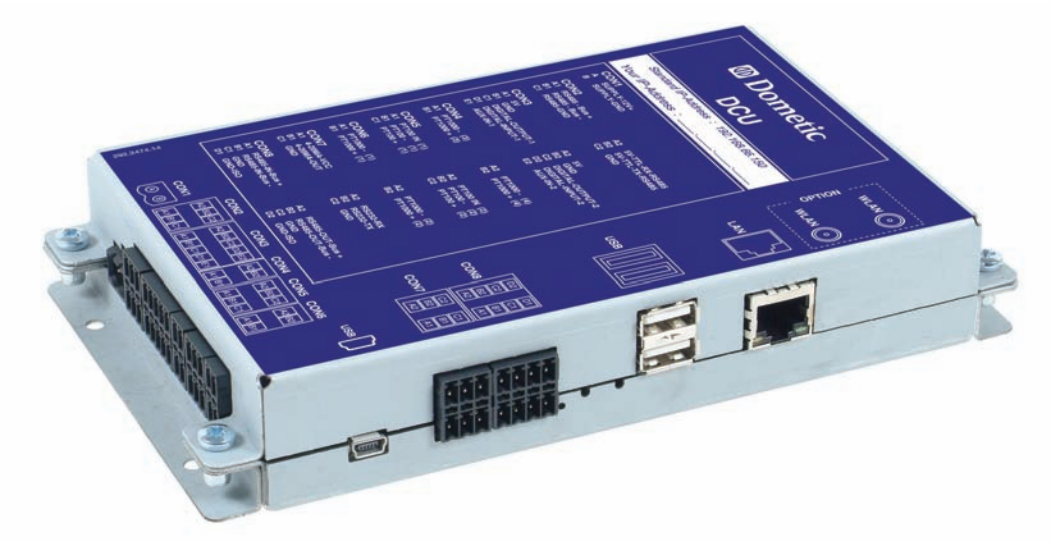
Dometic



Dometic Communication Unit

Version 0.16

Installation and Configuration

820 9505 18 - ed0309

Contents

1. General

The **“DOMETIC Communication Unit”** or DCU records and stores all the operating conditions and makes it possible to transfer this information via various media (RS485 bus, Ethernet LAN/WLAN, TCP/IP, USB) and to further process it in combination with the **“DOMETIC Monitoring Network”** or DMN software. The DCU offers the following options, among others:

- Interface for medical systems devices with your existing network infrastructure.
- Direct connection to Ethernet and to a serial industrial BUS and also the option to connect to your building’s cabling technology.
- Digital input and output.
- The integrated USB connection permits the stored data to be stored on an external memory stick.
- Recording and interim storage of relevant information on medical devices.
- Backed up by battery. Data will continue to be recorded and stored in the DCU’s internal memory even if there is a power cut. Includes an absolute time stamp. So data may be modelled seamlessly in the DOMETIC Monitoring Software.
- Connection of several additional temperature sensors (up to 4 PT 1000 & 2 PT 100)
- Analogue recording (mechanical circular chart recorder) dispensed with.
- A DCU with its own electrical power source can be used for data recording via various sensors. All the information may be recorded and stored in the DOMETIC Monitoring Software’s database and are available for analysis purposes at any time.
- An option to connect actuators (4 to 20 mA output).
- Thanks to internal data storage, breakdowns can be analysed in the DMN by means of the DCU and this can be done even with devices that have never been connected to a PC or network.

1.1. DCU as standard equipment

- If your DOMETIC device is fitted with a DCU in the factory, then the RS485 interface described in the operating instructions is dispensed with. Instead, the DCU is connected directly to the device’s electronics.
- IMPORTANT: In this case, if the DCU is connected directly to the medical systems electronics, it is started when the device is switched on with the keyswitch. When the device is switched off, so is the DCU!

