

User manual

EGG COUNTER

Code No. 99 97 0869

M 0869 GB

***Big Dutchman* EGG-COUNTER**

Installation- and Instruction Manual of MC99EC in Connection with Software P1000

Egg-Counting by Means of Big Dutchman's EGG COUNTER MC99 EC

Components:

- | | |
|---|-----------------------|
| 1) MC99 Egg-Counter
(for max. 640 counting modules) | (Code Nr. 91-02-3370) |
| 2) Interface (maxm. 8) | (Code Nr. 91-02-3261) |
| 3) Counting module/egg belt (max. 80 per interface)
consisting of: | |
| a) Sensor, with software no. 6 | (Code Nr. 91-02-3260) |
| b) Separator | (Code Nr. 91-02-3361) |
| 4) Program 1000 D / GB | (Code Nr. 91-02-3390) |
| 5) cable LIYCY 4 x 0.75
(for connection of counting modules) | (Code Nr. 91-02-3584) |
| 6) Installation- and Operatormanual | (Code No. 99-97-0869) |

Option 1:

- | | |
|-------------------------------------|-----------------------|
| 1) printer M13092 | (Code Nr. 91-02-3605) |
| 2) connection cable V24 for printer | (Code Nr. 91-02-3564) |

Option 2:

- | | |
|--|-----------------------|
| 1) frequency converter for controlling
of the longitudinal belt | (Code Nr. xx-xx-xxxx) |
|--|-----------------------|

Option 3: (PC-connection)

- | | |
|---------------------|-----------------------|
| 1) Emuationsprogram | (Code Nr. 91-02-3506) |
| 2) V24 cable | (Code Nr. 91-02-3564) |

Option 4: (house-changing)

- | | |
|--------------------------|-----------------------|
| 1) Relay board 24 Relays | (Code Nr. 91-02-3702) |
|--------------------------|-----------------------|

Testing Tools

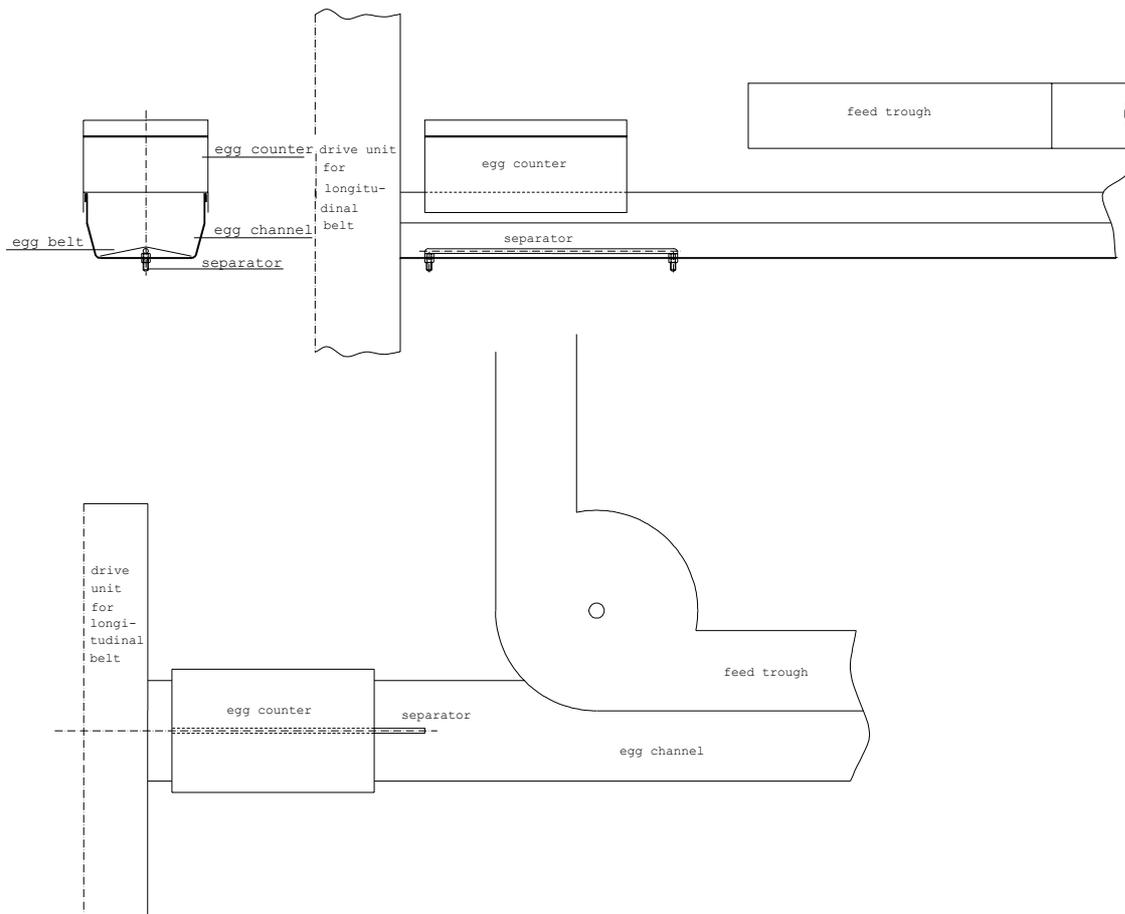
- | | |
|---|-----------------------|
| 1) Testprogram for Interface (X1000-51) | (Code Nr. xx-xx-xxxx) |
| 2) display with keyboard for interface | (Code Nr. xx-xx-xxxx) |

Spareparts:

- | | |
|---|-----------------------|
| 01. Logik-board for eggcounter | (Code Nr. xx-xx-xxxx) |
| 02. Interfaceboard for eggcounter
Part no. 220 519 207/01 | (Code Nr. 91-02-3262) |
| 03. Expansion board for Interface
Waren Nr. 220 569 301/01 | (Code Nr. 91-02-3263) |
| 04. Terminalboard incl. Display for MC99 EC | (Code Nr. 91-02-3371) |
| 05. Keyboard MC99 EC
Part no. 230 108 001 | (Code Nr. 91-02-3708) |

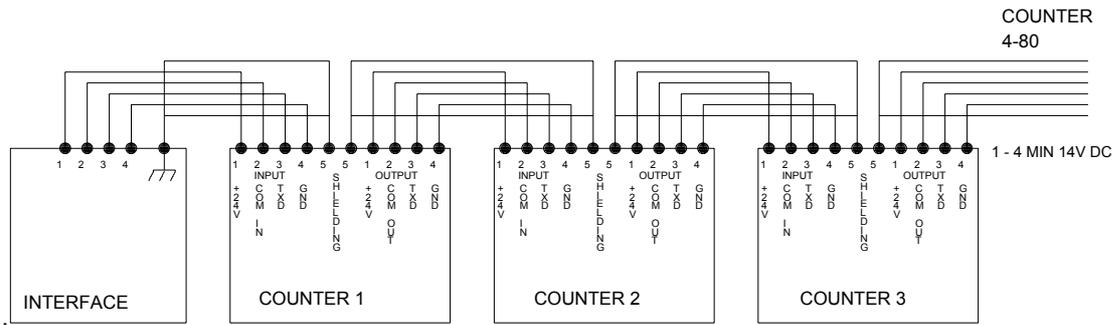
Functioning

Each counting-module mounted onto the longitudinal belts possesses 2 IR-sensors, each equipped with transmitter and receiver. Precondition for precise counting is the observance of the dimensions of the Big Dutchman standard egg-channels, i.e., that the distance to the egg has to amount to 10-60 mm. Under the sensor, a separator is installed under the egg-belt. This "separates" the arriving eggs in order to provide optimal guidance underneath the IR-sensors. This process is aided by a rubber-finger on the housing of the counting-module. If required, this rubber-finger may be shortened.

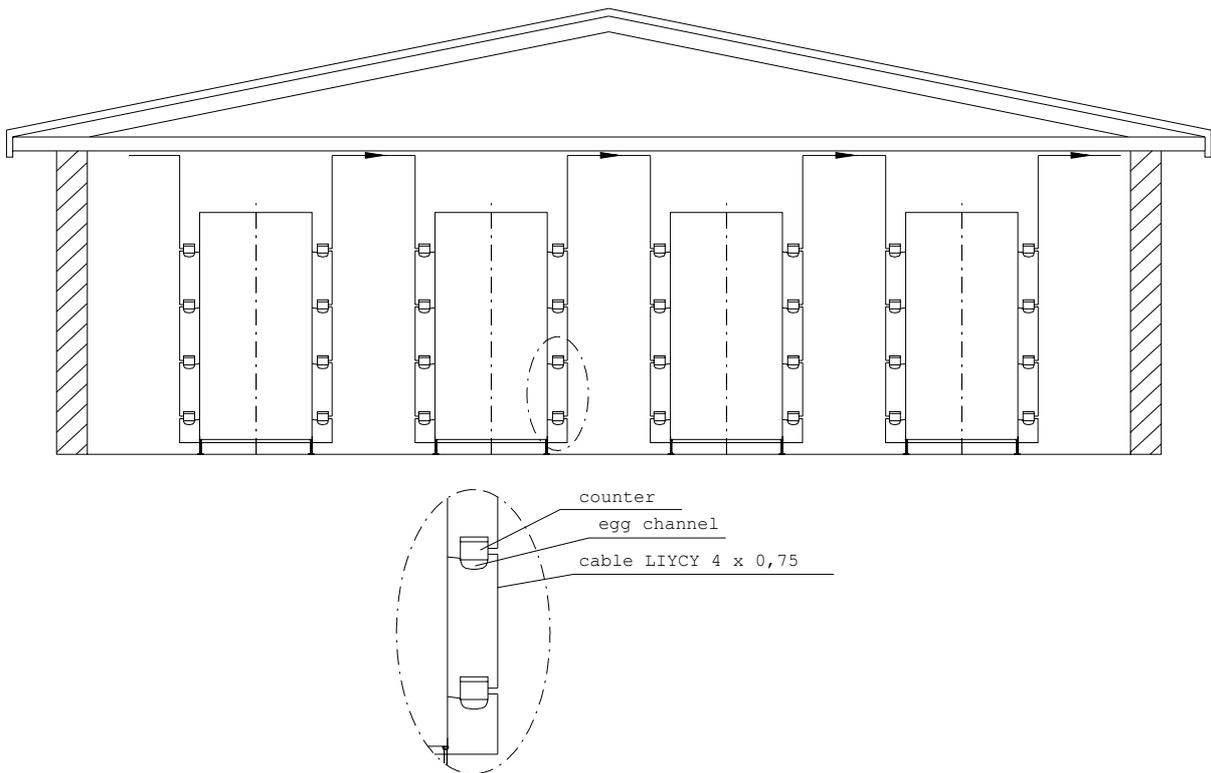


The sensor is counting the eggs during transport underneath the counting-module by means of measuring a reflexion of an IR-source. While an egg is passing a sensor, the intensity of the reflection is counted continuously. As soon as the intensity-rate changes, e.g., the highest point of the egg has been passed, this egg may be considered to be counted. This is registered in the counting-module.

