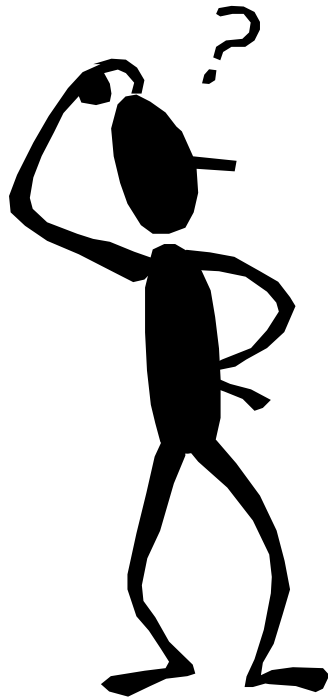


# WITTENBORG



## VIDTS Programming guide for FB/IN 5100

Version: 2.1  
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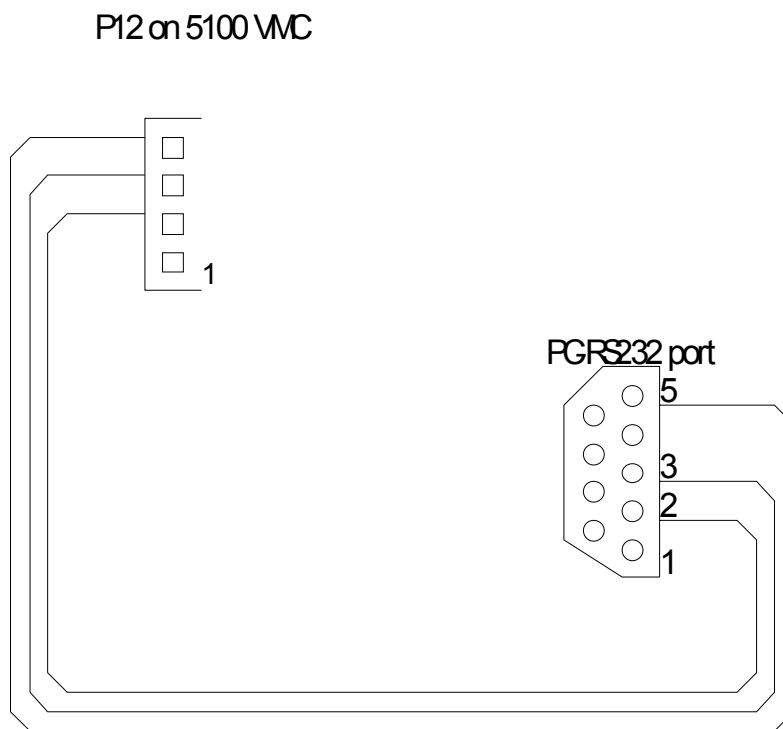
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## How to transfer data to the VMC

### Connecting the VMC to a PC

The 5100 VMC is equipped with a RS232 interface. To connect the VMC a cable as shown in figure a must be used. The VMC end must be connected to the P12 on the VMC board.



**Figure A**

## Setting up the terminal programme

To be able to communicate with the 5100 VMC a terminal emulation programme is used. The terminal emulation programme must be set up as follows:

**Terminal type = VT100 protocol = x-modem,  
9600 baud, 8 data bit, ignore parity, no flow control.**

Be aware that some terminal emulation programmes transfer data beyond end of file, if there is no “End of file” character in the file. To avoid this problem, always end a file with the “End of file” character (ASCII code = 26 or <ctrl z> depending of the editor used. The terminal.exe programme shipped along with Windows 3.1 don’t have these problems and is be recommended. The hyper-terminal programme shipped with Windows 95 seems to have some problems with the implementation of the x-modem protocol and is not recommended.

## Making up and down loads

When the communication is set up properly the water tank temperature and misc. status is shown on the terminal. In order to make a up or down load the machine must be in the operating mode, not within the menu system.

### Sending a file to the VMC:

1. Put VMC in file transfer mode by pressing <shift> Z and type in the password: “vision”.
2. Press <shift> U to put the VMC in up load mode.
3. Select the “send binary file” in the terminal menu and choose the file to be transferred.

The file will now be transferred to the VMC. If some thing goes wrong, an error message will be shown on the terminal after the transfer. This error message will in most cases, report the record type and values causing the trouble. It is recommended, that all data is reloaded in case of errors during data transfer, as the operation may become unpredictable.