1.2. DCU as a retrofit kit

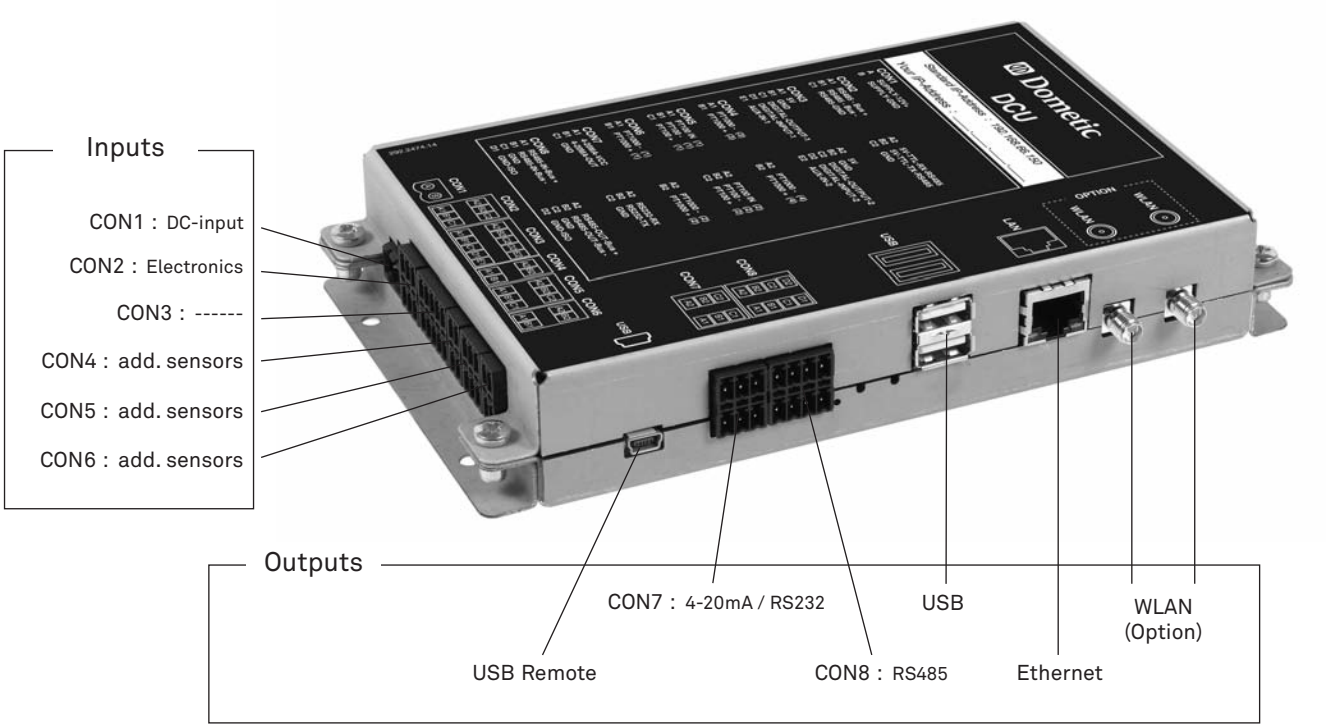
- The DCU can be retrofitted to all DOMETIC medical devices. This applies both to the latest generation devices and to devices of older series. In addition, external devices may be fitted with a DCU or the DCU may be operated as an independent (standalone) unit.
- You will find an overview of the various types of device and equipment options in Table 1.3 below.
- Connection of the DCU to the various devices is described in Section 4 “Optional Installation.” In principle the configuration of the DCU is always according to the same scheme. (Section 3 “Configuration”).

