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CE/asn  
70086GB

# INSTRUCTION MANUAL

## FOR

# COMPUTER-MIX P200

Type No. 1400534



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## 2.0 WARNING

This device must be supplied with mains voltage 230 Vac, and therefore the connection must only be carried out by an authorized electrician in accordance with the norm EN50065-1:1990.

The P200 is not authorized for weighing in connection with purchase and sales.

### 3.0 MOUNTING

#### 3.1 Mounting of Control Box

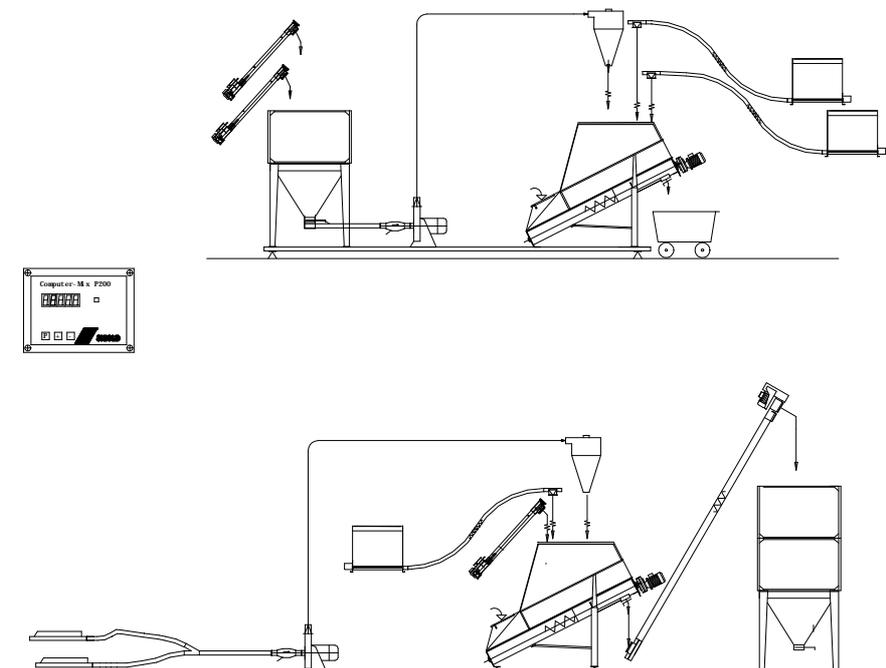
The control box is mounted on wall so that it is easy to read at operating the weigher.

#### 3.2 Necessary Tools

- Drilling machine with concrete drill if the control box is mounted on concrete wall.
- Big and small screw driver
- Side cutting pliers
- De-insulation pliers

#### 3.3 Function description

The P200 computer is used for output of the current weight on a weighing system.



The weighing system can be a mixer, a silo, a platform, etc.  
The weighing system can be equipped with 1 to 4 load cells.

The signal from the load cells are converted in the computer into kilo figures that are shown in the 5-figured LED display in the computer with an accuracy of one decimal place.

The display is also used in connection with programming and taring.

Furthermore the computer front plate contains a control lamp, flashing on and off, when the computer is switched on, and there are three keys marked "P", "+" and "-" for operation.

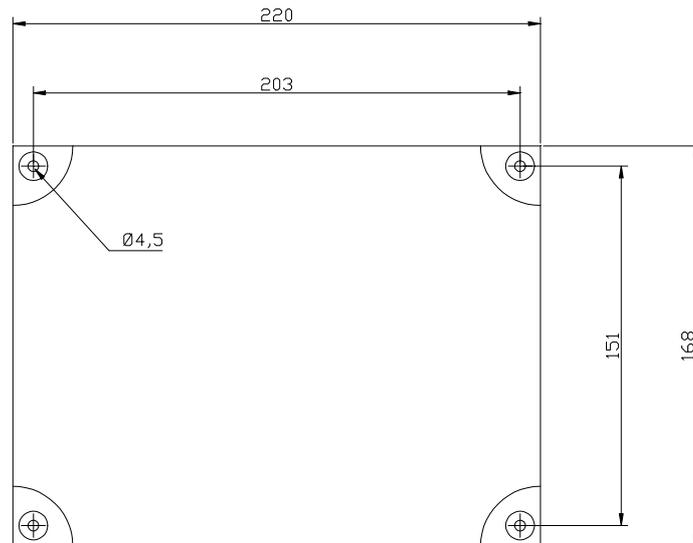
The computer has relay output that can be used for stop/start of filling/emptying, based on a pre-set set point. Once a set point is reached, a new can be programmed.

