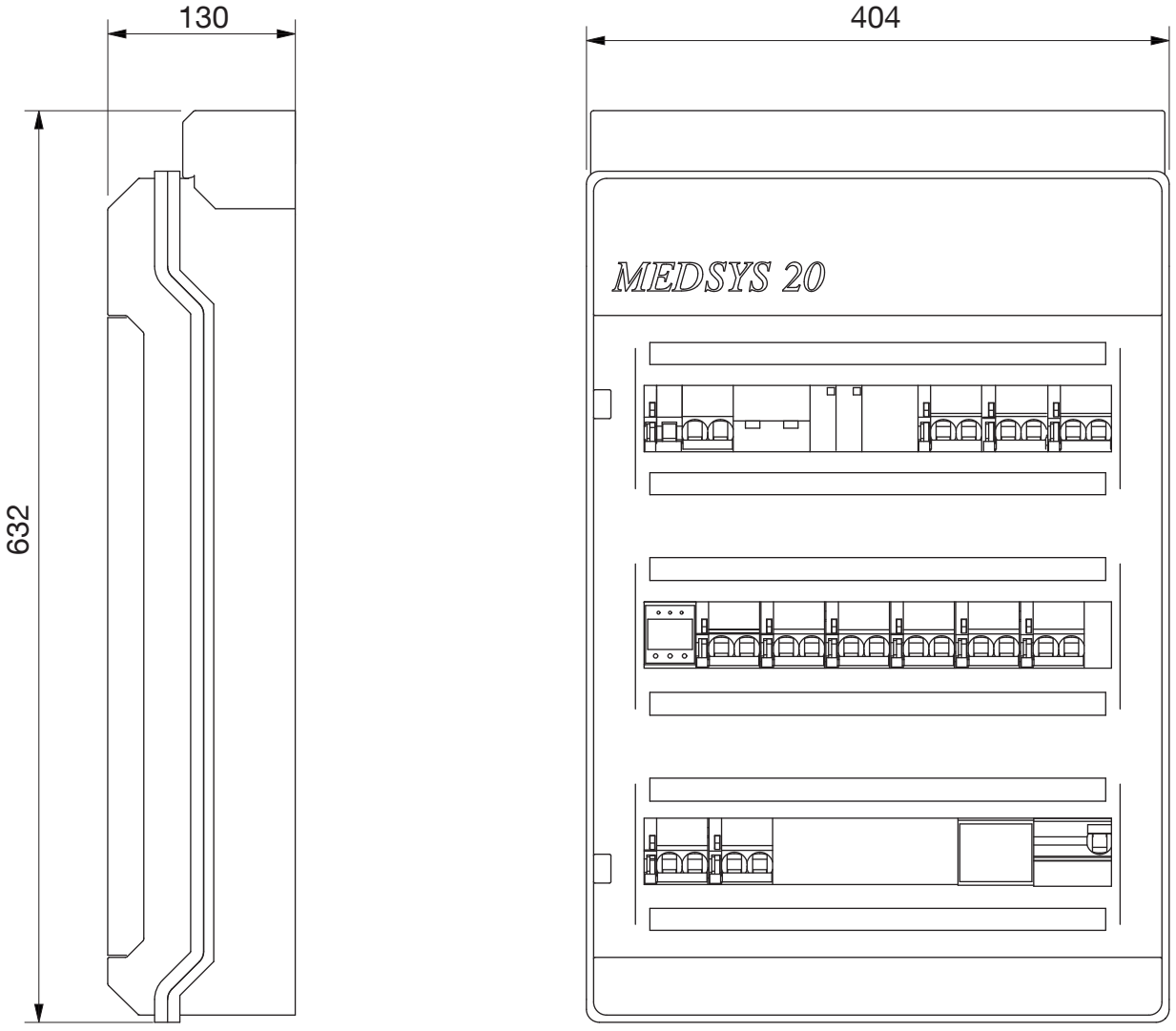
System is composed as follow :