1.3. Overview of the models

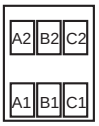
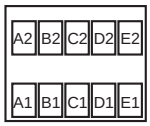
Device type	Option to fit as standard	Retrofit options Version 1	Version 2	Version 3
BR 55G	●	●		
BR/LR/PR/FR 250G	●	●		
BR/LR/PR/FR 410G	●	●		
BR/LR/PR/FR 490G	●	●		
BR/LR/PR/FR 750G	●	●		
UF 455G	●	●		
UF755G	●	●		
ML/MP 155S	●	●		
ML/MP 320S	●	●		
ML/MP 355S	●	●		
ML/MP 360CS	●	●		
ML/MP 580S	●	●		
ML/MP 1300S	●	●		
MF 110S	●	●		
MF 250S	●	●		
BR 60			●	
BR/LR/PR/FR 160			●	
BR/LR/PR/FR 240			●	
BR/LR/PR/FR 400			●	
BR/LR/PR/FR 700			●	
UF 456			●	
UF756			●	
ML/MP 155			●	
ML/MP 295			●	
ML/MP 405			●	
ML/MP 305C			●	
ML/MP 605			●	
ML/MP 1205			●	
MF 125			●	
MF 295			●	
All other DOMETIC devices				●
External device				●
Standalone-Version				●

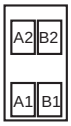
2. Connection options

2.1. Structure

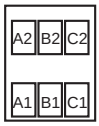


2.2. Inputs

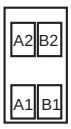
	CON1	DC input	With installation at the factory, the DCU is supplied with 12 V DC power by the refrigerator electronics. An additional battery built into the device provides an uninterrupted power supply. With subsequent installation of the DCU, this must be supplied with DC power via the CON1 connection through an external mains cable.
	CON2	Interface to the electronics Connection A1-B1-C1	RS485 interface With the latest generation of DOMETIC Medical Systems devices (from 2009), the DCU is connected via the A1-B1-C1 connections to the device electronics. (See Table 1.3 – Standard equipment and Version 1)
		Connection A2-B2-C2	TTL interface Older generations of DOMETIC medical devices (up to 2008) are connected to the DCU via the A2-B2-C2 connections. (See Table 1.3 - Version 2)
	CON3	-----	This connection is provided for future purposes and is not currently allocated.



CON4	Additional sensors	2 additional sensors of type PT1000 may be connected to the CON4 connection.
	Connection A1-B1	Sensor PT1000 (no 3)
	Connection A2-B2	Sensor PT1000 (no 4)



CON5	Additional sensors	2 additional sensors of type PT100 may be connected to the CON5 connection.
	Connection A1-B1-C1	Sensor PT100 (no 1)
	Connection A2-B2-C2	Sensor PT100 (no 2)

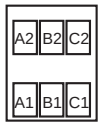


CON6	Additional sensors	2 additional sensors of type PT1000 may be connected to the CON6 connection.
	Connection A1-B1	Sensor PT1000 (no 1)
	Connection A2-B2	Sensor PT1000 (no 2)

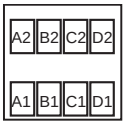
- For configuration of the sensors see Section 3.4. “Configuration of additional sensors.”

2.3. Outputs

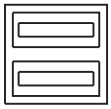
USB-Remote		Not currently allocated



CON7	Connection A1-B1-C1	Analogue output 4-20 mA This output is not activated for the DCU with firmware v. 0.16.
	Connection A2-B2-C2	Interface RS232 This interface may be used for configuration of the DCU.



CON8	RS485 Bus	Not currently activated



USB		The DCU is equipped with two USB connections, with both connections fulfilling the same function. With the standard equipment, one of the two connections is connected to the USB socket on the front of the device by means of a USB extension cable. The temperature values stored in the DCU can be read out via the USB interfaces with the aid of a USB stick on which the DOMETIC USB software is stored. Then these data may be evaluated with the aid of the “DOMETIC Monitoring Network” (DMN) software.

LAN	Ethernet	Connection to an existing network

WLAN	Wireless LAN	Connection from one or two radio antennae to integrate the DCU into an existing radio network (optional)

3. Installation and configuration

IMPORTANT: The software installation and the subsequent configuration of the DCU may only be carried out by a systems administrator.

3.1. Installation of the DMN software

- The “DOMETIC Monitoring Network” (DMN) software is required on the computer/network for configuration of the DCU and subsequent evaluation of the data.
- Install this software in accordance with the relevant installation instructions.