In that way e.g. a feed recipe can be produced in a semi-automatic way when the filling takes place from augers or mill.

### 3.4 Erection

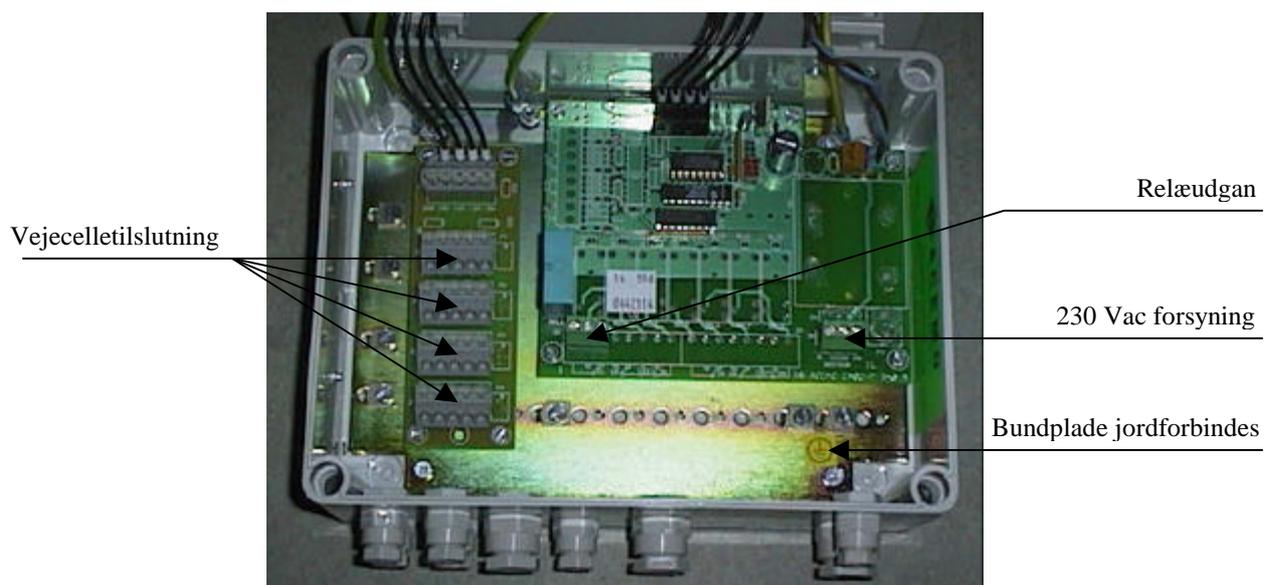
The P200 computer is placed indoor. The very weighing system should also be placed indoor, unless hermetically tight load cells, that can stand mould, are used. The SKIOLD standard 1 ton load cells are not suited for outdoor erection.