### Receiving a file from the VMC:

1. Set the VMC in file transfer mode by pressing <shift> Z and type in the password: “vision”.
2. Press <shift> D to put the VMC in down load mode.
3. Select the “receive binary file” in the terminal menu and choose the file to be transferred.

The file will now be transferred from the VMC.

*Note that if the key sequences is typed in too slow the VMC will time-out. In this case just retry and do it a bit faster please !*

## Beverage programming.

### Programme lines

A beverage delivering programme is made up of one or more programme lines, a programme line has the following format and properties:

VIDTS record:

MC5\*Index\*37@Line no\*Ingredient type \*Quantity\*Quantity def\*Start time\*Preselection link\* Large% \* Small %

Explanation:

Index: MC5 block no (0..119)

Line no: Programme line no (0..119) same value as index.

Ingredient type: (0..31) defines the ingredient powder, water or whipper see list of ingredients. If a value of 128 (bit 8=1) is added to the ingredient type, the start delay time will be synchronised with the piston down movement of the brewer. Note that this is not valid for the FB ingredients.

Bit 7,6 defines the amount of coldwater injection for the ES-instant valve 1,2 as follows:

Cold water injection volume	Bit 7	Bit 6	Decimal value
Off	0	0	0
High	0	1	32
Medium	1	0	64
Low	1	1	96

Add the specified decimal value to the Ingredient type to achieve the wanted dispense temperature .

Quantity: Quantity of the ingredient to dispense. This property can be changed in the service menu "Quantities" -"Basic operation", within the limits given in the operator menu "Limits". This setting will be used for the actual dispensing. (0..1999) see list of ingredients for units.

Quantity def: Quantity of the ingredient to dispense. This property can be changed in the operator menu "Quantities", there is no limit to this setting. This setting will be used for calculating of the limits for the quantity setting. This setting must be identical with the Quantity setting at the download time.(0..1999).

Start time: The time from a push button is activated to the dispensing of the ingredient starts. Or the time from the brewer piston down movement in the brew cylinder starts to the dispensing starts. Depending of the Ingredient type.(0..255)

Preselection link: Defines the logical preselection button on which the ingredient is scaled. (1..12).

Small % Defines the % of the ingredient to be subtracted if the selected logic preselection button indicates a small portion.(0..255).

Large % Defines the % of the ingredient to be added if the selected logic preselection button indicates a big portion. (0..255)

In software versions with week codes from week 96-22 or greater there is 120 programme lines available for all beverage programmes. In earlier versions the limit is 80 programme lines.

Sample programme Wiener Melange:

```

MC5*33*37@33*0*110*110*0*1*20*20 11.0 g    FB Coffee    (FB powder 1)
MC5*34*37@34*2*50*50*0*0*0*0      50 ml    Water        (IN water 1 )
MC5*35*37@35*136*52*52*10*0*0*0    5.2 g    Chocolate    (IN powder 3 )
MC5*36*37@36*142*45*45*0*0*0*0     45 ml    Water        (IN water 3 )
MC5*37*37@37*134*50*50*10*0*0*0    5.0 g    Sugar        (IN powder 1)
MC5*38*37@38*140*55*55*0*0*0*0     55 ml    Water        (IN water 1 )
MC5*39*37@39*146*30*30*0*0*0*0     3.0 sec. Whipper (IN whipper 1)
MC5*40*37@40*148*30*30*0*0*0*0     3.0 sec. Whipper (IN whipper 3)
MC5*41*37@41*135*39*39*10*0*0*0    3.9 g    Whitener     (IN powder 2)

```

In the above example note that all IN ingredients is brewer triggered. The brew cycle of the FB coffee is started instantly, when the Wiener Melange push button is activated. When the piston starts moving down in the brew cylinder, the IN water 1 and 3 valves open and whipper 1 and 3 start. After 1 sec. the chocolate, sugar and whitener are dispensed. The 1 sec. delay allows the water to cover the mixing bowl before the powder is dispensed. The only ingredient, which can be scaled in the above programme is the FB coffee, it is linked to the logic preselection 1 button and will dispense 20 % more or less powder depending on the status of the preselection button.

**Linking programmes to selection buttons:**

In order to make a beverage programme run, when a selection button is activated, the machine must have information about the first programme line and the length of a programme. This information must be present for each of the 21 selection buttons available on the front panel of the vending machine. The buttons are given a unique number (0 to 20), as shown below.