All counting-modules of an interface (max. 80) are connected in a row by means of a cable (Code no. 91-02-3584). The installation should be selected in such a way that the length of the cable is as short as possible in order to keep the voltage-drop low (see also: electrical installation of egg-counter). The supply voltage at the counting-module must not range lower than 14V. In the case of extremely long cables, the currency-supply might eventually have to take place from two sides.

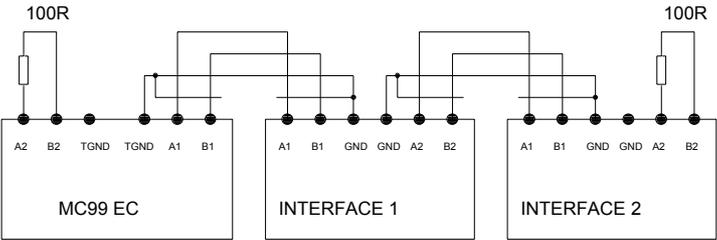
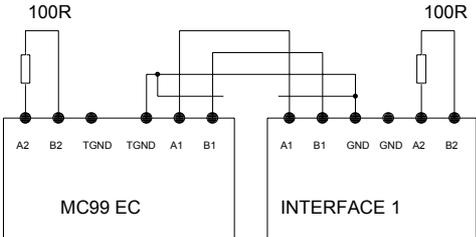


Electrical installation of egg counter



When electrical installation is taking place it has to be observed that the protection is also connected. An interruption at one counter removes the protection for the remaining counters. It also has to be observed that the cable inlet is thoroughly insulated and prevents dampness.

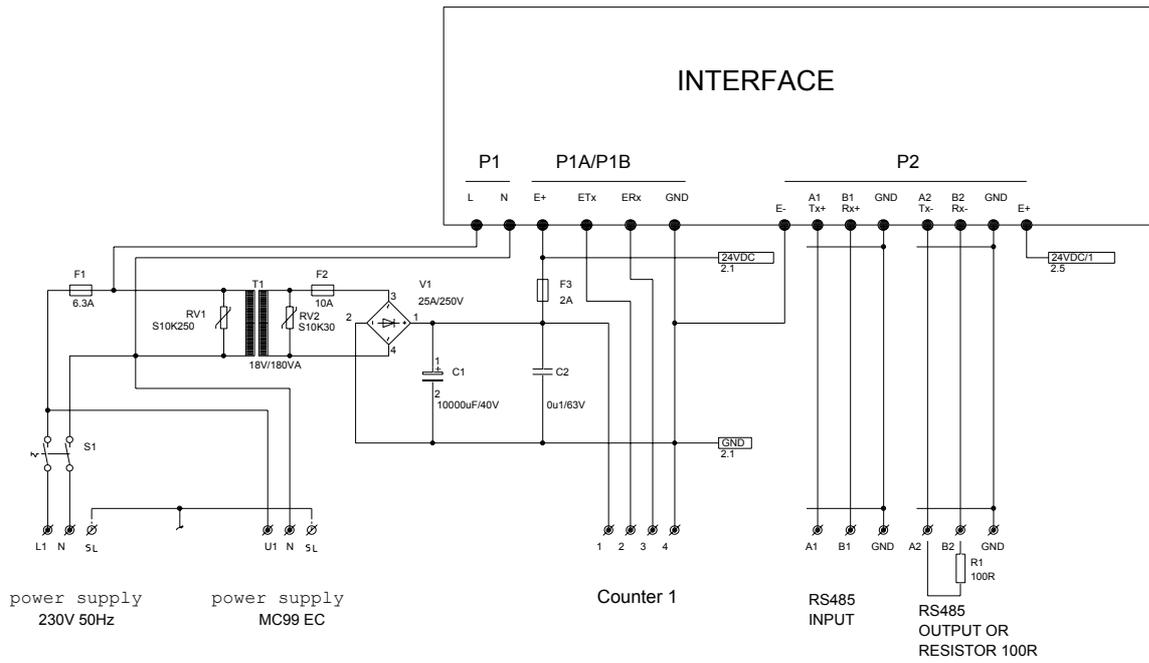
All interfaces (max. 8) are in turn connected with each other in one row via an RS485 data-cable (code no. 91-02-3584) and are connected to the egg-counter (EC).



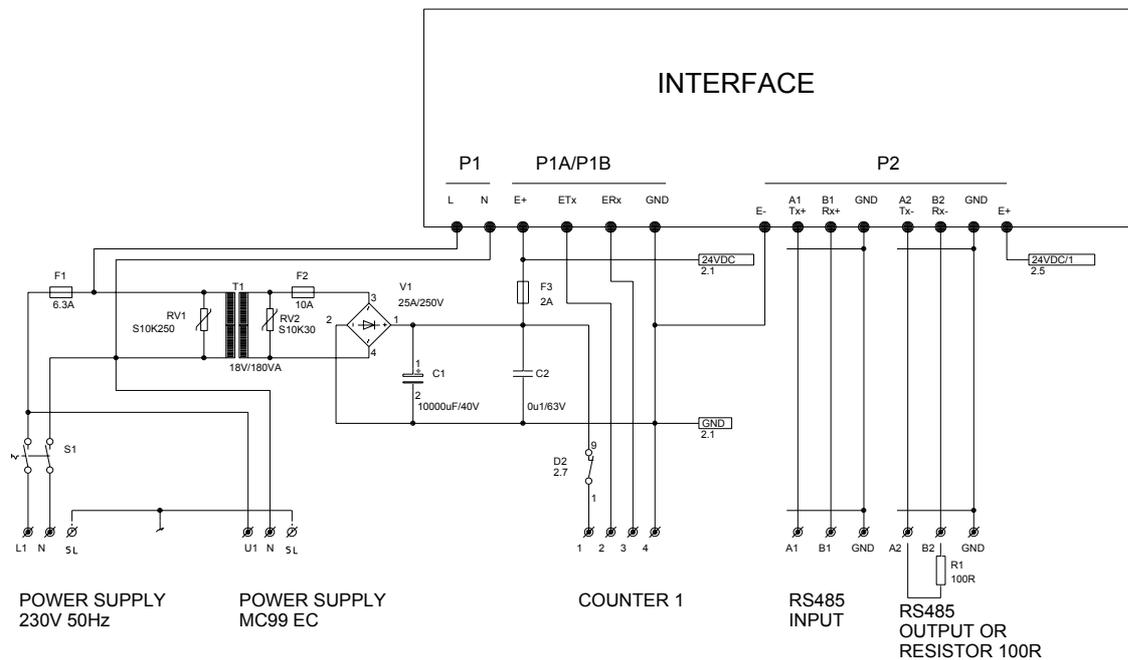
It has to be noted that both ends of the RS485 data-cable are connected to a 100 Ohm-resistance.

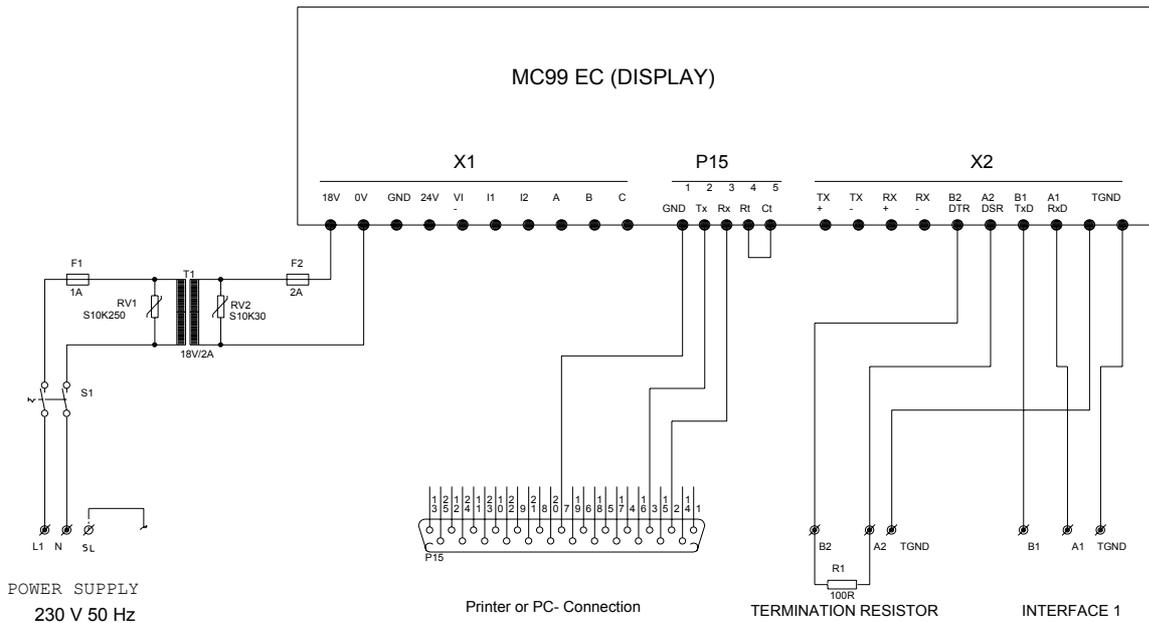
Each interface (in case several have been installed) has to be supplied with a voltage of 220 V, 50 Hz. Here, we have to observe that all interfaces - if distributed to several houses - are being supplied by the same phase. The MC99 EC is supplied with 220 V 50 Hz by one of the interfaces.