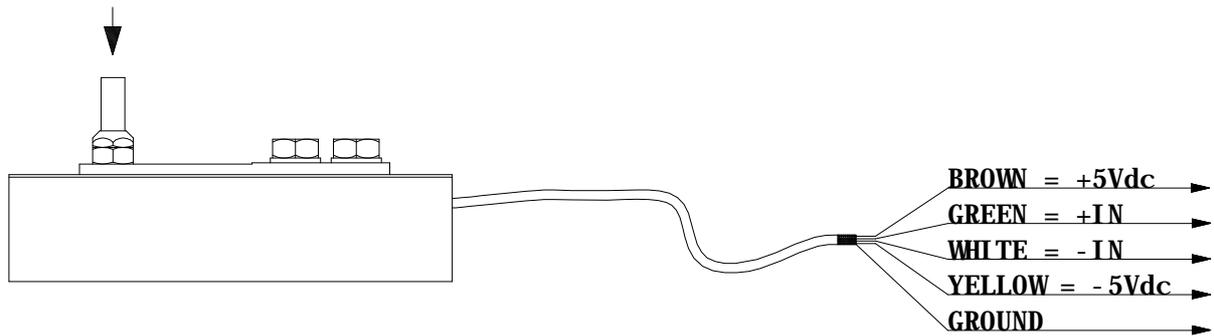
The computer panel is placed on wall close to the weighing system so that the display can be read clearly at weighing.



The computer is supplied with 230 Vac, and GROUND **must** be connected to the back plate in the computer panel.

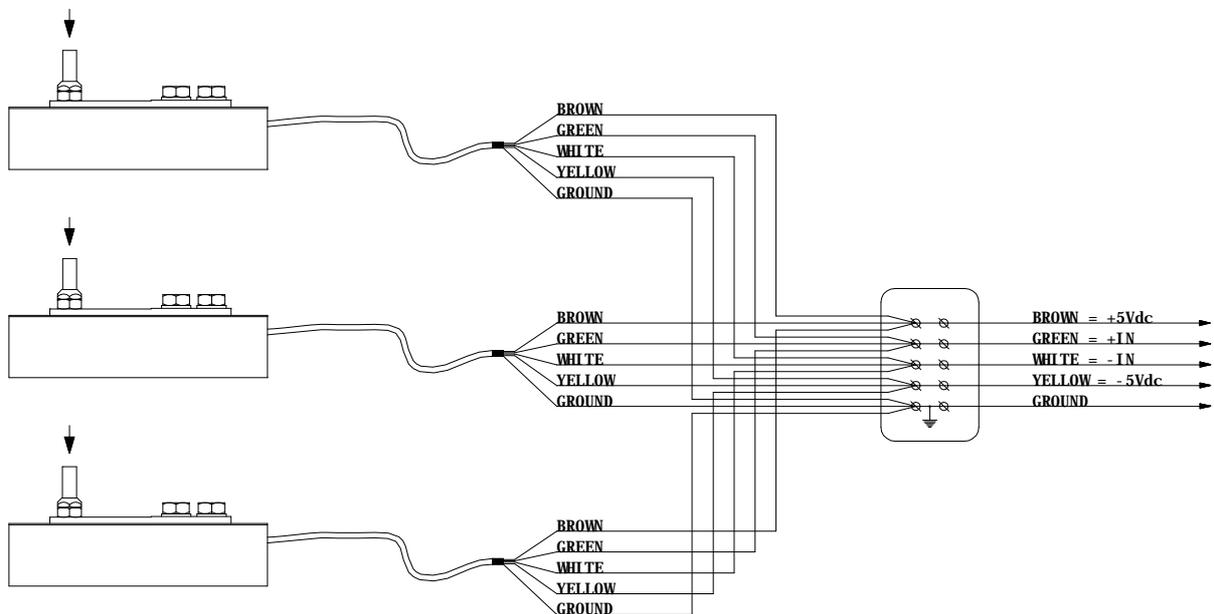
Mains voltage and load cells as well as a possible connection to relay output are connected as shown below.





The load cell cables **cannot** be shortened.

If the load cell cable is too short, an extension cable (5x0.75 mm<sup>2</sup> **protected**) according to the instruction below can be mounted.



The load cell cables are led to the junction box that must be made of **metal**.