3.2. Connection of the DCU to the network or the computer

- Connect the DCU to the computer in the following sequence:
  - Connection of all additional components (with retrofit version)
  - Connection to computer/network (LAN)
  - Connection to power source (CON1)

NOTE: Depending on the PC’s network card, in certain circumstances a “crossover” network cable must be used.

- Once the power supply is established, the DCU starts automatically. This starting process takes about 2 minutes. During this period it is essential to wait before you start the subsequent configuration process

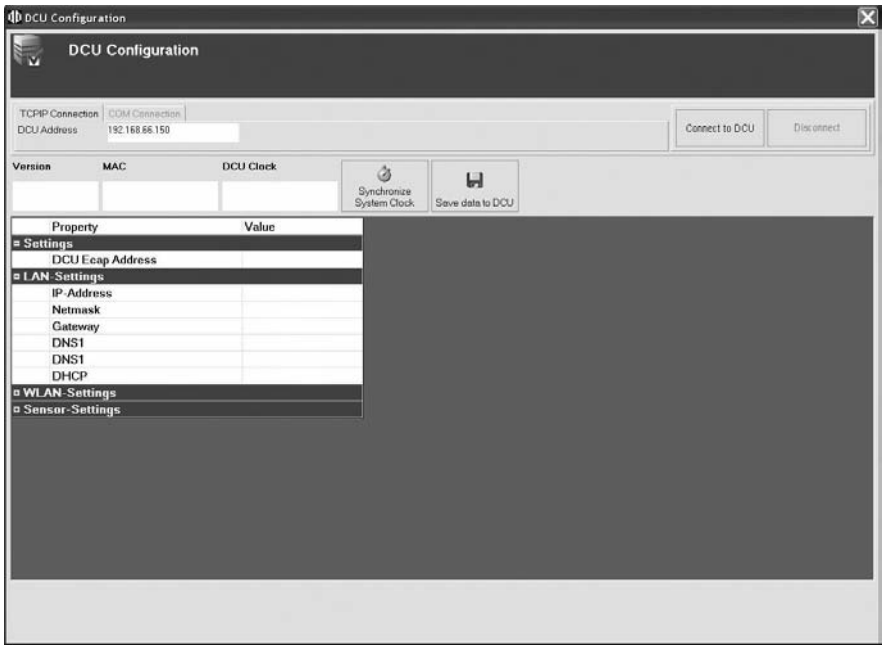
If the DCU is connected directly to the electronics of the medical systems device, it will start as soon as the device is switched on with the keyswitch.
IMPORTANT: If the device is switched off, so is the DCU!

3.3. Changing the IP address

- The standard IP address preset in the DCU is: 192.168.66.150
- Log in on your PC to the network appropriate to this IP address.
- Then start the DCU configuration program:

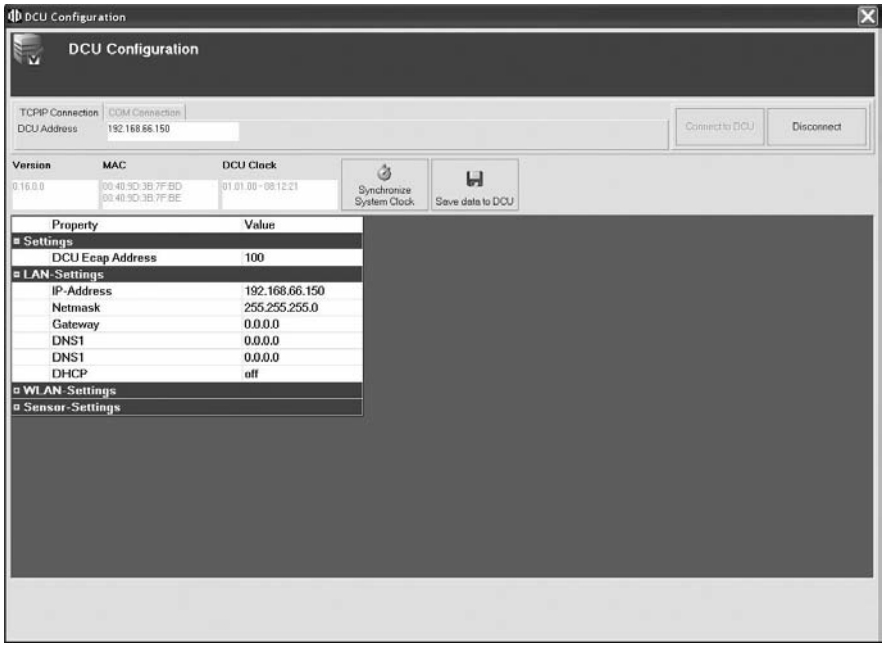
Start ➤ Programs ➤ DOMETIC Monitoring Network ➤ Tools ➤ DMN/DCU Configurator