1. Incoming
2. Outgoing TNS
3. Outgoing IT
4. Terminals
5. Transformer protection
6. Option SPD

8.2. MEDSYS 20 settings

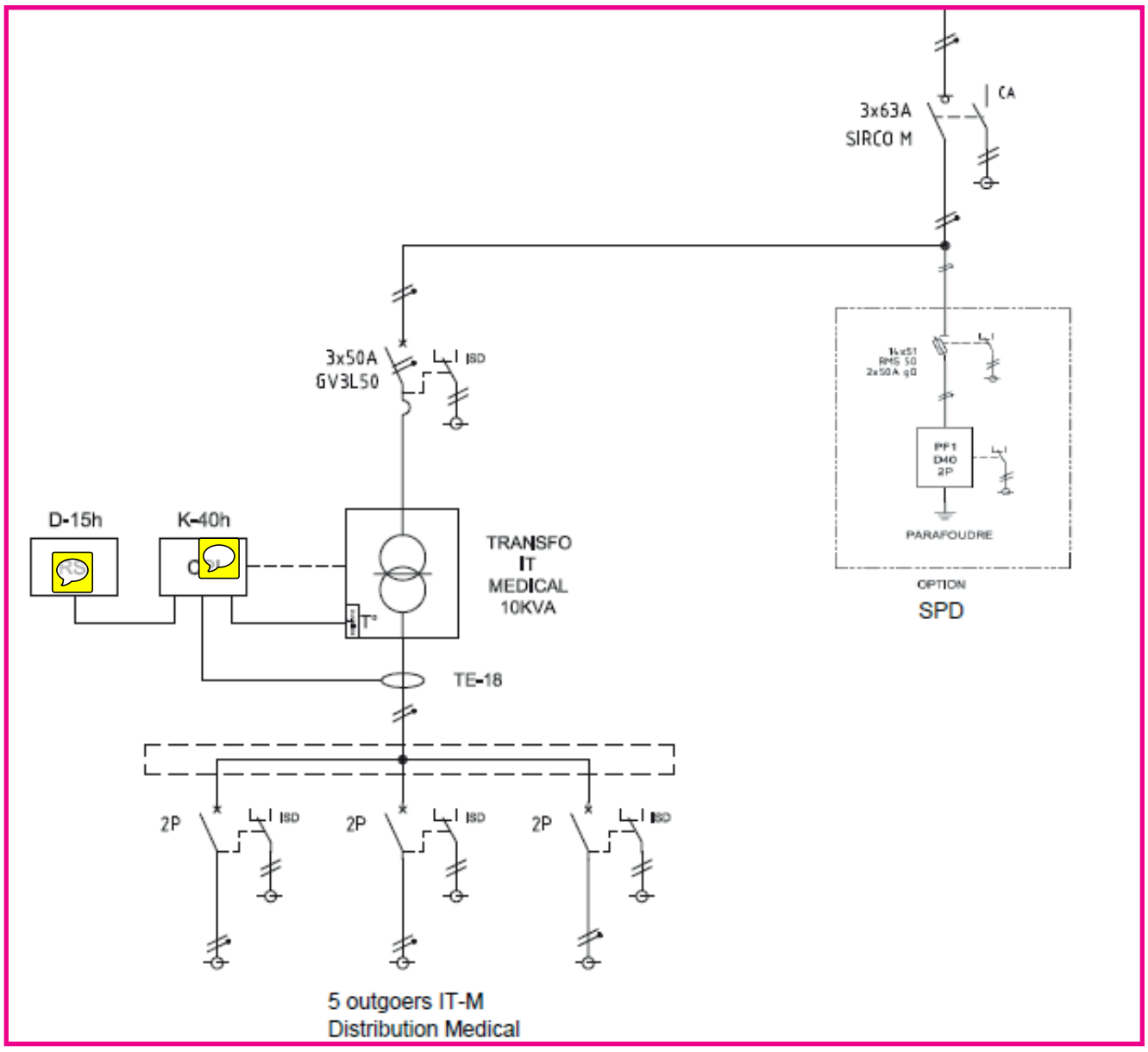
PRODUCT	MEDSYS 20A	MEDSYS 20B
INCOMING TYPE		
1 single (From UPS)	•	
POWER		
Transformer (kVA)	4	6,3
TYPE OF INSULATION TRANSFORMER		
Standalone	•	
INCOMER PRODUCT		
Load Break Switch	•	
DISTRIBUTION		
Outgoing TN-S	-	•
Outgoing IT-M (Isom K40h)	•	•

