**ABB industrial drives**

# User's manual
# ACS880-01 democase



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# List of related manuals

| Drive hardware manuals and guides | Code (English) |
|---|---|
| ACS880-01 hardware manual | 3AUA0000078093 |
| ACS880-01 quick installation guide for frames R1 to R3 | 3AUA0000085966 |
| ACS880-01 quick installation guide for frames R4 and R5 | 3AUA0000099663 |
| ACS880-01 quick installation guide for frames R6 to R9 | 3AUA0000099689 |

| Drive firmware manuals and guides | Code (English) |
|---|---|
| ACS880 primary control program firmware manual | 3AUA0000085967 |
| ACS880 drives with primary control program, quick startup guide | 3AUA0000098062 |

| Option manuals and guides | Code (English) |
|---|---|
| ACS-AP-I and ACS-AP-S assistant control panel user's manual | 3AUA0000085685 |
| Drive composer Start-up and maintenance PC tool User's manual | 3AUA0000094606 |
| Manuals and quick guides for I/O extension modules, fieldbus adapters, encoder interfaces, etc. | |

You can find manuals and other product documents in PDF format on the Internet. Go to www.abb.com/drives and select Document Library. You can browse the library or enter selection criteria, for example a document code, in the search field.

# Safety instructions

## General safety instructions

These safety instructions are intended for all personnel who work on the drive. For complete safety instructions, see the drive manuals.

Ignoring these instructions can cause physical injury or death, or damage the equipment. All electrical installations and maintenance work on the drive should be carried out by qualified electricians only.

**WARNING!**

- Make sure that the drive and all adjoining equipment are properly earthed.
- Do not attempt any maintenance on powered drive.
- After switching off the mains, always allow the intermediate circuit capacitors 5 minutes to discharge before doing any maintenance work on frequency converter, the motor or the motor cable.
- It is good practice to check (with a voltage indicating instrument) that the drive is in fact discharged before beginning work.

**WARNING!**

If the demo unit is operated within the transportation enclosure, please note that the motors and drives have less air available for cooling, which may result in overheating.

## Safety input connections

The safety connections in the demo are made as in the picture below. Safety inputs 2, 3 and 4 are not in use by default. Note that if the IO-cable is not connected, it will automatically result in activation of the STO (safe torque off).
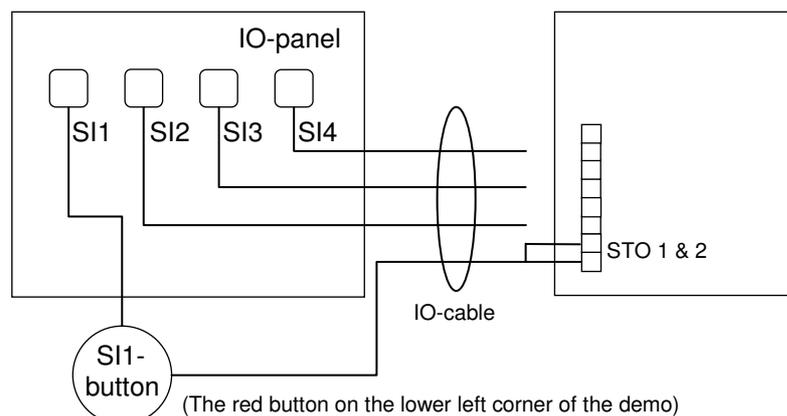
# Delivery content

ACS880-01 democase contains: (found in the pocket at the back of the demo)