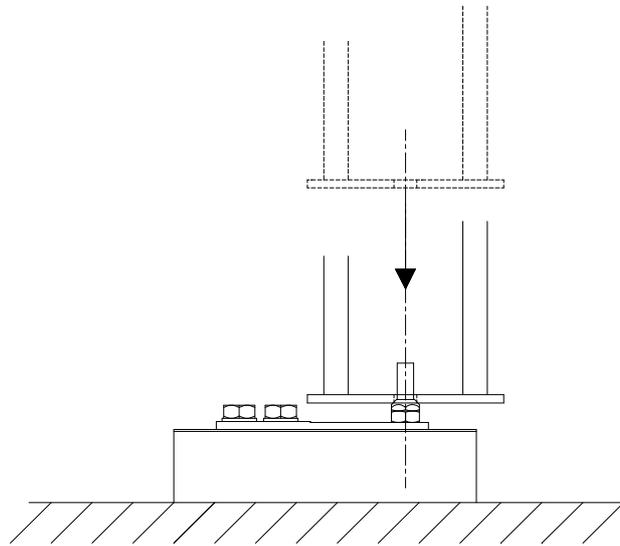
The cable protection in the load cell cables and the extension cable **must be connected to the junction box**.

The total cable length from load cell to computer must never exceed **20 metres**.

The signal cables to the load cells must not be led together with other cables, as the signals could then be disturbed which would result in a mis-weighing.

The safety distance to other cables is 10 cm.

Mechanical mounting of load cells must at weighing systems, placed on floor, be carried out according to the following directions:

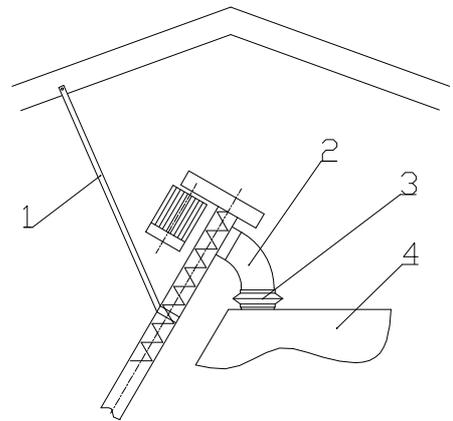
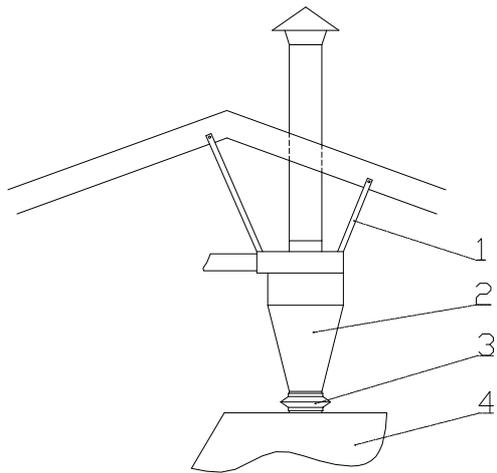


The load cells are normally delivered mounted on foot. The foot **cannot** be fastened to the floor, as the load cells must be able to centre themselves at load. If the load cell is fixed, uneven loads, resulting in mis-weighing, may occur.

On each load cell is mounted a bolt with conical nut turning the point upwards. Place the legs of the weighing bin above this bolt so that the conical nut slides up into the hole of the foot.

It is important that the weighing system is placed perfectly detached in order to avoid unintentional load of the load cells.