--old--



--new--

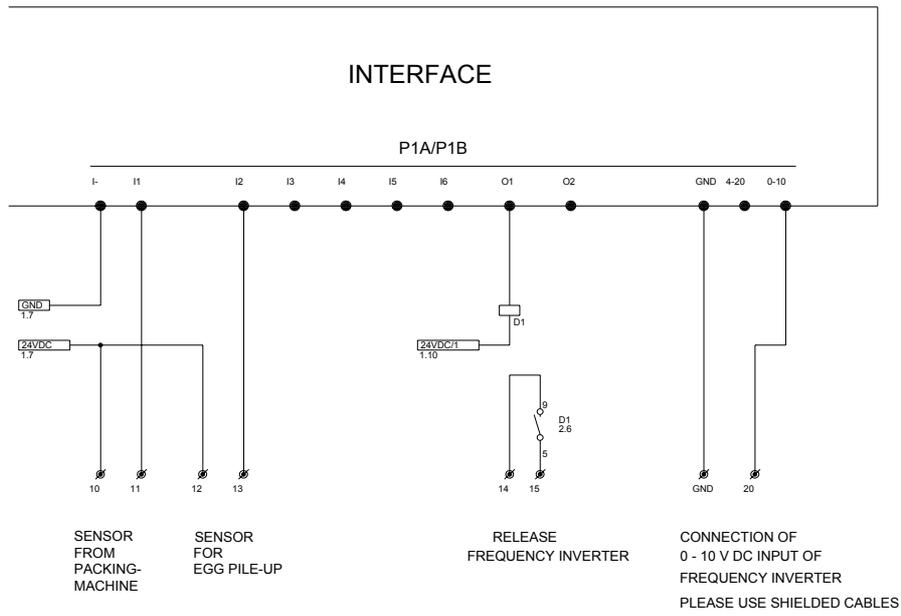




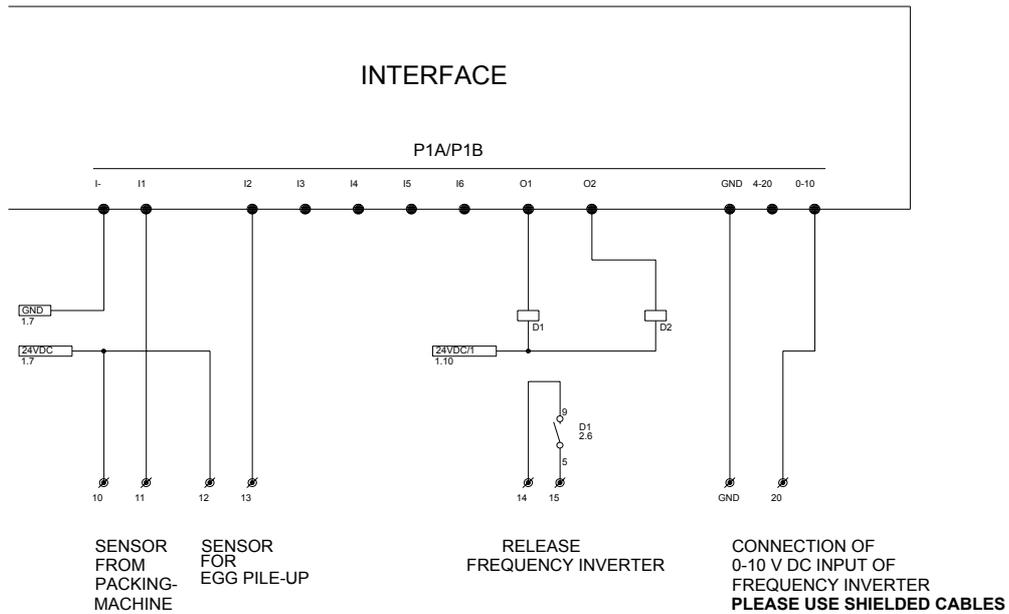
The egg-counter reads the actual number of eggs in regular intervals from the modules via the interface and adds them up. From there, they can be controlled and summed up over a longer period of time. If a printer is connected, the results may be printed out there as well. In the case of a PC-connection, the EC may also be handled externally. In this case, the emulation programme TM5 (Code no. 91-02-3506) has to be installed. The connection between PC and EC is taking place by means of a V24-cable (Code no. 91-02-3564).

In connection with a frequency-converter, a determined number of eggs arriving from the crossways belt can be controlled so that an existing packing-machine can cope with an optimal egg-capacity. In this case, only the lengthways belts are being controlled whereas the crossways belts are running at constant speed. The speed of the egg-belt has to range within 0.4-6 m/min. in order to obtain the highest possible counting precision.

--old--

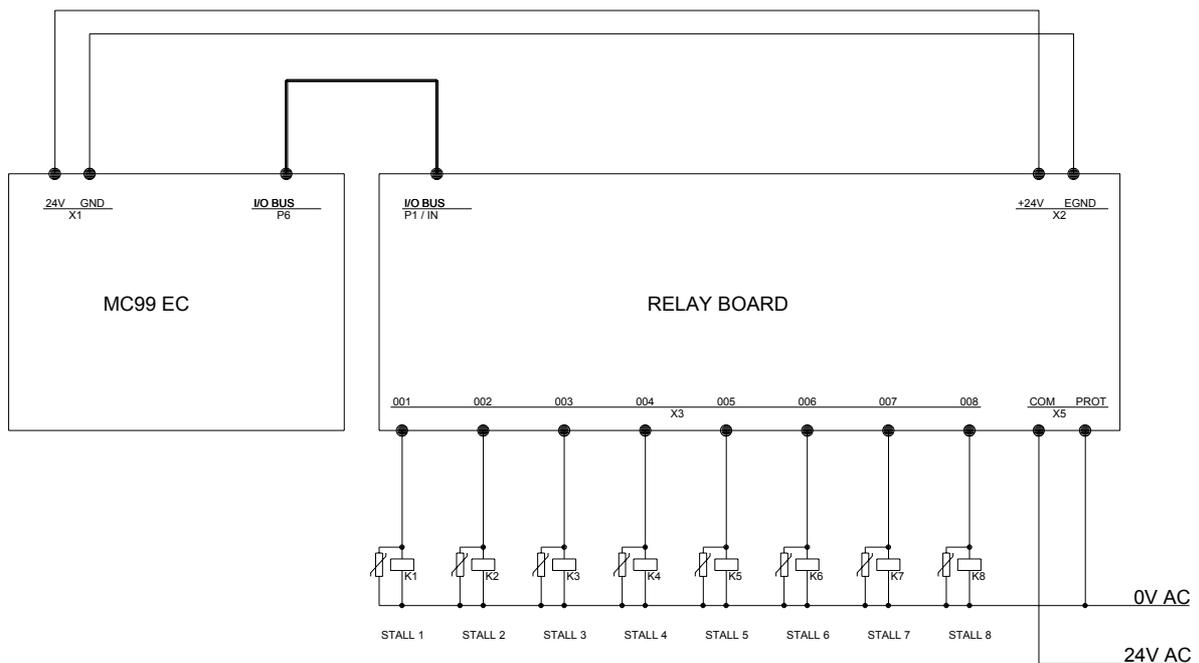


--new--

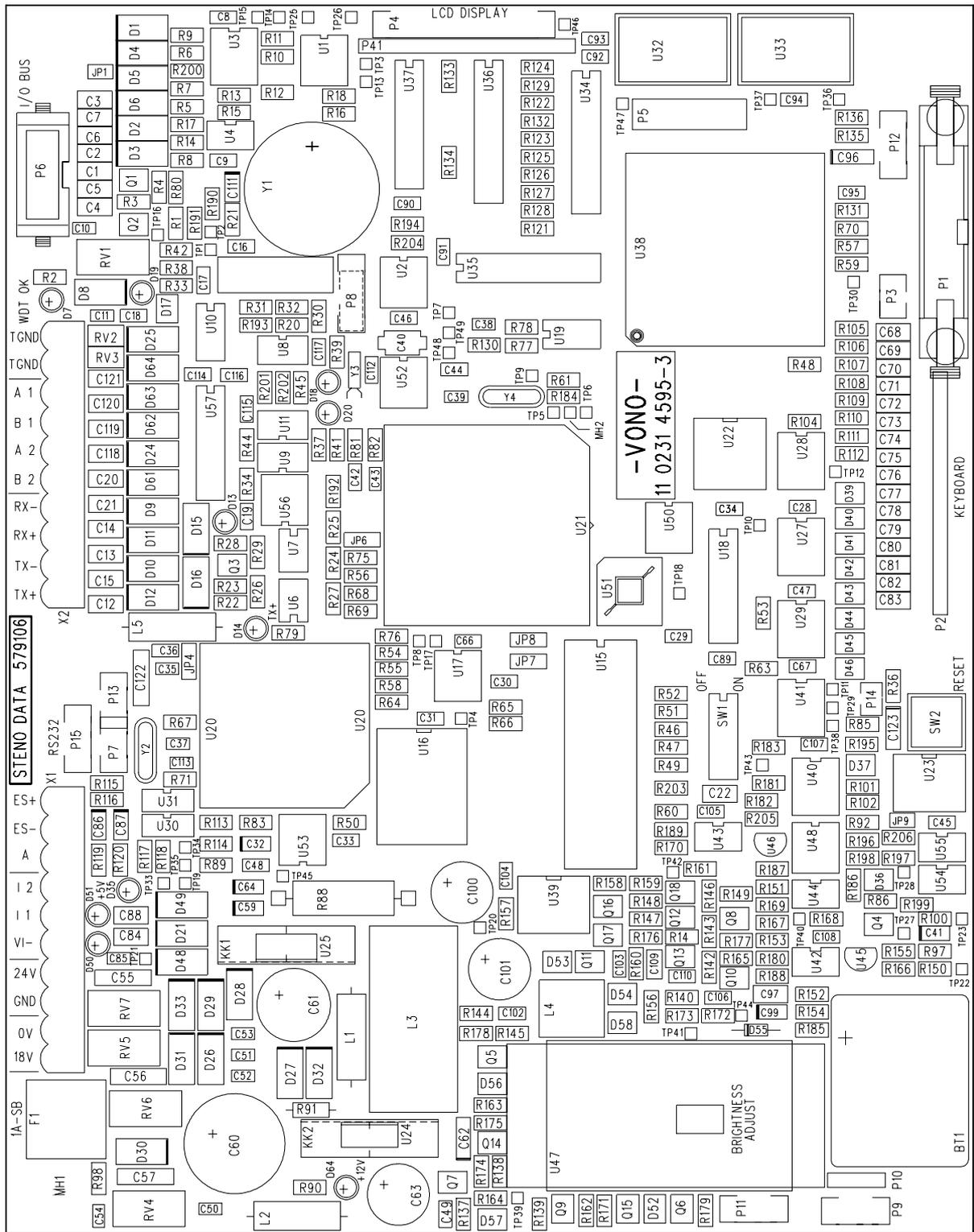


After having been released by the sensor of the packing-machine, the egg-counting process can be started. If no packing-machine is connected, this inlet is bridged over. The sensor for the egg pile-up should only be used in connection with a frequency-inverter because otherwise - in case of a disturbance within the interface - the sensor will be out of order. If a frequency-inverter is installed and the sensor-signal for the regulation of an egg pile-up is interrupted, this will automatically switch on to zero, i.e., the egg-belts come to a standstill (see also: Menu HOUSE-CONVERTER).