8.3. Dimensions MEDSYS enclosure

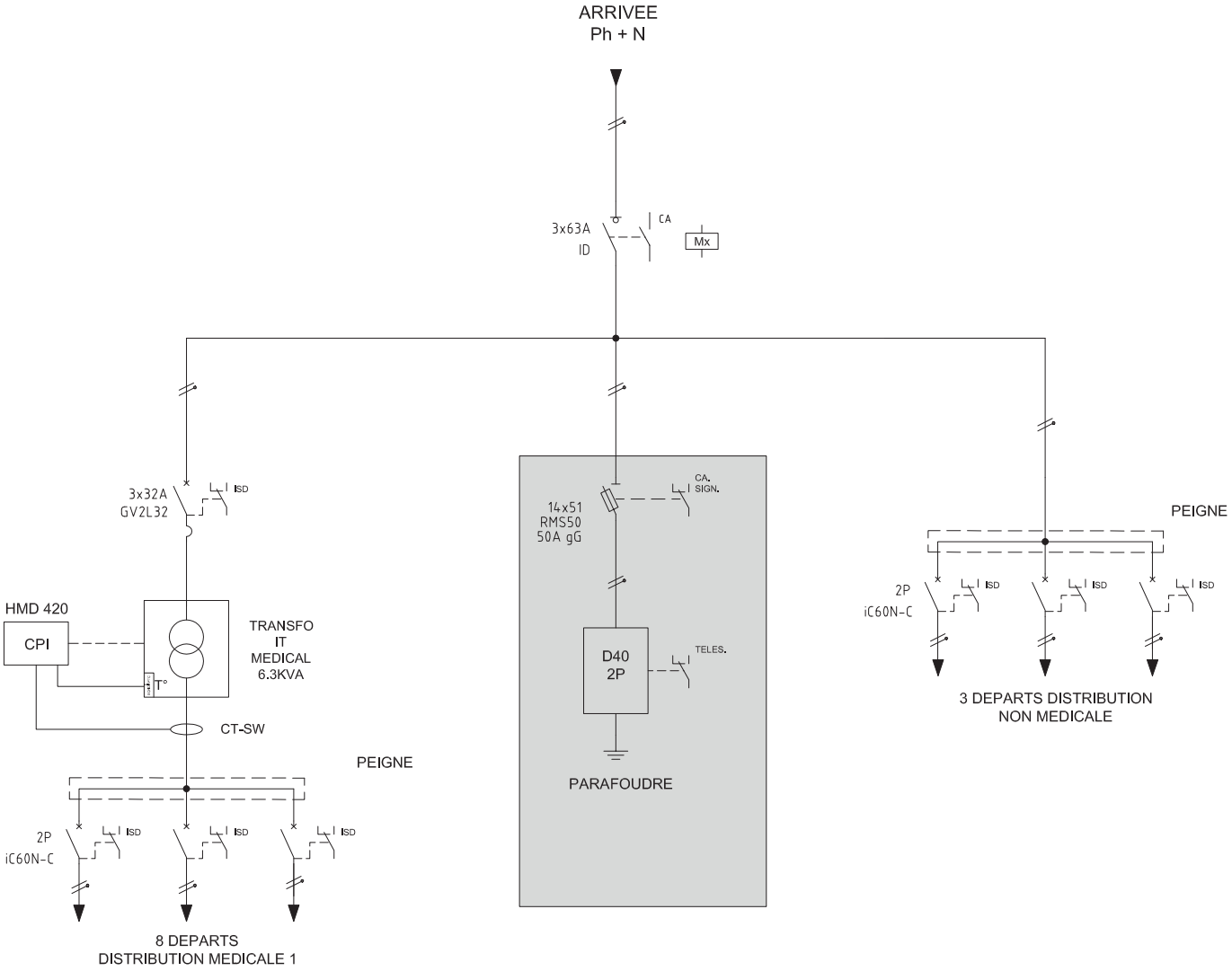


8.4. Single-line schematic diagrams

8.4.1. Configuration MEDSYS 20A



8.4.2. Configuration MEDSYS 20B



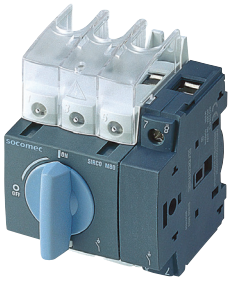
9. COMPONENTS OF MEDSYS 20

9.1. Functional units (UF)

9.1.1. Cabinet

The MEDSYS box is a modular box. It is designed to protect against direct contact. Protection is provided by the enclosure, which has a protection rating of IP54 with the door closed and IP2X with the door open.

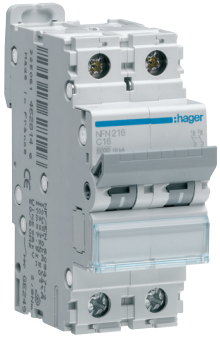
9.1.2. UF Incomer - Configuration MEDSYS 20A

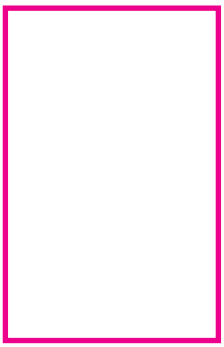


In order to ensure a general power cut, the MEDSYS 20 cabinets are equipped with a SIRCO main load break switch which allows the power to be stopped remotely.

Refer to the manufacturer's instructions for the product characteristics.

9.1.3. TNS Outgers



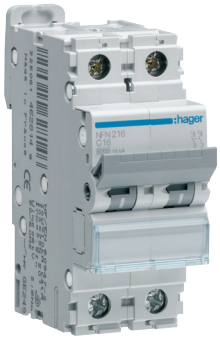


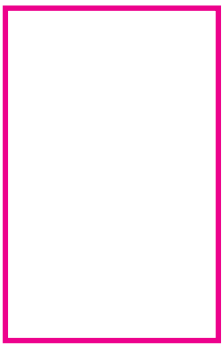
• A circuit of three non-IT medical feeders is available for non-critical loads on the MEDSYS 20b box. This circuit corresponds to criticality 3 of the NFC 15-211 standard (load that can accept cuts lasting longer than 15s and less than 30 minutes). It is made up of modular single-phase thermal-magnetic circuit breakers 16A (x2) and 10A (x1) curve C HAGER or SCHNEIDER. These 3 feeders are equipped with a fault contact to signal the trip and are integrated into the general fault chain.

Refer to the manufacturer's instructions for the product characteristics..

9.1.4. IT outgoers

9.1.4.1. MCBs





MEDSYS 20 enclosures make it possible to create the IT diagram for premises for medical use in group 2. The enclosures provide the power necessary to supply circuits such as medical electrical equipment, systems intended for survival and surgical applications, and other equipment located in the patient's environment except:

- circuits supplying radiology equipment
- circuits supplying user equipment installed at a fixed station with a rated power greater than 5 kVA;
- circuits supplying user equipment installed at a fixed position and located in such a way that any voluntary or accidental contact between the patient and these equipment cannot occur.

All these circuits have upstream protection for a single-phase modular thermal-magnetic circuit breaker of the HAGER or SCHNEIDER type.

Each circuit breaker is equipped with a fault contact to signal tripping and is integrated into the general fault chain.

Medical IT departures meet criticality levels 1 or 2 of standard NF C15-211.