- After the program has started, the following screen appears:



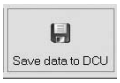
- The standard IP address appears in the “DCU Address” field. Click on the “Connect to DCU” button on the right to connect the PC to the DCU.

- The standard value are transferred to the input fields.



- Now click on the “Synchronise System Clock” button. The PC’s current time and date data are transferred to the DCU and managed from this moment on by the DCU.
- After synchronisation, the DCU is reinitialised. Continue with the configuration process if the current time and date appear in the “DCU Clock” field.

- Now input the specifications regarding your own network into the input fields under “LAN Settings” or “WLAN Settings.”



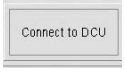
- Then click on the “Save to DCU” button to save the updated values in the DCU. This will overwrite the standard specified data.
  After storage of these data, the DCU is restarted. This process takes about 2 minutes.

NOTE: Note the individual IP address of each DCU in the field provided on the sticker in order to be able to find them again in case any network problems occur.

3.4. Configuration of additional sensors

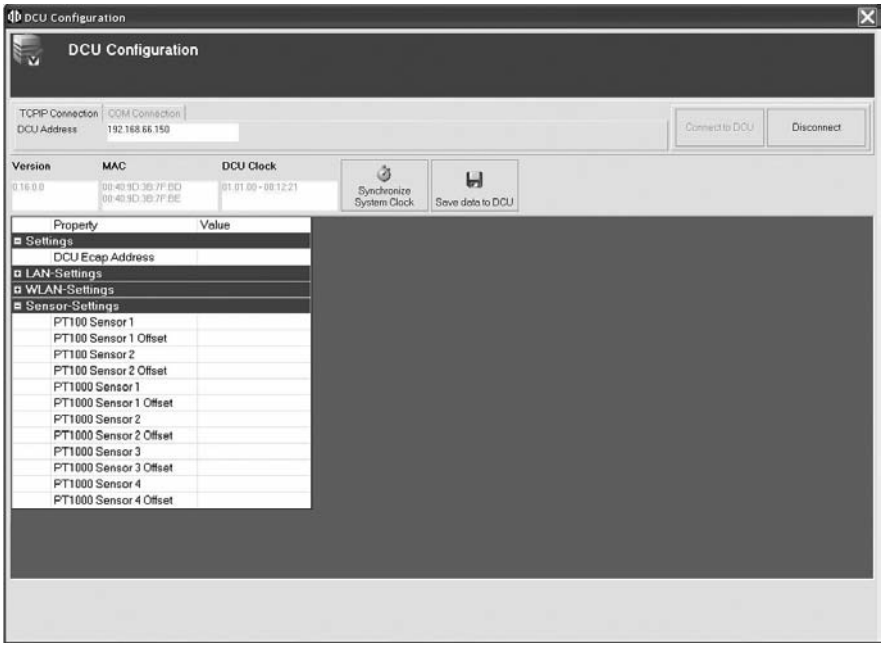
- With the DCU you have an opportunity to connect up to 6 additional sensors. These sensors are connected to inputs CON4, CON5 or CON6. (See Section “Connection options – Inputs”).
- Sensors must be configured before they can be used.
- Start the DCU configuration program:

  Start ➤ Programs ➤ DOMETIC Monitoring Network ➤ Tools ➤ DMN/DCU Configurator



- Input the DCU’s IP address in the “DCU Address” field (configured as in Section 3.3.) and click on the “Connect to DCU” button to connect to the DCU.