In case several houses are installed with counting-modules, eggs from different houses may automatically and in any order whatever be collected from there. For this, however, the MC99 EC has to be extended by means of a relay board (Code no. 91--02-3702). Before planning a system of such kind, it is advisable to contact the Technical Division of Big Dutchman).



Components - Layout MC99 EC



Puttin into Operation

Putting the MC99 into operation is a process of several sections which are described after one another in the following. It is of importance to keep up this order when putting into operation

01 Put programme into Display

01 Put programme into display board (U15)

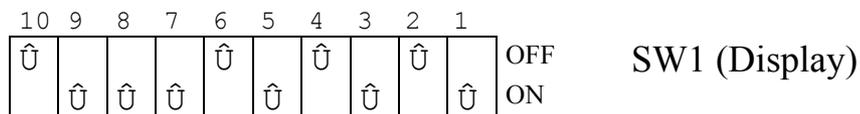
The programme **1000-99-GB** consists of an EPROM 2772001

Attention! When inserting EPROM, do observe the notch, i.e., the notch always has to be identical with the notch of the screen-print. After insertion, check once again whether all pins are in their settings.

02 Adjust DIP-switch Display

Dip-switch: (Warning: always switch off current before changing a dip-switch position!)

Version 1:



Comments: switch 1-6 EPROM type (272001)
 switch 7 battery on/off
 switch 8 vacant
 switch 9 vacant
 switch 10 on = MC44 keyboard off = MC99 keyboard

Version 2:



Comments: switch 1 vacant
 switch 2 vacant
 switch 3 vacant
 switch 4 vacant
 switch 5 Flash EPROM
 switch 6 battery on/off

04 Adjust Display

Adjusting:

Note: The [CTRL]-key has to remain pressed while values may be altered.

	Function	Execution	ok
01	Contrast Display	[CTRL] [1/!] (light) ore [2/@] (dark)	
02	Illumination	[CTRL] [3/#]	
03	adjust Display	[CTRL] [4/\$]	
04	Light on time Licht für Display	4 [ENTER] => 4 x 4 Minutes	
05	Country	1 [ENTER] => Deutschland	
06	to setup Display	* [ENTER] * = [SHIFT] [* /8]	
07	Number of masters	32 [ENTER] (Normal)	
08	Sync-Value	254 [ENTER] (Normal)	
09	Local device no.	30 [ENTER] (Normal)	
10	Remote device no.	1 [ENTER] (Normal)	
11	Remote Application no.	1 [ENTER] (Normal)	
12	Baudrate für RS485 Output	1 [ENTER] => 115200 Baud	
13	leave Display Setup	Q [ENTER]	

01. Contrast

- a. [CTRL] [1/!] light
- b. [CTRL] [2/@] dark

02. Illumination

- a. [CTRL] [3/#] . by repeated pressing, the illumination changes from light to dark

03. Adjust Display

- a. [CTRL] [4/\$] and the following text appears

```
MC99 CONSOLE VER 1.03 06/03/94
SETUP MENU (to EXIT press Q or ESC )

LIGHT ON TIME (1 - 63) x 4 MINUTES 001

LIGHT ON TIME ON (1 - 63) x 4 MINUTES ?
```

04. Light for Display

The time has to be entered, stating the duration of the illumination of the display after the last key-pressing. The entered figure has to be multiplied by 4 minutes.

Enter e.g., **4** and confirm with **ENTER**.

For leaving this menu, [ESC] or **Q** have to be pressed and must be confirmed with [ENTER].
Changeover to the main menu of the user-programme.

05. Display Setup

If * and ENTER is pressed, wenn

LIGHT ON TIME ON (1 - 63) x 4 MINUTES ?

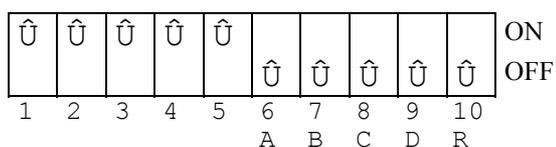
is on display, the following **SETUP MENU** appears:

MC99 CONSOLE VER. 1.03 06/03/94	
SETUP MENUE (to EXIT press Q or ESC)	
NUMBER OF MASTERS	032
SYNC-VALUE	254
LOCAL DEVICE NUMBER	030
REMOTE DEVICE NUMBER	001
REMOTE APPLICATION NUMBER	001
BAUDRATE 1=115200 2=38400 3=9600	001
NUMBER OF MASTERS ?	

The values in this chart are **standard values** which should be in-stalled when putting into operation. They have the following meaning:

- NUMBER OF MASTERS** are all boards with a **BIG DUTCHMAN ASIC**.
- SYNC-VALUE** is determined by the software - please, do not change
- LOCAL DEVICE NUMBER** NUMBER is valid for the first display. A second display has the number 31, a third one the number 32, etc.
- REMOTE DEVICE NUMBER** is the address of the CPU. If more than one CPU is installed, the following CPU has the number 2, then 3, etc. ... hat der folgende CPU die Nr. 2, 3 etc..
- REMOTE APPLICATIONS NUMBER** dials the MC99 **OPERATIV-SYSTEM** which has number 1.
- BAUDRATE**, normal 1 = 115200

05 Adjust DIP-Switch Interface WA99 EC



MAIN MENU

```
MAIN MENU          3      HANS MUELLER          3DATE: MO 21.03.94 HOUR: 14.55

                                     BIG DUTCHMAN EGG COUNTER
                                     =====

                                     NO. OFF EGGS / DAY
                                     TOTAL NO. OFF EGGS
                                     PROCESS VARIABLES
                                     HOUSE CHANGING
                                     TESTFUNCTION
                                     START EGG-COUNTING
                                     STOPP EGG-COUNTING
                                     SWITCH-OFF ALARM

STATUS: STOP
```

After switching on the MC99 EC, the computer reports with the main menu. In case of a new installation, the main menu will be shown in English. In the Menu **TEST FUNCTIONS** under **CONFIGURATION**, a selection may be made between D (German) and GB (English). Once the language has been selected, these functions will remain even after a power-cut.

From this main menu, the sub-menus, resp., start/stopping functions may be selected by use of the arrow-keys. The main-menu may at any time be called up from any menu by entering **ESC**.

The status-line will always display the actual state of the programme or an error.

TEST FUNCTIONS

TESTFUNCTIONEN	³	HANS MUELLER	³DATE: MO 21.03.94 HOUR: 14.55
⇒ CONFIGURATION ⇐ INTERFACE NUMBERING COUNTER TEST COUNTER MONITOR			
STATUS: STOP			

For testing all electric connections and adjustments, the **TEST FUNCTION** Menu has to be selected.

The test menu is divided into four different submenus, namely

configuration
interface numbering
counter test
counter monitor

In the **CONFIGURATION** Menu, the system is defined. i.e., number of rows, tiers, houses, etc.

In the menu **INTERFACE NUMBERING**, the subsequent numbering of interfaces is given.

In the menu **COUNTER TEST**, the test is started, and the menu **COUNTER MONITOR** analyzes eventual errors.

01 CONFIGURATION

CONFIGURATION	HANS MUELLER		DATE: MO 21.03.94 HOUR: 14.55					
HOUSE NO.: 1								
ROW	1	2	3	4	5			

TIER 8:	1.01	1.16						
TIER 7:	1.02	1.15						
TIER 6:	1.03	1.14						
TIER 5:	1.04	1.13						
TIER 4:	1.05	1.12						
TIER 3:	1.06	1.11						
TIER 2:	1.07	1.10						
TIER 1:	1.08	1.09						

HOUSE NO.....:	1	2	3	4	5	6	7	8
NO. OF ROWS.....:	5*	6	4					
NO. OF TIERS.....:	8	4	3					

INTERFACE NO.....:	1	2	3	4	5	6	7	8
NO. OF COUNTERS....:	80	24	12					

LANGUAGE.....:	D	GB						

STATUS: STOP								

this menu is called up, the cursor automatically jumps to position **NUMBER OF ROWS**. Here, for **each** house the number of available **rows** and **tiers** has to be entered. In the case of not existing houses, no entry has to be made.

With this entry, only as much as is available in **one** house will be shown. If e.g., a unit only consists of 3 rows and 3 tiers, only these will be on display. If the unit consists of more than 5 rows, the keys **[HOME]** and **[END]** in connection with **[SHIFT]** can move the display one row forward as no more than 5 rows can be on display at a time. A maximum of **8 tiers** can be shown. Up to **10 rows** can be listed for each house. When selecting this dialogue, house 1 will always turn up. With **<Pg UP>** and **<Pg DN>** in connection with **SHIFT**, the next, resp. the previous house turns up on the display. In the same way in which a house has been entered here, it will also turn up in the menu **EGG COUNTING/DAY**, resp. **TOTAL EGG COUNTING**. The eggs counted in this house will then be added, resp. registered.

If the house has been defined, for each interface (max. 8) the **number of counters** attached to each interface has to be entered. This does not take into consideration in which house the counters are installed. The maxm. number of counters is 80.

At present, two **languages** are available which may be adjusted here, namely German (D) and English (GB). The language selected here will then be shown on the display of all menus and printed out. By means of the cursor-keys, the appropriate position can be selected. After pressing **[ENTER]**, a switchover to the desired language takes place immediately.

Each counter has to be entered after one another, individually with interface and counter-number, if possible in the sequence in which installation has taken place, i.e., normally at one row at one side, beginning at the top of one side going down and up on the other side and then on to the next row, etc. (see above example).