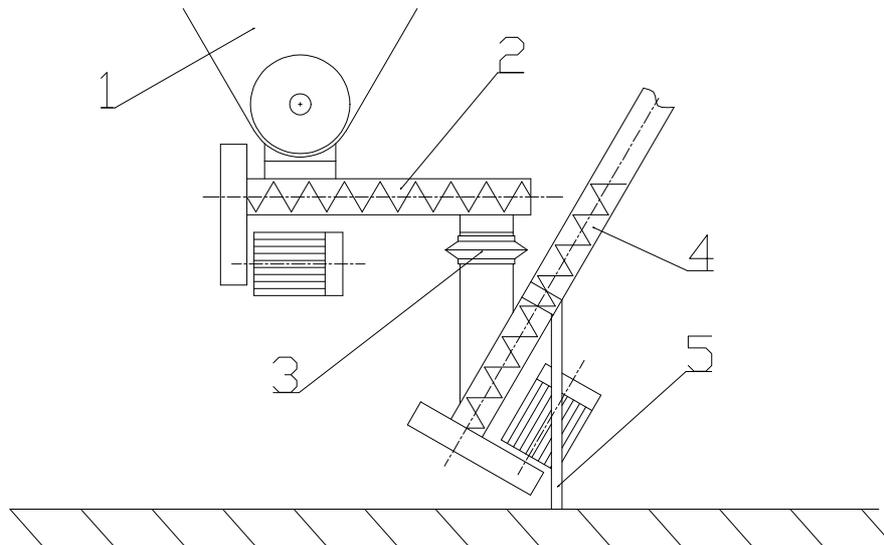
If the weighing is carried out into mixer or weighing bin from auger, mill with cyclone or similar, and it concerns a closed system, flexible connections between the transport system and the weighing system must be used.



- Pos. 1 Support iron
- Pos. 2 Cyclone / auger
- Pos. 3 Flexible connection
- Pos. 4 Mixer

Augers, cyclone and similar must not be supported by the weighing system.

There must also be flexible connection to an emptying auger, if any.



- Pos. 1 Mixer
- Pos. 2 Emptying auger
- Pos. 3 Flexible connection
- Pos. 4 Transport auger
- Pos. 5 Support iron

The emptying auger cannot be supported by the weighing system.

### 3.5 Start-up Procedure

Before carrying out the start-up procedure, read the section 3.2 "Operation in General" for information on operating the computer.

Connect the power to the computer.

Choose with the "P" key the function CONF1, that permits calibration of the weigher and configuration of the controller when code 38 is keyed in and confirmed.

Normally this function is only used by the machine erector.

The following functions can be called out on the display by the "P" key:

<b>BRUT</b>	Readout of bit figures for weighing signal
<b>COEFA</b>	Conversion factor for weighing signal (1.4600 for 1T Sensy cell)
<b>COEFB</b>	Tara bit value
<b>ECHEL</b>	Decomposition degree of weighing signal (0,2)
<b>FILTR</b>	Subdual of weighing signal (8)
<b>AFFIC</b>	Number of decimals (1)
<b>DATA</b>	Parametres for data transmission (r)
<b>MODE</b>	Configuration of relay function (c)
<b>HYST</b>	Hysteresis on the relay output (5,0)
<b>REL1</b>	Manual operation of relay output

The computer is pre-programmed with the figures in brackets, and normally it is not necessary to change the settings in this section.

Calibration of controller with 3 standard 1 ton load cells is done from the factory.

In a few cases it might be necessary to re-calibrate, if another number of load cells than 3 is used, or if load cells of another type or brand are used.

Generally calibration should be undertaken, if the weight readout is not correct in relation to the load on the weighing system.

Calibration should not be undertaken until the plant has been switched on for at least one hour.

A control weight as big as possible ought to be used (at least 10% of the normal load), as that makes the calibration more accurate.

**BRUT** shows the current weighing signal in bit figures, and there must be a positive figure in this field when the load cells are connected correctly to the computer (0-20000). The value of the figure must increase when the load on the weighing system increases.

The value in **COEFA** decides, how the weighing signal is converted to the read out value in the display.

Calibration is carried out as follows:

With empty weigher, read and note the value in **BRUT** .

Now load the weigher with a known weight and read and note again the value in **BRUT**.

The value keyed in in **COEFA**, can now be calculated according to the following formula:

**COEFA** = weight(kg) x 10/(**BRUT** at load - **BRUT** without load)

Example:

**BRUT** is read out to 1017 without load on the weighing system.

Place 50 kg on the weighing system, and now **BRUT** is read out to 1360.