**Table A**

Preselection 1	Preselection 2	Preselection 3	Preselection 4
0	1	2	3
4	5	6	7
8	9	10	11
12	13	14	15
16	17	18	19
20	C	MB	



These information's is set up in the following VIDTS record.

VIDTS record:

MC5\*Index\*38@Button no\*Starting line\*Length\*Top stop time

- Index: MC5 block no
- Button no: Selection button no, must be the same value as Index. (0..20)
- Starting line: First programme line of a programme. Reference to record MC5-37. (0..119)
- Length: Number of programme lines defined for the programme. (0..119)
- Top stop time: If the beverage linked to this programme line contains FB this value will define the top stop time in 0.1sec units, for the brewer.(0..255)

Note that the above record must be defined for all 21 selection buttons, otherwise funny things will happen.

Example:

If selection button 7 should be linked to the above sample programme for Wiener Melange, defining a top stop time of 5 sec. the record MC5-38 will look like this:

MC5\*7\*38@7\*33\*9\*50

### Setting beverage names and audit groups:

The name that will be displayed during the dispensing of the beverage and the audit group is set up in the following record:

VIDTS record:

PC6\*Button no\*Beverage name \*\*\*\*Audit Group

- Button no: Selection button no. (0..20)
- Beverage name: Text of max. 16 char, but only the first 13 will be displayed in operating mode. All 16 will be displayed in the menu system.
- Audit Group: If an audit group is set to 0 the corresponding selection button is deactivated . Group 22 activates undosed hot water, group 23 activates undosed cold water.(0..23)

Note that the above record must be defined for all 21 selection buttons

Example:

PC6\*7\*WienerMelange \*\*\*\*3

## Setting time relation and names for the ingredients:

32 different ingredient types are defined for the machine (see table below). For each type a time relation and a name is defined. The time relation describes the mass or volume delivered pr. sec for a given ingredient.

VIDTS record:

MC5\*Index\*36@Ingredient Type\*Time relation\*Name

Index:	MC5 block no. (0..31)
Ingredient type:	See definition in the table below. Must be the same no as Index. If a value of 128 is added to the ingredient type the dispensing of the ingredient will be synchronised with the brewer, referred to as brewer trig, see "Beverage Programme" for details.(0..31)
Time relation:	Mass or volume dispensed pr. time unit or tacho pulse, depending on the ingredient type, see table below.(0..255)
Name:	Text of max. 16 characters, only the first 9 will be shown. this text will be used in the menu system.

Example:

MC5\*8\*36@8\*38\*Chokolade

Ingredient list:

**Table B**

Ingredient:	Ingredient type:	Ingredient type FB-brewer triggered:	Beverage programme Units	Time relation Units	VMC output
FB/ES Powder 1	0	-	0.1g	mg/tacho	Out bridge 2 + Out bridge 2 -
FB Powder 2 FB only!	1	-	0.1g	mg/tacho	Out bridge 3 + Out bridge 3 -
FB/ES Water	2	-	1 ml	ml/sec	FB:Out 24V 5 ES:Out 24V 6
Not used	3	-	-	-	
FB/LQ Whipper FB & LQ only !	4	-	0.1 sec *	sec/sec	Out 24V 6
Not used	5	-	-	-	
IN Powder 1	6	134	0.1g	mg/sec	Out 230V 1
IN Powder 2	7	135	0.1g	mg/sec	Out 230V 2
IN Powder 3	8	136	0.1g	mg/sec	Out 230V 3
IN Powder 4	9	137	0.1g	mg/sec	Out 230V 5
IN Powder 5	10	138	0.1g	mg/sec	Out 230V 7
Not Used	11	139	-	-	-
IN Water 1	12	140	1 ml	ml/sec	Out 24 V 1
Not Used	13	141	-	-	-
IN Water 3	14	142	1 ml	ml/sec	Out 24 V 3
IN Water 4 IN only !	15	143	1 ml	ml/sec	Out 24 V 5
IN Water 5 IN only !	16	144	1 ml	ml/sec	Out 24 V 2
Hot Water	17	145	1 ml	ml/sec	Out 24 V 4
IN Whipper 1	18	146	0.1 sec *	Sec/sec	Out 230V 4
Beep Delay	19	147	0.1 sec *	Sec/sec	-
IN Whipper 3	20	148	0.1 sec *	Sec/sec	Out 230V 6
IN Whipper 4 IN only !	21	149	0.1 sec *	Sec/sec	Out bridge 1 -
IN Whipper 5 IN only !	22	150	0.1 sec *	Sec/sec	Out bridge 1 +
Not used	23	151	-	-	-
Cold IN Water 1 FB & IN & ES only !	24	152	1 ml	ml/sec	IN,LQ: Out 24V 7 Out bridge 3 +  FB/ES: Out 24V 7
Cold IN Water 2 LQ & IN only !	25	153	1 ml	ml/sec	Out 24V 7 Out bridge 3 -
Cold IN Water 3  LQ & IN only !	26	154	-	-	Out 24V 7 Out bridge 2 +
Cold IN Water 4 LQ & IN only !	27	155	-	-	Out 24V 7 Out bridge 2 -
Cold IN Water 5 FB,IN,LQ,ES	28	156	-	-	Out 24V 7
Not used	29	157	-	-	-
Not used	30	158	-	-	-
Not used	31	159	-	-	-