If a counter was entered with a number other than interface number and counter number, the following report comes up:

Alarm: Initialization error interface # = Initialization error, i.e., the numbering of the counter has not been completed (defect counter)

Counter Monitor has an additional display showing up to which counter initialization has still to take place, e.g., **COUNTER MONITOR 8 2 2**, which means

- 8 = counter shown in the middle display (no. 3), e.g., cable, fuse, etc.
- 2 = first counter which has not been initialized
- 2 = no meaning

04 COUNTER MONITOR

```

TESTFUNCTIONEN      3      HANS MUELLER      3DATE: MO 21.03.94 HOUR: 14.55

                                CONFIGURATION
                                INTERFACE NUMBERING
                                COUNTER TEST
                                ⇨COUNTER MONITOR ⇩

STATUS: STOP
  
```

```

                                INTERFACE NR. 1
EXP.  NUM.  COUNT.  COUNTER STATUS  I/F STATUS  ERRORS
01   01     0      a0000000 b0000000    c0000000    00
02   02     0      00000000 00000000    00000000    00
03   03     0      00000000 00000000    00000000    00
04   04     0      00000000 00000000    00000000    00
05   05     0      00000000 00000000    00000000    00
06   06     0      00000000 00000000    00000000    00
07   07     0      00000000 00000000    00000000    00
08   08     0      00000000 00000000    00000000    00
09   09     0      00000000 00000000    00000000    00
10   10     0      00000000 00000000    00000000    00

SYSTEM STATUS:

0 (1. Error Counter          NO SELECT INTERFACE
0 (2. " "                    ON START COUNTING
0 (3. " "                    OF STOP COUNTING
0 (4. " "                    CO SET COUNTER NUMBER
                                RE RESET COUNTERS
                                PR PRINT SCREEN
                                EX EXIT

STATUS: STOPP
  
```

Explanation of the individual columns

- EXP.** = number received by the interface
- NUM.** = number of counters transmitted by the counter
remark: the displayed NUM-no. has to be identical with the EXP-no.
If this is not the case, an error is reported
- COUNT.** = the number of eggs which have been counted
- COUNTER STATUS** = a 16-bit status display produced by the counters
- I/F STATUS** = an 8-bit status display from the interface while data is received from the counters
- ERRORS** = number of error reports

Error reports which display a problem

Explanation of the commands which may be entered when **COUNTER MONITOR** is activated:

- NO#** = number of interface to be controlled. If a different interface is selected, the RE-command has to be given in order to erase the data from the previous interface. The number of the interface which is currently observed is shown in the first line
- ON** = initializes the counters and starts the counting-process. After the initialization, the initialized counter numbers are shown in column **NUM**, and, as soon as eggs are being counted, this will be shown in column **COUNT**.
- OF** = stops the counting-process, i.e., the interface will read no more data from the counters.
- CO#** = Selects the number of the first counter which should be shown at the display. In addition, 9 further counters are shown, even though they might not be required. The there displayed data are not valid and should be erased.
- RE** = Erases all data in **COUNTER MONITOR**
- PR** = Starts print-out via **COUNTER MONITOR**
Remark: Please start only if printer is connected.
- EX** = Leave **COUNTER MONITOR**.
- RI** = Zurückstellen der Fehlerzähler 1 - 4 für alle Interfaces

Description of reading **0** under **SYSTEM STATUS**:

During normal operation, i.e., when eggs are being counted, the following will be on display:

1000000 0 XX XX+1 Remark: XX = number of counter, from selected interface
(e) (f) (g)

During initialization, released with command **ON**, the following **SYSTEM STATUS** will be on display:

1111111 255 0 0

After a few seconds, the normal **SYSTEM STATUS** - as described above - will be on display.

If the initialization is faulty, a so-called **ERROR STATUS** will be shown. If problems arise, please note the **ERROR CODES** e, f, and g, and inform **BIG DUTCHMAN**.

Hints: e = 01 change the counter displayed at (f)
e = 08 check the counter shown under (f) (fuses, cable, etc.)
e = 80 check on the number of counters per interface. Is the entered number of counters identical with the actual number of installed counters.

Error Counter: There is one per interface. It is selected with **NO#**

1 Number of "time out" error

- If the interface does not respond within one second after it has been actuated.
- Problem of the RS485 line
- Interface is switched off

2 Number of "Return Code" error

- If a wrong return code is sent from the interface to the MC99 EC, when it is actuated by the MC99 EC
- Problems with the communication RS485

3 Number of "Data length" error

- If the data length sent by the interface to the MC99 EC exceeds the firmly defined length
- Problems with the communication RS485

4 Number of "Restart" error

- If the MC99 EC ascertains that an interface was restarted automatically.
- If there was a power failure at the interface

05 TESTING SOFTWARE

In order to test the counters independent of MC99 EC, a special test-ing software (X1000-51) vers. 1.06 is available which enables direct testing of the counters via the interface. For this, the above-mentioned software which is installed into the interface requires another display with keyboard, available from Big Dutchman under Code-no.: xx-xx-xxxx.

Preparation:

01. Switch off interface
02. Remove the extension sheet-bar from interface
03. Remove Standard EPROM (P1000-51) from the base U10 and install Test-EPROM (X1000-51).
04. Re-install extension board of interface
05. Connect the display to plug P5 (between transformer and extension board)
06. Remove all cables from inlets I1-I6 of the extension board
07. Switch on interface
08. The display should now e.g., show [000 040], in which case the first digits reveal the error-code and the second digits the number of connected counters. Number 40 is given by the programme, changes may be effected by E4, resp. E5.

Now your testing can be started!

It works in such a way that various inlets (I1-I6) on the extension sheet-bar have to be activated with + 24 V. These + 24 V may be taken from clip E on the main board of the interface.

Description:

Input Function

- I1** A reset-impulse is transmitted to the counters
- please check if the impulse is responded to by all counters, i.e., on the additional sheet-bar of the interface, the yellow LED comes up, and the yellow and green LED in the counters. In the case of the last counter, only the green LED comes up.
 - the display shows [0000 XXX], in which case the first digits display an error-code and the second digits the number which was given via E4, resp., E5.
- I2** An initialization is started
- please check if the red LEDs for the IR-LEDs light up in a steady rhythm, i.e., that every three seconds an initialization is started. If an error occurs during initialization, this will be shown up with the counter in which the error has occurred, and the initialization is started once again. If the error is still there, the error-report will stay on. If the error has been mended in the meantime, the error-report disappears.

Error Code Description

000	no error
128	counter has not transferred its ID-no. (time out)
129	the UART (8251) on the extension sheet-bar of the interface reports an error
130	an invalid byte was received
131	an error code was received by the counter (EEPROM-error)
132	synchronization error, ID-no. is not within sequence. The counter-numbers connected to the interface were not received.
133	reserved
134	more counters than connected

I3 Egg counting start

The display shows that eggs are being counted. Counting is always effected up to 255 and then restarted. The counting will be displayed from all counters of this interface

Error Code	Description
000	no error
001	UART (8251) parity error
002	UART (8251) frame error
004	UART (8251) break error
008	UART (8251) framing error
016	time out - no response from counters
128	NACK time out (data package was invalid even after three retries)
255	synchronization error, id No. out of sequence ie. the counter No. expected by the interface was not recieved

I4 The number of counters is counted up.

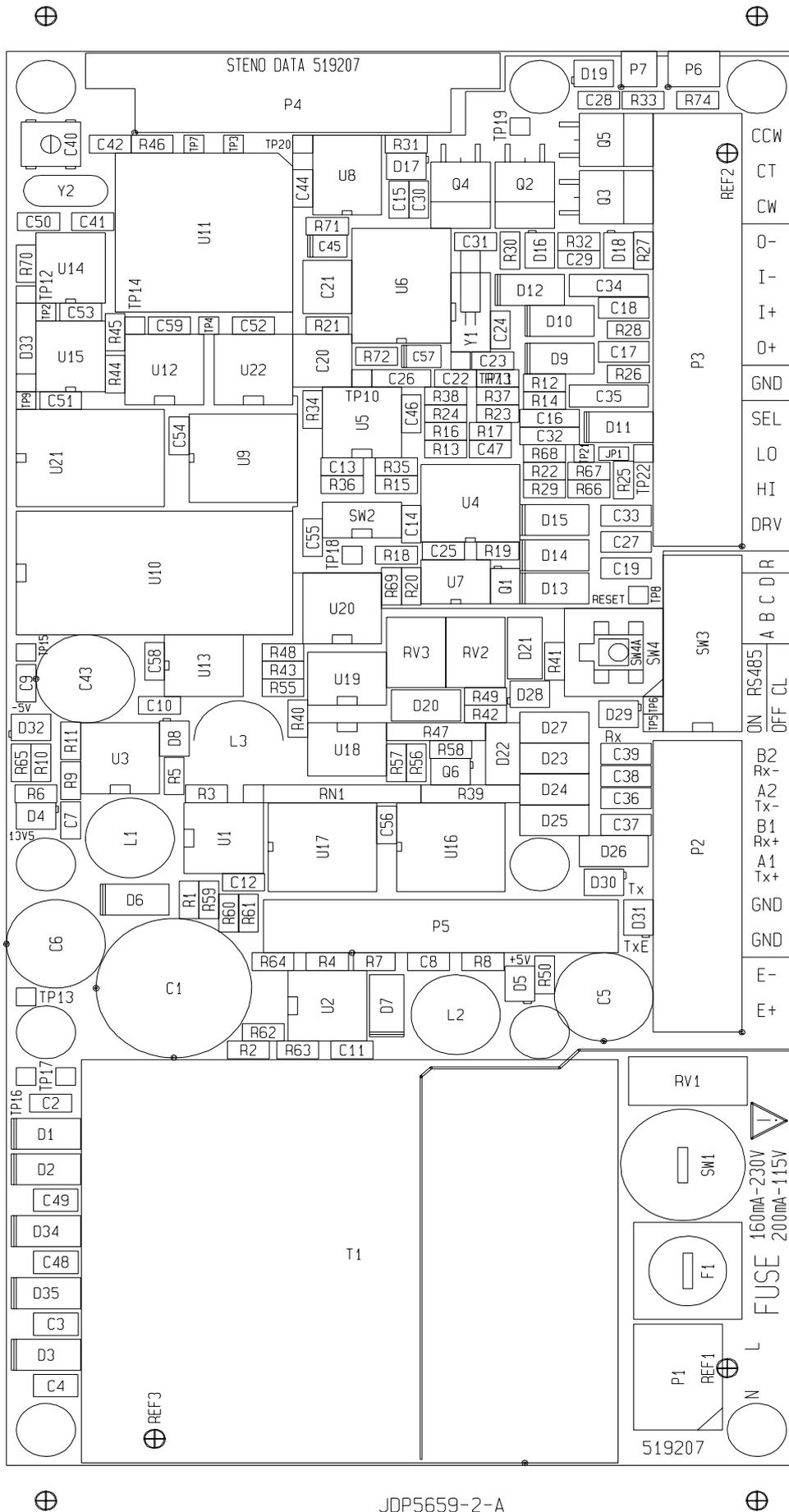
This function is used in connection with E1 (number of counters at the interface)