**COEFA** =  $50 \times 10 / (1360 - 1017) = 1.4577$

The **MODE** function is used for deciding if the relay output shall break when the programmed set point is reached under load or de-load of the weigher.

**c** = break at set point under load.

**d** = break at set point under de-load.

The **HYST** function is used for programming the hysteresis for the relay output, meaning the number of kg by which the weigher should be loaded / de-loaded, before the relay changes back to the original status.

Example: **MODE** = **c**, and **HYST** = 5,0 kg, set point for relay output = 100 kg.

When the weight is loaded up to 100 kg, the relay will break, and it will not end again before the weight gets under 95 kg.

**REL1** can be used for manual operation of relay output. Choose **ON** or **OFF**, according to the state you want to test.

Other configuration possibilities should remain on the settings from the factory.

In order to leave calibration and configuration, key in "+" and "-" simultaneously.

NB! The computer will automatically leave calibration and configuration, if for some minutes no keys have been touched.

## 4.0 OPERATION

### 4.1 Field of Application

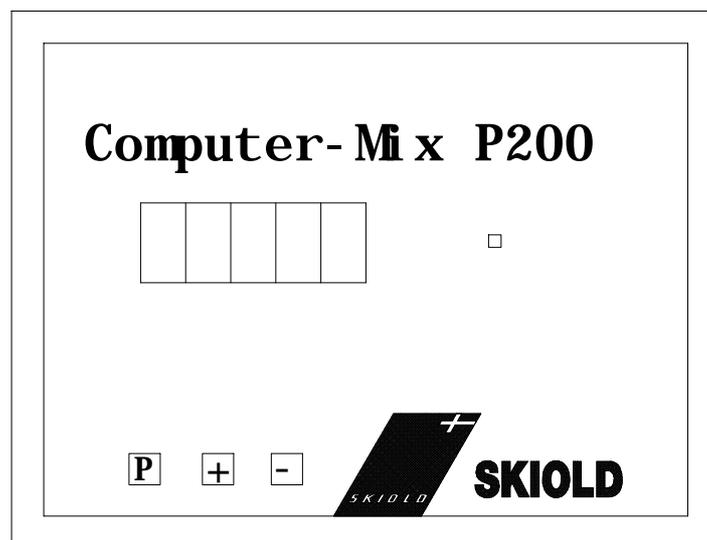
The P200 weighing computer can be used for weight indicator in connection with various weighing systems, e.g. pre-mixing system or platform weigher.

The computer has a relay output that can be used for e.g. automatic stop of the filling unit.

One set point for relay can be programmed at a time.

P200 cannot control full automatically feed production plants and cannot be used for weighing in connection with purchase or sales.

### 4.2 Operation in General



The computer has a 5-figured LED display where the weight is shown correct to one decimal place. The display is also used in connection with programming and taring.

A control lamp flashes when the current on the computer is switched on, and three keys marked "**P**", "+" and "-" for programming.

When current to the computer is switched on, the display will show for some seconds the programme version installed in the computer, and then the display will change to show the current weight on the weighing system.

By keying in "**P**" the following functions are shown on the display:

**0.0** Indication of the current weight  
**TARE** 0-taring of weight/mixer  
**CONSI** Programming of set point for relay output  
**CONFI** Keying in of code for access to calibration and configuration (mach.erector).

When a function is called out on the display, same will flash on and off with the name of the function and the keyed in value for the function.

In order to change the value, press down the "**P**" key until the display stops flashing.

Then let go of the "**P**" key and the flashing value can now be changed by the "+" and "-" keys.

Once the value is adapted, press down "**P**" again, until the display stops flashing, and the new value is memorized.

**TARA** is used for zerofilling of weigher, e.g. at empty mixer. Choose the function as described above and key in "+" or "-", until the TARA value shows 0.0. Memorize the value, and the weigher is zerofilled.