1. IO-panel with removable control panel
2. USB to Mini USB –cable for PC-connection
3. Ethernet cable for IO-panel connection
4. Quick installation guide ACS880-01 frames R1 to R3
5. Mains cord
6. Manual CD
7. FENA-01/-11 Ethernet adapter module manual
8. FEN-31 HTL encoder interface quick guide
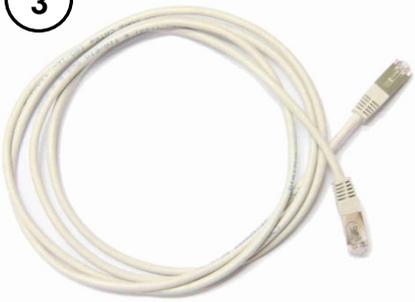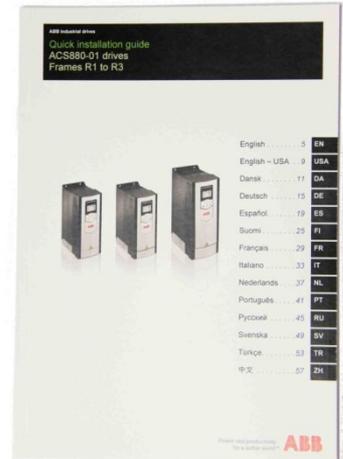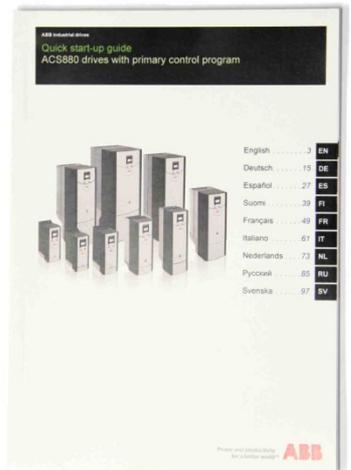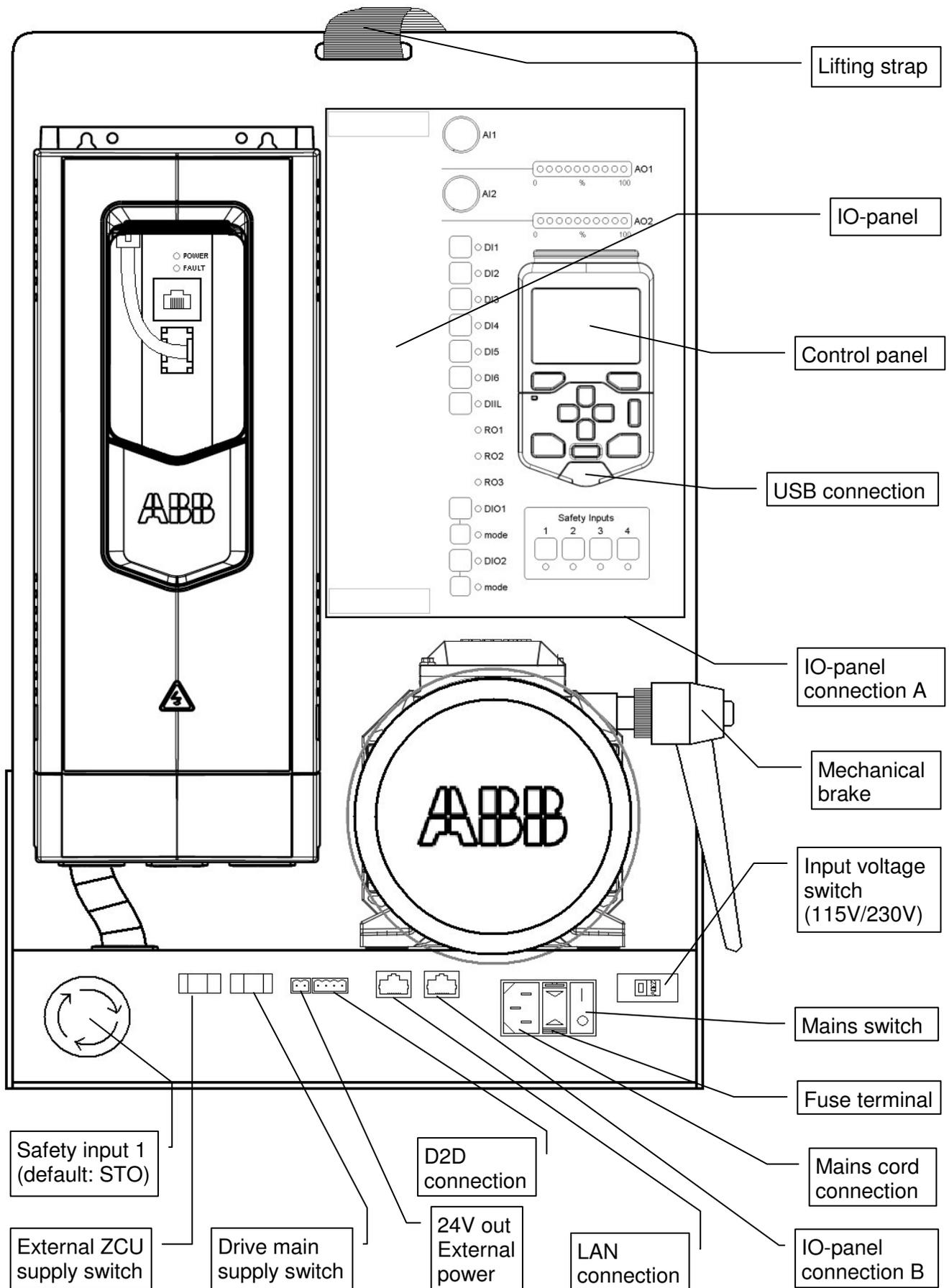9. Quick start-up guide for primary control program