I5 The number of counters is counted down. This function is used in connection with E1 (number of counters at the interface)

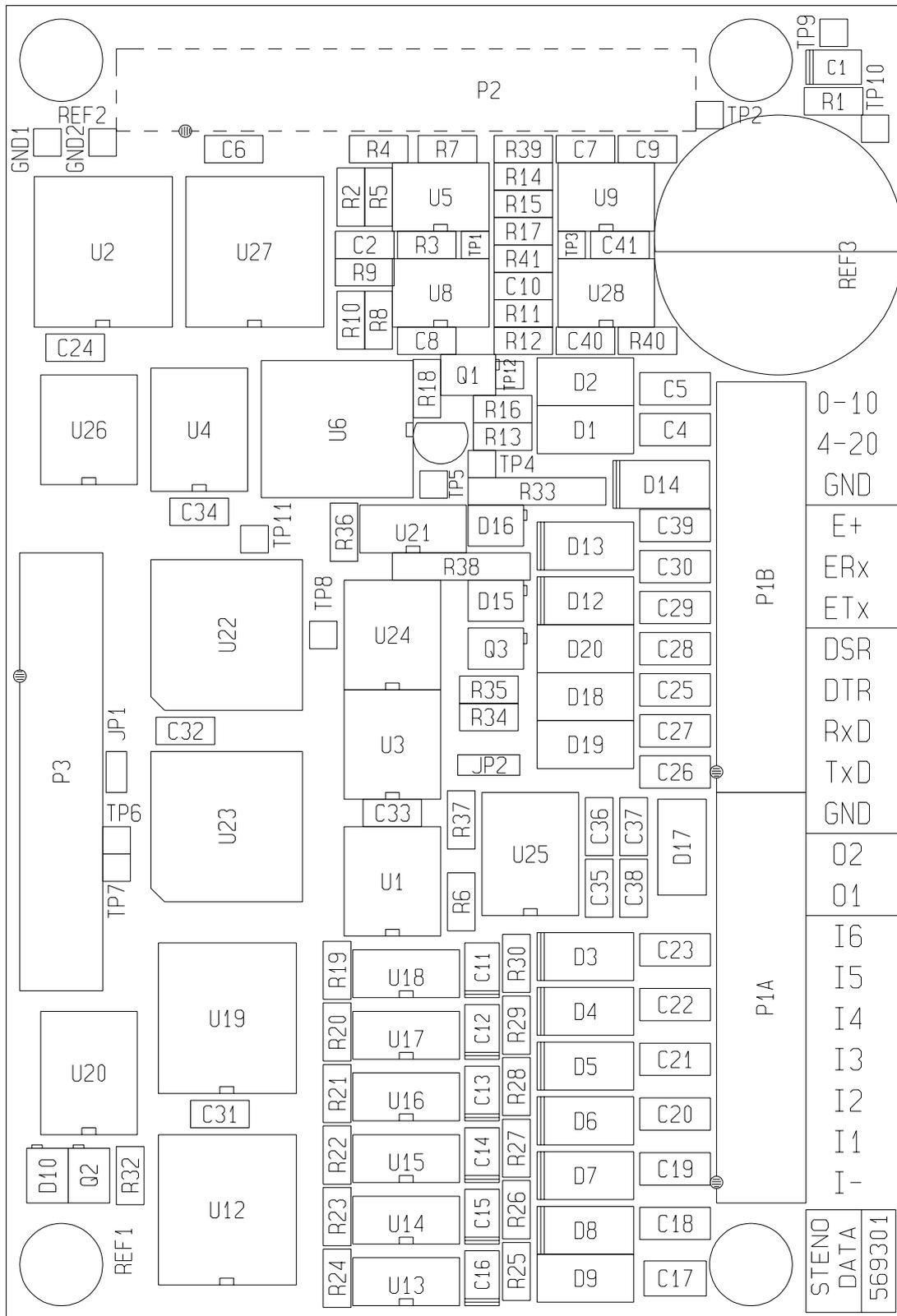
I6 Reduces the speed of transfer. It may be used in connection with e.g., E2 in order to gain better control of the initialization.

Attention: E1, E2 and E3 must never be turned on simultaneously.

06 COMPONENT-PLACING INTERFACE (MAINBOARD)



07 COMPONENT-PLACING INTERFACE (EXP. BOARD)



JDP5675-0-A

NO. OF EGGS / DAY

NO. OF EGGS / DAY		HANS MUELLER		DATE: MO 21.03.94 HOUR: 14.55	
HOUSE NO.:	1	DAYS:	2	START: 20.03.94	
ROW	1	2	3	4	5
TIER 8:	456	478	451	449	448
TIER 7:	433	455	448	443	443
TIER 6:	427	433	456	443	449
TIER 5:	445	454	446	454	445
TIER 4:	478	465	449	447	444
TIER 3:	445	447	451	441	451
TIER 2:	448	444	448	447	445
TIER 1:	453	449	433	439	449
TOTAL:	3585	3625	3582	3563	3574
TOTAL	7210		7145		7144
TOTAL:	21499				
NO. OF EGGS PER HOUR	14325				
EGG BELT SPEED IN %	98.6				
STATUS: STOPP					

In the case of this display, a difference is made if the MC99 EC is in waiting-position (STATUS: STOP) or if it is counting (STATUS: IT COUNTS). In the waiting-position, this menu can be directly selected. By means of the cursor - moved by the arrow-keys - it will then be possible to reach any position of an egg-counter in order to change the already registered number of eggs. If this menu is selected **during** counting, the following question comes up:

House No. for monitoring: _

After entering the house-number, the question comes up

Entered from row: _

After entering the house-number, the question comes up

After having entered the row-numbers, the next five rows, if available, will be displayed (starting with this entered row). This means that during the counting-process, changing over to the next house can only be effected via Main Menu. A horizontal changing of the rows within one house is, however, possible during the counting-process.

Only as much as is available in **one** house will be displayed. If e.g., a unit only consists of 3 rows and 3 tiers, only this will be on display. If a unit consists of more than 5 rows, **<Home>** and **<End>** enable the changing of one row each. The keys **<Home>** and **<End>** have to be activated in connection with **<Shift>**. Maximally, 8 tiers will be displayed. If selecting this dialogue while counting is not in process, house 1 will always be on display. With **<Pg Up>** and **<Pg Dn>** in connection with **<Shift>**, the following, resp., the previous house may be chosen.

Remark: **<Shift>** and **<Home>** columns are moved to the right
<Shift> and **<End>** columns are moved to the left
<Shift> and **<Pg Up>** one house forward
<Shift> and **<Pg Dn>** one house back

Remark: The text of **NUMBER OF EGGS PER HOUR** and **EGG BELT SPEED IN %** is only on display during the counting process!

The **NUMBER OF EGGS PER HOUR** denotes the actual number of eggs collected from **all** connected houses at the time. This number is not stable due to regulation resp. due to number of eggs. By employing a frequency converter which regulates the number of eggs via the speed of the egg-belts, the regulation behaviour as well as the number of eggs per hour determined by menu **PROCESS VARIABLES** can be controlled. This number is permanently actualized.

For the frequency converter, an outlet of 0-10 V is necessary for regulating the determined number of eggs. Here, the regulated state, i.e., the actual **SPEED IN %** is displayed. For example, 100% = 10V, 0% = 0V. It is the voltage attached to the frequency-con-verter and it is identical with the speed of the egg-belts.

The **day counter** of the egg-counting is raised by 1 at midnight. If a number is entered here, the **starting-date** of the counting is automatically determined.

NO OF EGGS TOTAL

NO. OF EGGS TOTAL		HANS MUELLER		DATE: MO 21.03.94 HOUR: 14.55		
HOUSE NO.:	1	DAYS:	2	START: 20.03.94		
ROW	1	2	3	4	5	
TIER 8:	456	478	451	449	448	441
TIER 7:	433	455	448	443	443	446
TIER 6:	427	433	456	443	449	442
TIER 5:	445	454	446	454	445	447
TIER 4:	478	465	449	447	444	448
TIER 3:	445	447	451	441	451	450
TIER 2:	448	444	448	447	445	449
TIER 1:	453	449	433	439	449	447
TOTAL:	3585	3625	3582	3563	3574	3570
TOTAL	7210		7145		7144	
TOTAL:	21499					
STATUS: STOP						

Here, only as much as is available in **one** house is shown. If e.g., a unit consists of only 3 rows and 3 tiers, only this is on display. If the unit has more than 5 rows, the keys **<Home>** and **<End>** can be used for shifting one column at a time. The keys **<Home>** and **<End>** have to be activated in connection with key **<Shift>**. Maxi-mally, 8 tiers are on display. By selecting this dialogue, house 1 is always on display. With **<Pg Up>** and **<Pg Dn>** in connection with **<Shift>** the next house, resp., the previous one can be chosen.

Remark: **<Shift>** and **<Home>** columns are moved to the right
<Shift> and **<End>** columns are moved to the left

<Shift> and **<Pg Up>** one house forward
<Shift> and **<Pg Dn>** one house back

By means of the cursor, moved by the arrow-keys, it will then be possible to reach any position of an egg-counter for changing possibly registered egg-figures.

The figures from menu **EGGS/DAY** are added daily, this at the transfer-time which is entered in menu **PROCESS VARIABLES**.

The **day-counter** of the egg-counting is always raised by 1 at mid-night. If a number is added here, the **starting-date** of the count-ing is automatically determined.