\* Note that the unit for the whippers depends on the whipper time relation, the shown values is valid if the time relation is set to 10.



## Programming preselection buttons.

### Physical and logical buttons:

For each of the 4 preselection buttons the following VIDTS record is defined to control the operation of the buttons:

VIDTS record:

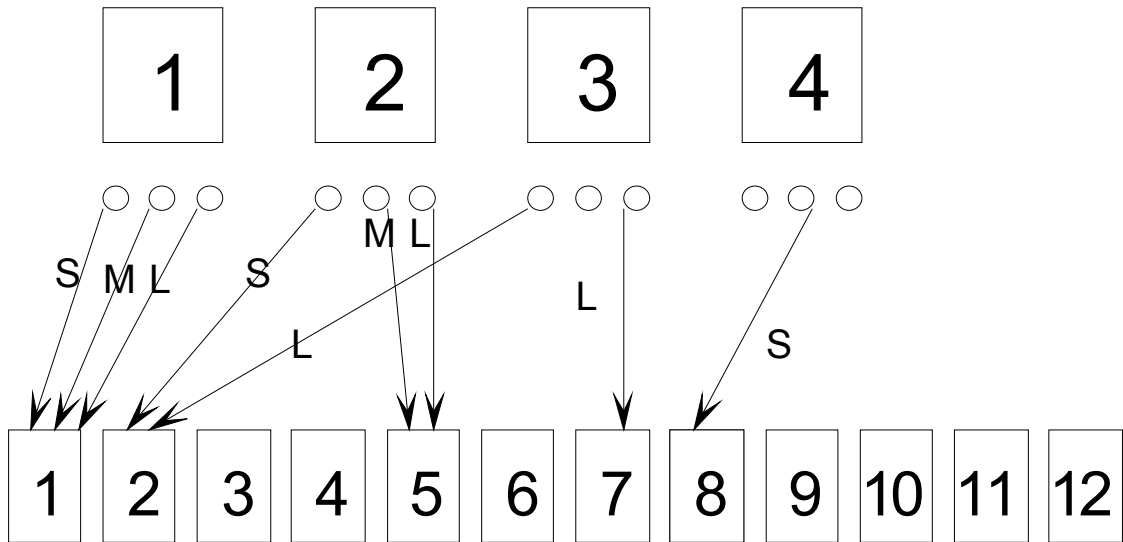
MC5\*Index\*43@Button no\*Mode\*Link 1\*Link 2\* Link 3\*Scaling 1 \*Scaling 2 \* Scaling 3

Index:	MC5 block no
Button no	Number of the button. (1-4 Left most button = 1)
Mode	<p>The mode of the preselection button decides in which way the 3 LED's are switched on and off, when the buttons are activated.</p> <p>5 modes are defined:</p> <p>Mode 0 :        The preselection button is off.</p> <p>Mode 1 :        The middle LED is toggled on / off when the button is activated. After reset the LED is off.</p> <p>Mode 2:         Toggles between the right and left LED when the button is activated. After reset the left LED is on.</p> <p>Mode 3:         LED's are shifted in the following sequence: middle, left, right. After reset the middle LED is on.</p> <p>Mode 4:         LED's are shifted in the following sequence: middle, left, right. After reset the middle LED is off.</p>
Link 1-3	<p>Link fields/references to the logical preselection buttons. (1-12)</p> <p><b>See description below !</b></p>
Scaling 1-3	<p>Defines the scaling (small/medium/large) to be used for the logical preselection button. (1=small,2=medium,3=large)</p> <p><b>See description below !</b></p>