# Basic start-up

1. Lay the democase on its back (so that the door is pointing up) and open the door.
2. Pull the demo out of the case using the lifting strap and the handle hole (on the lower part of the demo.) **Warning!** The demo weighs approximately 25kg. Use of proper lifting technique with a straight back is advised.
3. Take out the mains cord and Ethernet cable from the pocket at the back of the demo.
4. Plug in the mains cord and Ethernet cable (to connections marked: mains cord, IO-panel connection A and IO-panel connection B on the layout section.)
5. Check that the Input voltage switch (115V/230V) is set according to the supply voltage.*
6. Check that the Drive Main Supply is switched on.
7. Switch on the demo using the mains switch.
8. You can toggle control between the control panel and the IO-panel with the "Loc/Rem" –button on the control panel.

\* For more information check "AC input (supply) connection" in the Technical data section

**Mechanical brake**

The mechanical brake is intended for momentary impulse braking for load demonstration purposes. The mechanical brake is not designed for continuous load which might damage the transformer and the brake itself.

## Layout



Labels:
- Lifting strap
- IO-panel
- Control panel
- USB connection
- IO-panel connection A
- Mechanical brake
- Input voltage switch (115V/230V)
- Mains switch
- Fuse terminal
- Mains cord connection
- IO-panel connection B
- LAN connection
- 24V out External power
- D2D connection
- Drive main supply switch
- External ZCU supply switch
- Safety input 1 (default: STO)

## Default IO button functions
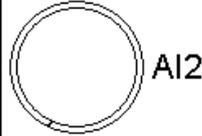
**(0= LED off, 1= LED on)**

**AI1**: Speed reference

**AO1**: Motor speed
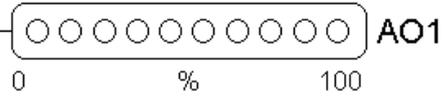
**AI2**: Not in use

**AO2**: Motor current
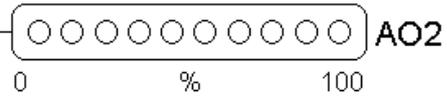
**DI1**: Stop (0), Start (1)

**DI2**: Forward (0),
Reverse (1)

**DI3**: Reset

**DI4**: Ramp selection

**DI5**: Constant speed 1
Off (0), On (1)

**DI6**: Not in use

**DIIL**: Not in use

**RO1**: Ready (1)

**RO2**: Running (1)

**RO3**: Faulted (-1)

**DIO1**: Output:
Ready (1)
**mode**: Input (0),
Output (1)

**DIO2**: Output:
Running (1)
**mode**: Input (0),
Output (1)

AI1

AO1
0      %      100

AI2

AO2
0      %      100

DI1
DI2
DI3
DI4
DI5
DI6
DIIL

RO1
RO2
RO3

DIO1
mode
DIO2
mode

Safety Inputs
1    2    3    4
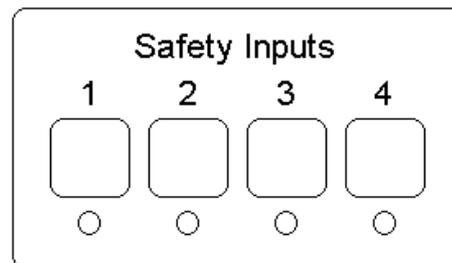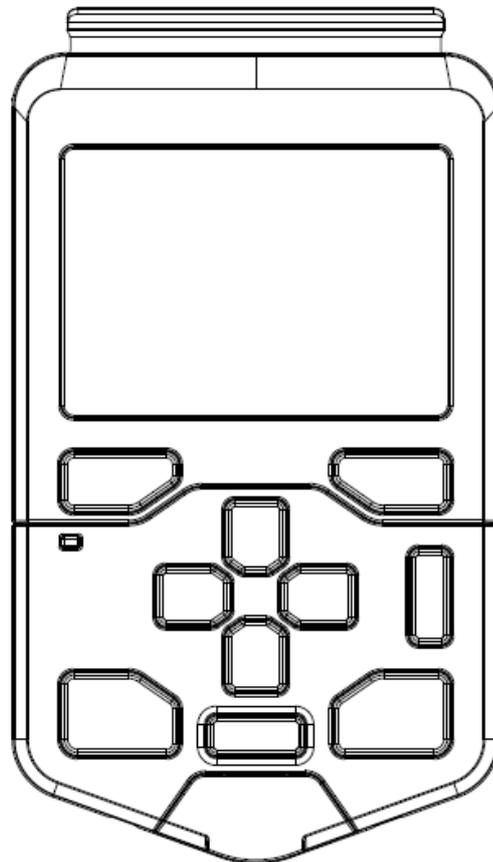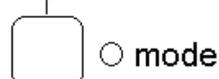
**SI1**: Safe torque off (1)
**SI2, SI3 & SI4**: Not in use