PROCESS VARIABLES

PROCESS VARIABLES	³	HANS MUELLER	³ DATE: MO 21.03.94 HOUR: 14.55
NO. OF EGGS / HOUR	:	25000	
MAX EGG BELT SPEED IN %	:	100	
MIN EGG BELT SPEED IN %	:	5	
REGULATION FACTOR	:	4	
MAX DELTA %	:	20	
START TIME.....	:	07.00	
STOP TIME.....	:	18.00	
TRANSFER TIME.....	:	18.01	
COMPUTER TEXT.....	:	HANS MUELLER	
HOUR	:	14.55	
DATE	:	21.03.94	
PRINTER OUTPUT	:	SERIELL	
STATUS: STOP			

NUMBER OF EGGS PER HOUR

Here, the desired number of eggs per hour is entered. If then a frequency-regulation is installed, via exit 0-10V the motor-speed for the egg-belts is controlled in such a way that this given number is kept, by which minimal and maximal values are determined. The actual number of eggs per hour can be checked up on in menu **NUMBER OF EGGS PER DAY**.

This value may even be changed during the counting-process, i.e., when e.g., a smaller figure had been entered, the frequency-regulation will automatically follow this value.

MAX./MIN. SPEED IN %

Maximal speed means that 100% = 10 V. The determination of the speed of the drive-motor is adjusted at the frequency-regulation.

Minimal speed means that 20% = 2 V. This speed will not be under-gone, no matter which egg-figures are being counted.

REGULATION FACTOR

The regulation factor states the speed of the regulation-change.

MAX DELTA %

MAX DELTA % states the extent of the maximal change in %.

STARTING-TIME:/STOPPING-TIME:

Within this time, counting is effected in which case the starting of the egg-belts cannot be initiated but has to take place externally. At the beginning of the counting, all figures in the dialogue **NUMBER OF EGGS/DAY** are erased. When the counting is finished, the menu **NUMBER OF EGGS/DAY** is automatically printed from all houses. If no printer is installed, the print-command automatically disappears.

TRANSFER:

At this time, the number of eggs per day is added to the total number of eggs.

COMPUTER -TEXT:

This text is automatically centered, shown in each dialogue, and given on any print-out. At a maximum, 25 signs can be entered.

TIME/DATE

The time, resp., date entered here will be taken over into all menus.

PRINTER-CONNECTION

Here, a choice can be made whether the printer will be directly connected to the MC99 EC, i.e., in **seriell** or via a connected PC and the **parallel** port, i.e., parallelly. The electrical connection has to be effected according to the diagram.

HOUSE CHANGING

HOUSE CHANGING		HANS MUELLER				DATE: MO 28.02.03 HOUR: 09:24			
HOUSE	1	2	3	4	5	6	7	8	
POSITION1:	X				X				
POSITION2:		X		X					
POSITION3:			X			X			
POSITION4:							X		
POSITION5:								X	
POSITION6:	X	X	X	X	X	X	X	X	
POSITION7:									
POSITION8:									
TARGET EGGS/TI :	530	320	610	440	650	360	622	335	
STARTING TIME :	52	62	32	20	60	90	100	80	
STOP TIME :	54	65	32	24	66	98	106	89	
SAFETY TIME :	600	500	600	600	700	200	600	555	
POSITION : 1	X*				X				
STATUS: STOP									

This menu enables the automatic collection of eggs in succession from various houses. The order and number of houses which are switched to at the same time may be entered as according to choice, but it should be selected in such a way that a build-up of eggs is avoided. If use is made of this function, an additional relays-card (Code-no. 91-02-3702 has to be installed in the MC99 EC.

The house-number has to equal an exit (1-8) on the relays-card which is connected to the display. This menu does not influence regulation or counting, but runs independently.

At the point of starting with the egg-counting process, all houses of **POSITION 1** marked with an **X** are initiated (e.g., House 1 and House 5). If in the case of House 1 or 5 the value **TARGET EGGS/TIME** is reached within **STARTING-TIME**, this will be marked by * behind the **X**. After this, check-up is made whether the value **TARGET EGGS/TIME** has fallen short of the **STOPPING-TIME**. In this case the house becomes switched off. If the next house of **POSITION 1** falls short of its value, it also becomes switched off. If all houses of **POSITION 1** are switched off, the 0-10 V-outlet is put onto 0V, i.e., the frequency-regulation for the egg-belts is switched off. After this, the outlets of **POSITION 2** are turned on, and the 0-10 V-outlet is placed to the value of the previous position, i.e., the egg-belts of Position 2 start at the same speed in which they were switched off at Position 1.

If - after the start of the egg-counting process - the entered value for **TARGET EGGS/TIME** has not been reached within **STARTING-TIME**, the internal counter will be erased and a re-check is made whether the value for **TARGET EGGS/TIME** is reached within **STARTING-TIME**. This takes place as often as it takes for the **SECURITY TIME** to run out. If within this **SECURITY TIME** the value for **TARGET EGGS/TIME** is not reached, the following error-report appears: **ERROR: VALUE FOR TARGET EGGS/TIME NOT REACHED, HOUSE-NO. #**. The collection of eggs will not be stopped.

This check-up takes place after each change of position.

In the case of a build-up of eggs, caused by a sensor of the packing-machine, the time-run of **STARTING TIME** or **STOPPING-TIME** is interrupted. As soon as the build-up has cleared up, the time runs on.

Under **POSITION** shows the position in operation at the time. The **X** stands for the house-number which is switched on.

A position once selected by the programme can be manually corrected. If e.g., collection is made from all houses at Position 5, collection from other houses can be made by entering a different position-number. When the position is changed, all exits on the relays-card and the release-relay for the frequency-converter switch themselves off, the 0-10 V-exit is put onto 0V, the **X** for the other house-numbers will be on display. After a break of 4 seconds, the exits are switched on and after one second the 0-10 V-exit will be set onto its previous value.

If the position-number is put back, all positions will be automatically passed in succession. If the position-number is put forward, the overlept positions will not be restored.

If all positions have been run through, the relay-exits for the egg-belts as well as the frequency-converter will be switched off. **STATUS: IT COUNTS** will stay active until the **STOPPING TIME** entered in menu **PROCESS VARIABLES** will be reached.

PRINTOUT

After the counting-process - determined by the STOPPING-TIME in menu PROCESS VARIABLES - an automatic printout of NUMBER OF EGGS PER DAY takes place from all connected houses (see below). During the printout, the following report comes up:

The printer is in operation, please wait

This report will stay on as long as it takes for the printout to be finished. If no printer is connected, the same report appears. It will disappear after approx. 2 minutes, however, if until then no printout has been undertaken.

Printout:

```
NO. OF EGGS TOTAL      |      HANS MUELLER      | DATE: MO 21.03.94 HOUR: 14.55
-----
HOUSE NO.: 1      DAYS: 2      START: 20.03.94
-----
ROW                1                2                3                4                5
-----
TIER 8:   456   478   451   449   448   441
TIER 7:   433   455   448   443   443   446
TIER 6:   427   433   456   443   449   442
TIER 5:   445   454   446   454   445   447
TIER 4:   478   465   449   447   444   448
TIER 3:   445   447   451   441   451   450
TIER 2:   448   444   448   447   445   449
TIER 1:   453   449   433   439   449   447
-----
TOTAL:    3585  3625   3582  3563  3574  3570
TOTAL          7210          7145          7144
TOTAL:    21499
```

IF more than 5 rows have to be printed out, a second page is printed.

```
NO. OF EGGS TOTAL      |      HANS MUELLER      | DATE: MO 21.03.94 HOUR: 14.55
-----
HOUSE NO.: 1      DAYS: 2      START: 20.03.94
-----
ROW                6                7                8
-----
TIER 8:   456   478   451   449   448   441
TIER 7:   433   455   448   443   443   446
TIER 6:   427   433   456   443   449   442
TIER 5:   445   454   446   454   445   447
TIER 4:   478   465   449   447   444   448
TIER 3:   445   447   451   441   451   450
TIER 2:   448   444   448   447   445   449
TIER 1:   453   449   433   439   449   447
-----
TOTAL:    3585  3625   3582  3563  3574  3570
TOTAL          7210          7145          7144
TOTAL:    21499
```

It is also possible to print out all menus manually. For this - in the corresponding menu - the function-key <F7> has to be pressed, i.e., keep key <Fn> pressed and press key <7>.

Calibration of counting-modules

All counting-modules are calibrated on the working-side of the Big Dutchman standard egg-channel. If the counting-results from one counter differs from the average of other counters, a first check-up should be made whether egg-production runs normally or if maybe a mechanical error (egg-belt drive defective) might occurring. The counter can be checked up in such a way that the lid is open, a hand is held underneath the counter, and check-up is made whether diods D7 (D6) are switched on. In the case of differing sensitivity in comparison with other counters, the following should be examined:

- Has the counter been mounted according to specifications?
- Are the IR-diodes clean?
- Is the counter influenced by other light-sources (sunlight or artificial light)?

Should - despite of this - a counter not function due to inade-quately adjusted reflexion-level, this can be checked up locally. For this the egg-counter has to be placed onto the egg-channel with installed egg-belt or onto a testing-unit with the same dimensions and conditions as those of the original. Incoming sunlight or light from other sources should be avoided as far as it is possible. Now we have to proceed as follows:

- a) Bridge Pin 5 (Test) and P6 (GND) on the clamping-row P1.
- b) Supply counter with a voltage of 24 V DC via clamping-row X1 or X2 which can be checked up via diod D11.
- c) Turn potentiometer R28 (alternatively 25) in a clockwise direc-tion as far as it will go and check whether diod D7 (D6) is switched off (if not, see Remark 1)
- d) Turn potentiometer R28 (alternatively 25) in an anti-clockwise direction as far as it will go and check whether diod D7 (D6) is switched off (if not, see Remark 2)
- e) turn potentiometer R28 (alternatively 25) in a clockwise direction until diod D7 (D6) is switched on and mark this point at the potentiometer.
- f) Turn potentiometer R 28 (alternatively 25) in an anti-clockwise direction until diod D7 (D6) is switched off and mark this point at the potentiometer.
- g) Place potentiometer R28 (alternatively 25) now in the middle of these under e) and f) marked points. The angle between the marked points e) and f) should amount to between 45° and 135°.

Remark 1:

If diod D7 (D6) is not switched on when potentiometer R28 (R25) is turned in a clockwise direction, reinforcement is too low. It will be increased by higher resistances R27/R30 (R26/R29).