- The various sensors must be configured in the “**Sensor Settings**” area.



Sensor Role

The various sensors must be configured in the “Sensor Settings” area.

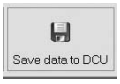
0	disabled :	Sensor deactivated
1	virtual device :	Independent sensor This configuration applies if the DCU is used as an independent device i.e. not in combination with a DOMETIC medical cooling device.
2	additional sensor :	If the DCU is connected to a medical device, additional sensors may be attached to the cooling device and these will be shown in the DMN together with the cooling device’s standard sensors

Sensor Offset

Input of a correction value for the relevant sensor

Input of positive or negative values in steps of 0.1°.

IMPORTANT: If the DCU is connected in the factory to one or more sensors, the set offset values are adapted to the device and they may only be changed with DOMETIC’s consent.



- Now click on the “Save to DCU” button to store the updated values in the DCU. The standard specified values are overwritten by this. After the values are stored, the DCU restarts. This process takes about 2 minutes.

This completes the DCU configuration. It may now be integrated into the DMN.

4. DCU as a retrofit kit

- The DCU may in principle be connected to any desired device. Refer to Table 1.3. to determine the relevant version of the retrofit kit.

4.1. Retrofit version 1

- This version applies to all the latest generation DOMETIC medical devices (GOLD and SILVER standards) (year of manufacture from 2009).
- The following parts are supplied:
    - DCU
    - Additional (backup) battery, 12V with fixing equipment and connector cable
    - USB connector box for front installation
    - USB extension cable
    - 2 connection cables for DCU electronics

- Connection of the DCU may only be carried out by trained staff. The following steps are to be carried out for this:
    - Switch off the refrigerator and pull the plug out of the mains socket.
    - Pull out the **J20** connector from the device electronics. The connection to the existing RS485 interface is no longer needed.
    - Fix the DCU on the back of the device.
      ATTENTION: With devices of the UF series of models, no holes may be drilled in the back wall of the container. With these models the DCU is to be fixed to the lower ventilation panel.
    - Install the additional battery and connect it to the **J18a** connector of the device's electronics.
    - Connect the **CON1** connector of the DCU to the **J17** connector of the device's electronics.
    - Connect the **A1-B1-C1** connections of the **CON2** connector of the DCU to the **J20** connector of the device's electronics.
    - Install the USB connector box on the front of the device.
      With devices with the GOLD standard, this connector box is installed in the cover under the door. With devices with the SILVER standard, installation is in the blue cover with the DOMETIC Medical Systems writing on it.
    - Connect this connector box to either of the USB socket points on the DCU by means of the USB extension cable.
    - Put the plug back in the socket and switch the device back on again. With this version the DCU is started automatically when the device is switched on. When the device is switched off with the keyswitch, so is the DCU.

- For subsequent configuration of the DCU please refer to Section 3.