# Parameters that need to be changed

| Parameter | | | |
|---|---|---|---|
| | Name | Setting | Notes |
| 95 | HW configuration | | |
| 95.01 | Supply voltage | [2] 380…415 V | Correct rating settings made |
| 91 | Encoder module settings | | |
| 91.11 | Module 1 type | [4] FEN-31 | |
| 91.12 | Module 1 location | 003 | FEN-31 location in Option slot 3 |
| 92 | Encoder 1 configuration | | |
| 92.01 | Encoder 1 type | [5] HTL | |
| 92.02 | Encoder 1 source | [1] Module 1 | |
| 92.10 | Pulses/revolution | 1024 | |
| 92.12 | Speed calculation mode | [0] A&B all | |
| 92.13 | Position estimation enable | [0] Disable | |
| 92.15 | Transient filter | [2] 1220 Hz | |
| 92.20 | Enc cable fault func | [0] No | |

After setting feedback parameters, activate settings with

| 91 | Encoder 1 configuration | | |
|---|---|---|---|
| 91.10 | Encoder parameter refresh | [1] Configure | Will return to 'Done' after refresh |
| 90 | Feedback selection | | |
| 90 .41 | Motor feedback selection | [1] Encoder 1 | |

I/O settings

| 12 | Standard AI | | |
|---|---|---|---|
| 12.25 | AI2 unit selection | [2] V | |
| 12.28 | AI2 max | 10 | |

Motor parameters and ID-run

| 99 | Motor data | | |
|---|---|---|---|
| 99.03 | Motor type | [0] Asynchronous motor | |
| 99.04 | Motor ctrl mode | [0] DTC | |
| 99.06 | Motor nominal current | 1.2 A | |
| 99.07 | Motor nominal voltage | 230 V | |
| 99.08 | Motor nominal frequency | 50 Hz | |
| 99.09 | Motor nominal speed | 1360 rpm | |
| 99.10 | Motor nominal power | 0.18 kW | |
| 99.11 | Motor nominal cosfii | 0.71 | |
| 99.13 | Identification run request | [1] Normal | Start ID-run in 'Remote' : Press DI1 , in 'Local' : Press panel Start button |

## Supply switches

The democase supply can be controlled with the switches External ZCU supply switch and Drive main supply switch. The two switches work separately. The External ZCU supply switch controls the external 24V supply to the control unit of the drive and the Drive main supply switch controls the 400V main supply to the drive.

For information about the internal connections refer to section: Technical data.

## Change of fuse

**WARNING!** Turn off the democase and disconnect the power cord before changing the fuse. Replace the fuse with the same type of fuse.

Changing the fuse does not require any tools. Open the fuse terminal by pressing together the pins on the top and bottom of the fuse terminal and pulling the terminal out. Pull out the old fuses and replace them with new fuses of the same type. Push the fuse terminal back in.

Correct fuse type is: T2AL250V (Slow, 2.0A, 250V glass tube fuse)
There are two fuses of this type in the fuse terminal.

## Technical data

### Dimensions

Height:      650 mm
             980 mm (trolley handle pulled up)
Width:       490 mm
Depth:       385 mm
Weight:      30 kg

### Drive type code

ACS880-01-02A4-3+K473+L502
(K473 = FENA-11, L502 = FEN-31)

### Motor details

ABB M2VA 63 B 4 (3GVA 062 142-ASC)

| Parameter | ACS880-01 parameter | Value |
|---|---|---|
| Motor type | 99.03 Motor type | AM |
| Rated current *In* | 99.06 Motor nominal current | 1.2 A |
| Rated voltage *Un* | 99.07 Motor nominal voltage | 230.0 V |
| Frequency *Fn* | 99.08 Motor nominal frequency | 50.0 Hz |
| Rated speed | 99.09 Motor nominal speed | 1360 rpm |
| Rated power *Pn* | 99.10 Motor nominal power | 0.18 kW |
| COS φ | 99.11 Motor nominal cosfii | 0.71 |
| Rated torque | 99.12 Motor nominal torque | 0.82 Nm |

### AC input (supply) connection

U1 ~ 100V - 240V
The democase can be used with both 115V and 230V supply. It is important to check that the input voltage switch (115V/230V) is in the correct position for the supply. I.e. if you are using 230V supply, then "230V" should be visible in the switch. If the switch is set incorrectly you will burn the fuse.