TYPE	CURVE	RATED INTENSITY (A)(*)	QUANTITY	
			MEDSYS 20A	MEDSYS 20B
NFN 210 or A9F77210	C	10	2	3
NFN 216 or A9F77216	C	16	3	4

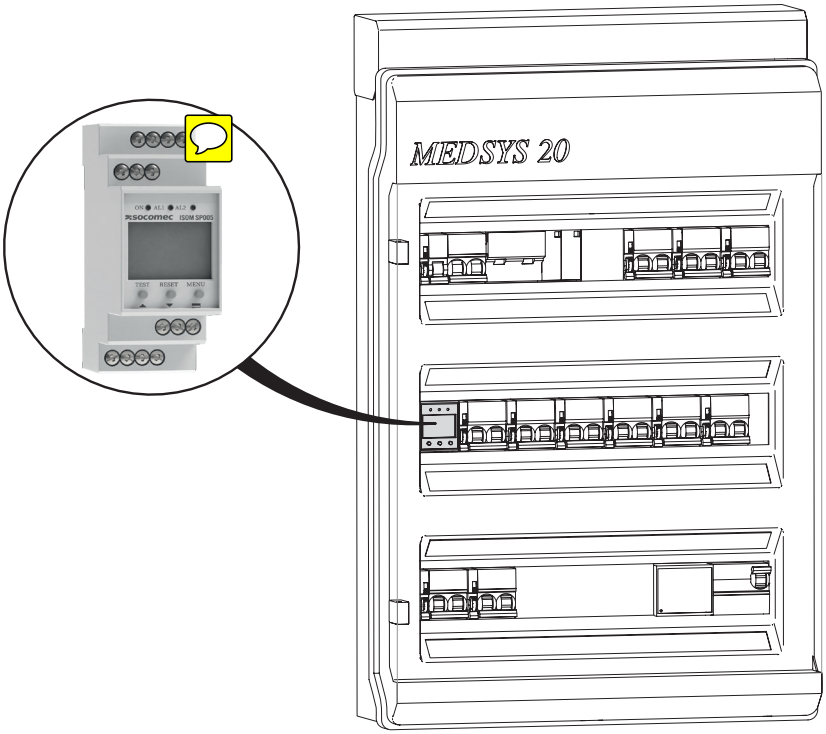
(*) According to EN/IEC 61439-1, a diversity factor must be applied to the entire circuit group. The diversity factor for MEDSYS 30 CD bays is 0.9.

Refer to the manufacturer's instructions for the product features.

9.1.4.2. Insulation Monitoring Device (IMD)

The MEDSYS cabinet is equipped with a permanent insulation monitor (CPI) type HMD420 for the IT scheme. This CPI complies with standard NF EN 61557-8.
It allows the:

- Isolation monitoring
- Measurement of the secondary current of the associated transformer.
- Temperature measurement of the secondary of the associated transformer.



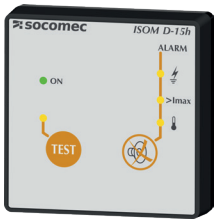
The IMD is equipped with an alarm contact to signal the detection of an insulation fault, overcurrent or overheating of the transformer. This potential free contact is made available on terminals for connection to a building management system, for example (see terminal block and connection interface section).

The IMD is equipped with an RS485 / ISOM type proprietary protocol communication interface allowing it to be connected to an alarm device (D15h).

The IMD is protected by a HAGER (curve C) or SCHNEIDER (curve C) circuit breaker equipped with a fault contact to signal tripping and is integrated into the general fault chain.

Refer to the K40h manual for product specifications.

9.1.4.3. Remote Annunciator



When detection of an alarm by the IMD, it is sent back by RS485 / ISOM type communication bus, SOCOMEC proprietary protocol, thus allowing it to be connected to an alarm reporting device. This data bus is available on terminals (see terminal block and connection interface section).

The alarm reporting device is of the SOCOMEC D15h type and is delivered with the MEDSYS boxes.

It displays the alarm and operating messages transmitted to it via the RS485 bus.