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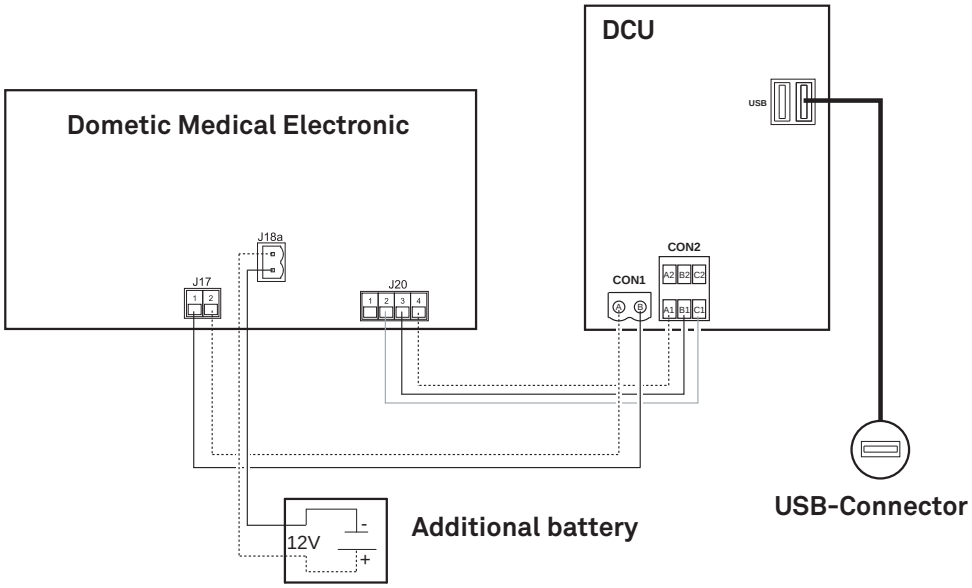


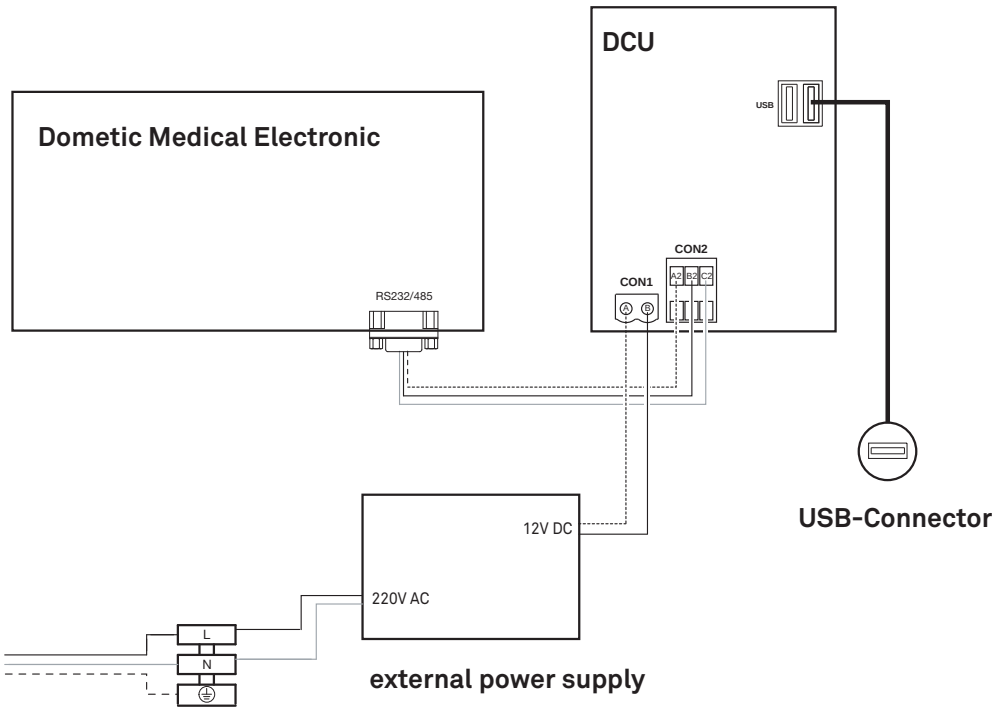
4.2. Retrofit version 2

- This version applies to all the older generation DOMETIC medical devices (GOLD and SILVER standards) (year of manufacture before 2008).
- The following parts are supplied:
    - USB connector box with magnetic base
    - USB extension cable
    - Connection cable DCU (CON2) – electronics (RS232/485)
    - Power supply incl. battery and charger

      ATTENTION: For reasons of safety and technical approval, only the mains cable/charger supplied with the unit by DOMETIC may be used for connection to the mains.
      The DCU may only be supplied by limited power sources according to IEC 60950 § 2,5.