**CONSI** is chosen for programming of set point for relay output. Once the keyed in value is reached on the weigher, the relay changes. The function can e.g. be used for stopping the filling of mill or auger. Once the set point has been reached, a new one can be programmed.

**CONFI** gives access to calibration of the weigher and configuration of the controller, if code 38 is keyed in and confirmed. This function is normally only used by the machine erector.

### **4.3 Maintenance**

The P200 computer needs no special maintenance.

The front can be cleaned with a moist cloth if necessary. Do not clean with a dry cloth, as that may scratch the pane over the display.

It is recommended to clean around and under the weighing system and especially at the load cells, as piling of dust may influence the weighing. Take care not to damage the cables to the load cells.

The accuracy of the weighing system should be controlled regularly - e.g. once a month - by loading the system with a known weight and controlling that the value is read out correctly in the display.

#### 4.4 Fault Finding

Noted Fault	Cause	Remedy of Fault
No light in the display or control lamp for power	<p>Fault on electr.connect.</p> <p>Pre-fuse burst or fault current relay released</p>	<p>Check and correct electr. conn.</p> <p>Check electr.conn. for faults. Replace fuse or reset fault current relay</p>
Light in display, but weight readout does not change when weigher is loaded.	Load cells not connected or not correctly connected	Check that connection of load cells follows instr. in the diagram
The weight readout increases when the weigher is loaded, but the weight readout is not correct.	<p>Calibration not correct</p> <p>Loose connection at load cell connection</p> <p>Defect. load cell</p>	<p>Make new calibration as indicated in the section "Start-up procedure".</p> <p>Check load cell connect. for loose connections. Also check that protected cables are used, and that the protection is finished correctly to the computer panel bottom plate.</p> <p>Replace load cells one at a time, until the fault disappears</p>
The weight readout varies up and down, although the load on the weighing system is constant.	<p>The system not secured with connection of ground connection</p> <p>Bad connection in cabling to load cells</p> <p>Load cell defect.</p> <p>Cabling not correct</p>	<p>Establish a possible ground spike. Connect ground to the system acc. to the connection diagram.</p> <p>Check load cell connect. for loose connections. Also check that protected cables are used, and that the protection is finished correctly to the computer panel bottom plate.</p> <p>Replace load cells one at a time, until the fault disappears.</p> <p>Take care that the cables to the load cells are not placed together with other cables. Safety distance is 10 cm.</p>

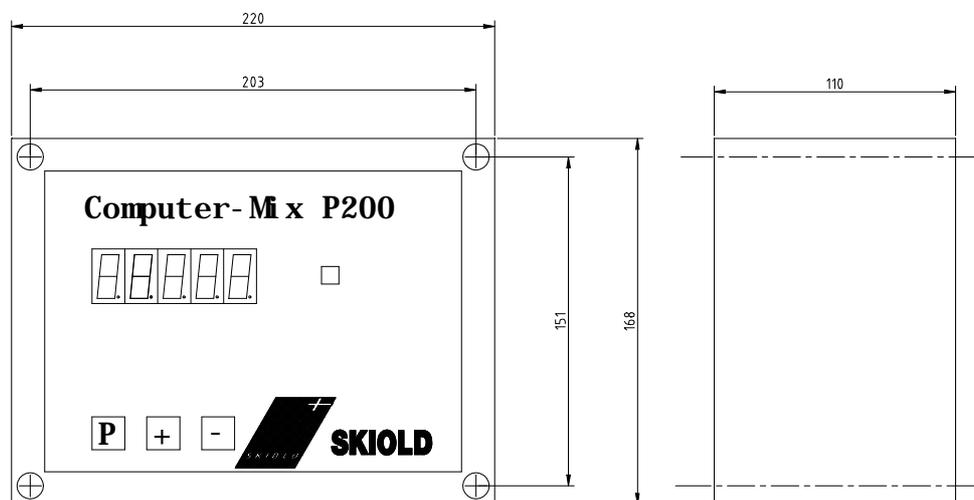
## 5.0 DEMOUNTING

Before a possible demounting of the computer panel, the current must be disconnected and demounted by an authorized electrician.