According to the NF C 15211 and HD 60364-7-710 standards, a device making it possible to signal an audible and visual alarm must be installed in a room where medical personnel can be alerted at all times. The D15h meets the NF C 15-211 and IEC60364-7-710 standards.

Refer to the D15h manual for product characteristics.

9.2. Transformer compartment

9.2.1. Isolating transformer

The dry type TRM 230 / 230V transformer is the LV / LV transformers separating the general distribution network from the supply of medical premises supplied in IT regime. It is intended for supplying an operating room or surgery room.

It thus makes it possible to isolate and partition the electrical disturbances of the entire installation. The medical IT scheme is required by the installation standards NF C 15211, IEC 60364-7-710 for premises where patient safety must not be compromised in the event of an insulation fault. The TRM transformer therefore meets the IEC61558-2-15 standard.

As a reminder, the transformer is sized for a maximum power of 4 or 6.3kVA and is equipped with a temperature sensor allowing monitoring in the event of overheating. An auxiliary contact is provided for feedback to the D15h visual and audible alarm reporting system.

The isolation transformer that comes with the box is covered and has an IP21 protection rating.

Tightening torques for the terminals on the transformer.

TERMINALS	TIGHTENING TORQUE	
	MINIMUM (Nm)	MAXIMUM (Nm)
4 mm^2	0.5	1
6 mm^2	0.8	1.6
35 mm^2	4	5

9.2.2. Transformer protection

The circuit supplying the medical IT diagram transformer must not be protected against overloads, but only against short circuits. This function is therefore performed by a GV2L32 type circuit breaker. The auxiliary fault contact of this one is wired in the general fault chain.

Tightening torque for connection: 1.7Nm

Refer to the manufacturer's instructions for the product characteristics.

9.3. Possible options

9.3.1. Protect against overvoltage

A surge arrester option can be added. The surge arresters used are of the SURGYS D40 type. This option provides protection for LV distribution circuits and equipment against transient overvoltages. It acts against switching surges and those due to lightning.

The surge arrester is protected upstream by 50A gG fuses. The SURGYS D40 remote signaling contact is wired in the general fault chain.

Refer to the SURGYS D40 instructions for product features.

10. USE AND MAINTENANCE

- Before any work starts, use personal protection equipment.
- Those working on the equipment must be qualified and authorised to do so.
- Please check the lack of voltage using suitable equipment.

10.1. Insulation monitoring device

The IMD is configured by default according to the following information:

- Signal relay contact = IDLE MODE (FACTORY STD)
- Built-in resistor activated and set to 120 ohm
- Alarm threshold set at 150 kohm
- Current alarm threshold to be set see table below:

Transformer power	4 kVA	6.3 kVA	10 kVA
Setting the current threshold	17 A	27 A	43 A

Interfaces for CT-STW2 current transformer and temperature probe.

Cable lengths:

Single-wire > 0.5mm² ≤1m

Single-wire, twisted > 0.5mm² ≤10m

Twisted by shielded pair > 0.5mm² ≤40m

Recommended cable min J-Y (St) Y 2x0.6 ; shield on PE

For other parameters, refer to the instructions of the various IMDs to set up and use the product.

10.2. SPD

Refer to the surge arrester manual for product operation.

The part number of the replacement module is 49820419.

10.3. Audible and visual alarm

Refer to the D15h instructions for using the product.

10.4. Periodic maintenance

SOCOMEC is here to support you in the maintenance of your equipment.
Do not hesitate to contact your nearest SOCOMEC representative.

It is recommended to practice an annual tightening campaign.

For the rest of the hardware, refer to the product instructions.

11. COMPLIANCE WITH STANDARDS

NFC 15-211, HD / IEC 60364-7-710, NF EN 61439-2

12. UE DECLARATION OF CONFORMITY

13. GLOSSARY

ASI: Static uninterruptible power supply

ATyS: Automatic transfer switch

CPI: Permanent insulation controller

DLD: Fault localization device

RA: Alarm report

STATYS: Static transfer system

SURGYS: Surge arrester

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