### Degree of protection

Drive: IP21
Motor: IP55

**Ambient conditions**

The demo is designed for demonstration purposes and for indoor use only.

Ambient temperature:
- Transport:          -40 to +70 ℃
- Storage:            -40 to +70 ℃
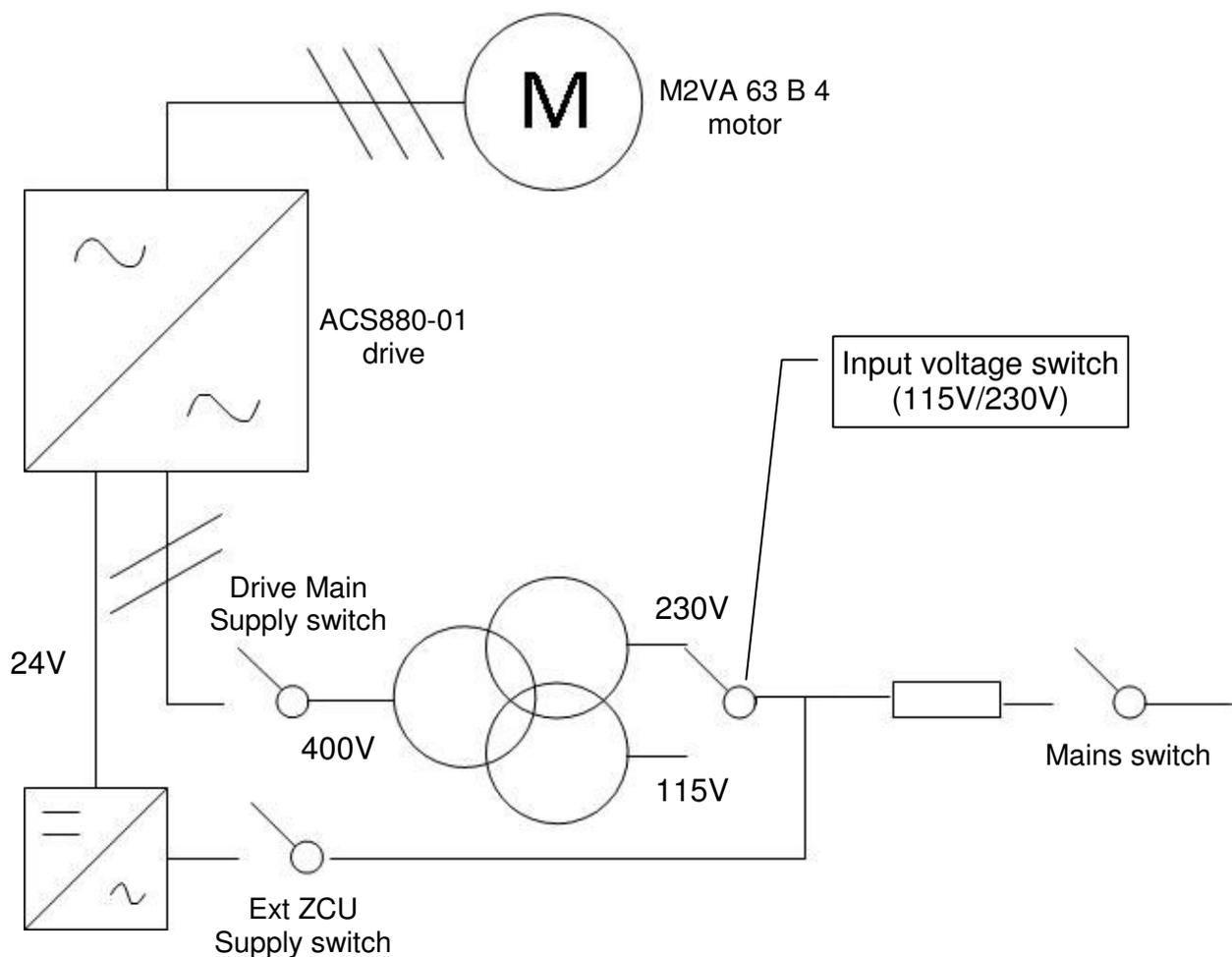- Operation:           -15 to +40 ℃, no frost allowed

Altitude:
- 0 to 4,000 m without an effect on demo operation

Relative humidity:
- 5 to 95%, no condensation allowed

For more detailed information, refer to the drive Hardware Manual.

**Internal connections**

# Further information

## Product and service inquiries

Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to www.abb.com/drives and selecting Sales, Support and Service network.

## Product training

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