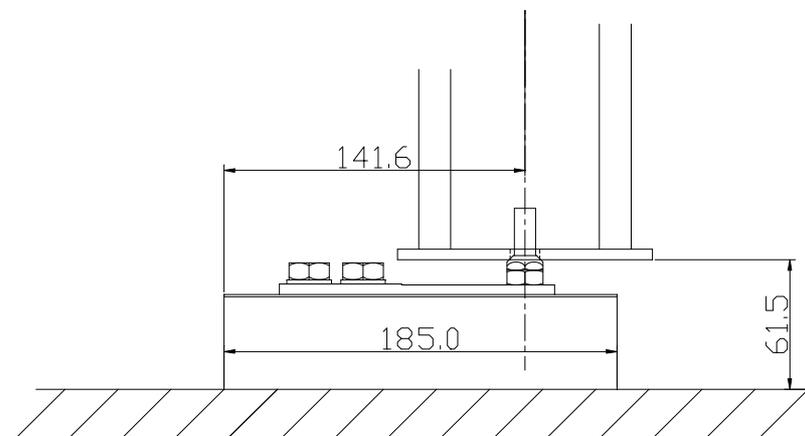
If the computer relay output is connected to other electrical controller, this connection must be removed.

Then the cables to the load cells can be demounted and the computer panel be removed.

## 6.0 DIMENSION SKETCH AND TECHNICAL SPECIFICATIONS



Dimension sketch, computer panel



Dimension sketch Sensy load cell

## 6.1 Technical Specifications Hardware:

Capsuling PVC IP45.

Separated boards for CPU, load cell connection, current connection with relay output

Front panel with 5 digit LED, power indicator, 3 operation keys

Connection for up to 4 load cells

1 relay output 250 V, 2 amp.

Mains voltage 230 Vac.

Decomposition weighing signal 20.000 steps.

Can be adapted to load cells with signal relations 0,75-2,5 mV/V.

CE approved.

Weight 2,7 kg.

## 6.2 Technical Specifications Software:

Separated functions for daily operation, configuration and calibration.

Configuration and calibration blocked by code.

## 6.3 Functions with Direct Access:

**0.0** Readout of correct weight

**TARE** 0-taring of weight/mixer

**CONSI** Programming of set point for relay output

**CONFI** Keying in code for access to calibration and configuration (mach.erector)

Weight is given in kilo with 1 decimal and solution of 0,2 kg.

## 6.4 Functions under Configuration and Calibration:

**BRUT** Readout of bit figures for weighing signal

**COEFA** Conversion factor for weighing signal (1.4600)

**COEFB** Tara bit value

**ECHEL** Decomposition degree of weighing signal (0,2)

**FILTR** Subdual of weighing signal (8)

**AFFIC** Number of decimals (1)

**DATA** Parameters for data transmission (r)

**MODE** Configuration of relay function (c)

**HYST** Hysteresis on relay output (5,0)

**REL1** Manual operation of relay output

The figures in brackets are the values pre-set from the factory.

## **7.0 SPARE PARTS**

P200 computer	1400534
Standard 1 ton load cell with foot	1400605
Standard 1 ton load cell without foot	2386607

## 8.0 EU DECLARATION OF CONFORMITY

# EU DECLARATION OF CONFORMITY

### The signer

SKIOLD Sæby A/S

**Kjeldgaardsvej, 9300 Sæby, Denmark, tel. No. +45 99 89 88 87**

hereby declare that the product:

### Description

COMPUTER-MIX P200

### Type

1400534

is constructed and manufactured in conformity with the following directives:

### Directive

89/392/EØF with revisions

### Standard

DS/EN 292-1 1993

DS/EN 292-2 1993

DS/EN 294-3 1993

Sæby, Denmark, 25.11.04  
Issue Place and Date

  
.....  
Henrik Hougaard  
Managing director