- Connection of the DCU may only be carried out by trained staff. The following steps are to be carried out for this:
    - Switch the refrigerator off and pull the plug out of the mains socket.
    - f your device is equipped with an RS485 interface, disconnect this. To do this pull out the DSUB connector from the device electronics. The RS485 interface is no longer needed.
    - Fix the DCU to the back of the device.
      ATTENTION: With devices of the UF series of models, no holes may be drilled in the back wall of the container. With these models the DCU is to be fixed to the lower ventilation panel.
    - Connect the input from the electricity supply to the 220 V mains. For this use the input terminal block of the refrigerator.
    - Put the output of the electricity supply into connector **CON1** of the DCU.
    - Connect the **A2-B2-C2** connections of the **CON2** connector of the DCU with the connection cable supplied to the **RS232/485** connection on the device electronics.
    - Connect the USB connector box to either of the USB socket points on the DCU by means of the USB extension cable and put the USB connector box on the desired place on the front of the device by means of its magnetic base.
    - Put the plug back in the socket and switch the device back on again. With this version, the DCU is automatically started when a device connector is plugged in. When the device is switched off with the keyswitch, the DCU continues to operate.

- For subsequent configuration please refer to Section 3.

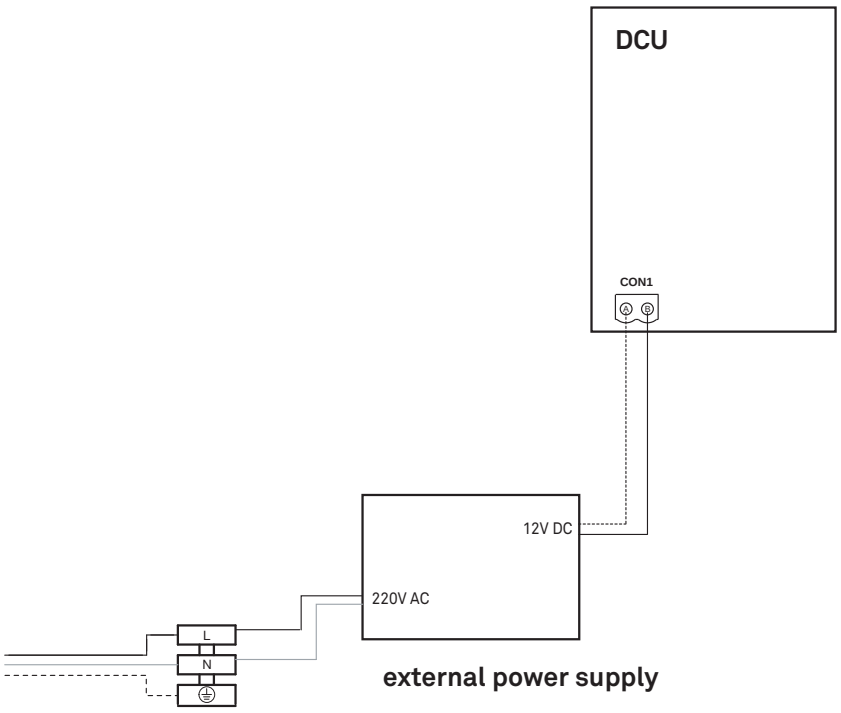


4.3. Retrofit version 3

- This version applies to all non-DOMETIC devices.
- The following parts are supplied:
    - DCU
    - Electrical connection incl. battery and charger
      ATTENTION: For reasons of safety and technical approval, only the mains cable/charger supplied with the unit by DOMETIC may be used for connection to the mains
      The DCU may only be supplied by limited power sources according to IEC 60950 § 2,5..

- Connection of the DCU may only be carried out by trained staff. The following steps are to be carried out for this:
    - Connect the input of the power supply to the 220 V mains.
    - Put the output of the power supply in the **CON1** connector of the DCU.

- For subsequent configuration of the DCU please refer to Section 3.



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MEDICAL SYSTEMS

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