Remark 2:

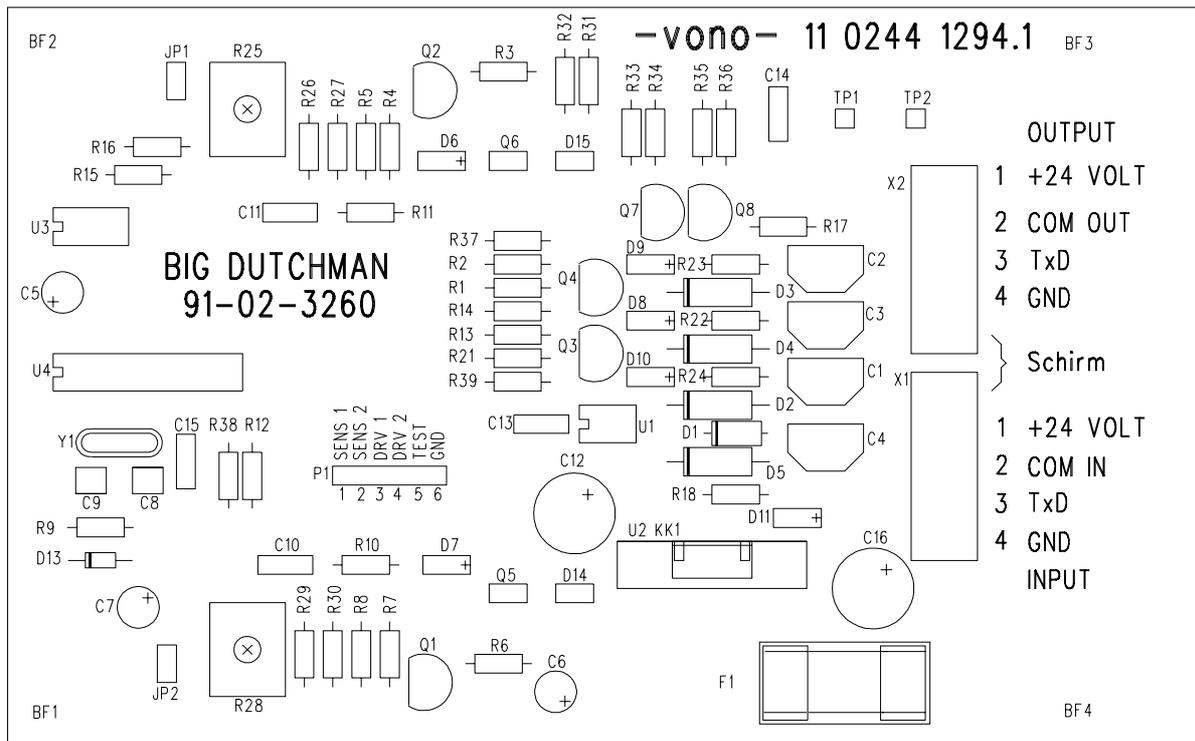
If diod D7 (D6) is not switched off when turning potentiometer R28 (R25) in an anti-clockwise direction, the reinforcement is too high. The following has to be examined:

- Has the counter been properly mounted into an egg-channel?
- Have the IR-LEDs been properly mounted? (They should protrude max. 2mm from the housing)
- Has the egg-belt been smoothly installed underneath the sensor?
- Check whether the distance from the IR-LEDs to the egg-belt amounts to approx. 65 mm.

The reinforcement is reduced by smaller resistances R27/R30 (R26/R29).

Attention: After calibration remove the bridge between Pin 5 and P6 (clamping-row)!

Component-Placing Counting Module



LED-DISPLAY Counting Module

LED	Description	function when lighting up
D6	CH2	- shows that an egg has been recognized by the IR-LED (on the right) - lights up briefly when currency is switched on - when a SET-command has reached the LED, it lights up until the command is complete
D7	CH2	- shows that an egg has been recognized by the IR-LED (on the left) - lights up briefly when currency is switched on - when a SET-command has reached the LED, it lights up until the command is complete
D8	TxD	- shows when data are transferred to interface via COMMON lead
D9	COMOUT	- COMandOUT shows when data can be transferred to the next counting module
D10	COMIN	- COMandIN shows when data is received by the previous counting module
D11	ON	- shows that the currency supply is switched on and that the protection is in order

Remark: This LED does not show that the 5V from the voltage-regulation are available.

Connection Counting Module

X1-Entrance

Pin#	I/O	Text	Function
1	-	+ 24V	currency supply
2	I	COMIN	entrance in series
3	O	TxD	common data transfer
4	-	GND	currency supply and communication feedback

X2-Exit

Pin#	I/O	Text	Function
1	-	+ 24V	currency supply
2	O	COMIN	exit in series
3	O	TxD	common data transfer
4	-	GND	currency supply and communication feedback

P1-Diagnosis-Plug

Pin#	I/O	Text	Function
1	O	SENS1	IR receiver #1 (Q5) exit voltage
2	O	SENS2	IR receiver # 2 (Q6) exit voltage
3	O	DRV1	IR transmitter # 1 supply currency (U4-13)
4	O	DRV2	IR transmitter # 2 supply currency (U4-12)

5	I/O	TEST	test entrance
6	-	GND	reference-mass

ERROR REPORTS

Generally:

All these error-reports only occur **during** initialization or counting-process. # stands for a counter or interface-number, i.e., it is only shown which interface or which counter does not function properly.-

01 ERROR: VALUE FOR TARGET EGGS/TIME NOT REACHED, HOUSE-NO #

Description:

Entry can be made in menu **HOUSE CHANGING** in which succession within the connected houses eggs may be collected. If after starting the egg-counting process the entered value for **TARGET EGGS/TIME** has not been reached within **STARTING-TIME**, the internal counter is erased and re-check is made whether within **STARTING-TIME** the value for has been reached. This happens until the **SAFETY-TIME** has run out. If within **SAFETY-TIME** the value for **TARGET EGGS/TIME** has not been reached, the above error-report appears. The egg-collection will, however, not be interrupted.

- Causes:**
- Entered starting-time too short
 - entered security-time too short
 - entered target eggs/time too high
 - defective egg-belt, i.e., not all eggs are being counted
(can be checked up in menu NUMBER OF EGGS/DAY)
 - entered number of eggs/hour in menu PROCESS VARIABLES too low
(only when using a frequency-converter)
 - entered max. speed in menu PROCESS VARIABLES too low
(only when using a frequency-converter)

Clearing: check up on above causes, adjust properly, resp., repair egg-belt and turn off alarm in MAIN MENU

The alarm switches off automatically when the entered number TARGET EGGS/TIME has been reached.

02 ERROR: NO REPLY FROM INTERFACE #

Description:

During the counting-process the connected interfaces are communicated with in regular intervals to receive data from the counters. If an interface is communicated with and does not reply, the above error-report appears.

- Causes:**
- data-line to interface defective
 - interface has received no numbering
 - interface defective

Clearing:

- check up data-line from interface to MC99 EC
- check up on protection F1 in interface
- number interface (see interface numbering)
- change interface if defective

- turn off alarm in MAIN MENU

03 ERROR: WRONG REPLY [1] FROM INTERFACE #

Description:

Data-reply communicated from the interface to the MC99 EC will be checked by the MC99 EC. With each data-pile an information is given as to where the data comes from. If the MC99 EC is unable to identify the data, the above error-report appears.

Causes: - interface defective, data-communication only incomplete
- software in interface defective

Clearing: - change interface including software
- turn off alarm in MAIN MENU

04 ERROR: WRONG REPLY [2] FROM INTERFACE #

Description:

Data-reply communicated from the interface to the MC99 EC will be checked by the MC99 EC. The MC99 EC checks up whether the number of databytes sent from the interface are in keeping with the entry. If this is not the case, the above error-report appears.

Causes: - interface defective, data-communication only incomplete
- software in interface defective

Clearing: - change interface including software
- turn off alarm in MAIN MENU

05 ERROR: COUNTING NOT STOPPED, INTERFACE #

Description:

If the counting-process is stopped in the MC99 EC, it sends an information to all interfaces to stop the counting and receives a confirmation. If the confirmation does not take place because communication-problems exist between interface and MC99 EC, the above error-report appears.

Causes: - interface defective, data-communication only incomplete
- software in interface defective

Clearing: - change interface including software
- turn off alarm in MAIN MENU

06 ERROR: NO INITIALIZATION, INTERFACE #

Description:

After the start of the counting-process, all counters are being initialized via the interface. If this does not take place in the case of one counter, i.e., the interface has answered but has not initialized the counters, the above error-report appears.

Causes: - interface defective, data-communication only incomplete
- software in interface defective

Clearing: - change interface including software
- turn off alarm in MAIN MENU

07 ERROR: INITIALIZATION-ERROR, INTERFACE #

Description:

The initialization of the counter after starting the counting-process was started, but was incorrect.

Causes: - the number of counters is not identical with the entered number
- one counter is not in order

Clearing: - enter proper number of counters
- check via COUNTER MONITOR which counter is not in order
- change counter
- re-start counting-process

08 ERROR: COUNTER ERROR [1], INTERFACE #

Description:

During the counting-process it turned out that a counter was given a number ranging outside 1-80 (0 or >80).

Causes: - counter received wrong initialization (counter defective)

Clearing: - change counter
- re-start counting-process

09 ERROR: COUNTER ERROR [2], INTERFACE #

Description:

During the counting-process it turned out that a counter was given a number which is not available in menu CONFIGURATION:

Causes: - counter-number wrongly entered in menu CONFIGURATION
- defect counter

Clearing: - enter proper counter-number in menu CONFIGURATION
- change counter
- re-start counting-process

10 ERROR: DATA TO INTERFACE NOT IN PROPER SUCCESSION, COUNTER-NO.#

Description:

During the counting-process the counters will be questioned in succession. If the reply from the counters does not take place in the right order, the above error-report appears (2.37 = Interface 2, counter 37).

Causes: - the counters have not been properly initialized
- several counters have received the same number

- Clearing:** - check up counters with COUNTER MONITOR
- change counters
- restart counting-process

11 ERROR: INTERFACE DOES NOT RECEIVE PROPER DATA FROM COUNTER ##

Description:

During the counting-process the counter-positions will be required in regular intervals. If the data is not correct - or if the interface receives no data at all - the above error-report appears. Together with the error-report, the interface-number and the counter-number will be on display.

- Causes:** - protection F2 in interface defective
- protection in counter defective
- cable to counter defective-counter defective

- Clearing:** - check up protections
- check up cable
- check up counters (see also COUNTER MONITOR)
- mend error and turn off alarm in MAIN MENU.

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