The 4 physical preselection buttons are linked to an array of 12 logical/abstract preselection buttons. These logical preselection buttons are used for the actual ingredient scaling. For each of the physical preselection buttons, 3 positions, corresponding to the 3 LED's, are defined. For each of these positions, 2 properties are defined. The first is a link/reference to a logical preselection button (Link 1-3), this link field defines the logical preselection button to be affected, if the position (1-3) of the physical preselection button is active. A position for a physical preselection button is active if the corresponding LED is on. The second property (Scaling 1-3) defines the position (small, medium, large) of the logical preselection to be set, if the position of the matching physical preselection button is active.



Physical preselection buttons:



Logical preselection buttons

Figure B

Refer to figure b.

The physical preselection buttons is set to run in the following modes:

Button 1 = Mode 3  
Button 2 = Mode 3  
Button 3 = Mode 2  
Button 4 = Mode 1

The Link fields For the buttons are set as follows:

Button 1: Link1=1, Link2=1, Link3=1  
Button 2: Link1=1, Link2=5, Link3=5  
Button 3: Link1=2; Link2=x, Link3=7  
Button 4: Link1=x; Link2=8, Link3=x

x= don't care, the position can not be activated due to the mode of the physical preselection buttons.  
The Link Size field are set as follows:

Button 1: Scaling 1=1, Scaling 2=2, Scaling 3=3  
Button 2: Scaling 1=1, Scaling 2=2, Scaling 3=3  
Button 3: Scaling 1=3, Scaling 2=x, Scaling 3=3  
Button 1: Scaling 1=x, Scaling 2=2, Scaling 3=x

x= don't care, the position can not be activated due to the mode of the physical preselections.  
1=small, 2=medium, 3=large

The physical preselection button 1 is set up in one of the most common used configurations. When the left most LED of the physical preselection 1 is on, a message is send to the logical preselection button referred to in the Link field, in this case no 1, that it must switch to the small position (defined in the Scaling field). If the middle LED is on the message is: set logic preselection button 1 to the middle position. At last if the right LED is on the message is: set logic preselection button 1 to the large position. The other physical preselection buttons is set up in some strange ways, just to give an idea of the flexibility of the system.

The 4 VIDTS records for these settings will look like this:

```
MC5*0*43@1*3*1*1*1*1*2*3  
MC5*1*43@2*3*1*5*5*1*2*3  
MC5*2*43@3*2*2*2*7*3*3*3  
MC5*3*43@4*1*8*8*8*2*2*2
```

**Remember that the beverage programmes refers to the logical preselection buttons and not the physical preselection buttons.**



## Setting the volume scale preselection button:

It is possible to define 1 of the 12 logic preselection to function as a volume scaling button that scales all the ingredients at the same percentage, this is used for the “Cup Size” function. The scaling percentage set for this button is used for both the small and large scaling. This scaling percentage is added to the individual ingredient scaling.

VIDTS format:

```
MC5*LAST*35@0***Quantity scale*Quantity scale button*****
```

Quantity scale                      The large/small scaling percentage used for scaling the beverage.(0..50)

Quantity scale button              The link to the logical preselection button to be used for the volume scale function.(1..12)

Example:

```
MC5*LAST*35@0***25*5*****
```

## Controlling the display

The display will show a lot of information such as beverage to be dispensed, scrolling commercial, credit, errors etc. This section describes how the display can be configured and the priority between the different groups of messages.

Message types in order of priority:

1. High priority messages.
2. Multi brew info.
3. Display of selected beverage.
4. Credit info.
5. Error messages.
- 6 Date and Time.
7. Roll texts.
8. Low priority messages.

A message of a given priority will over write any message of lower priority. A message can be written to either the upper, lower or both display lines. To which line in the display a certain message is written, is controlled by 2 bytes called display masks. Each bit of the display masks corresponds to one of the 8 message types. A message type for a given line is turned on if the corresponding bit in the display mask is set to 1.

VIDTS record:

```
MC5*LAST*35@0*****Display mask 1*Display mask 2***
```

Display mask 1	Bit mask for the upper display line.(0..65535)
Display mask 2	Bit mask for the lower display line.(0..65535)

### Bit layout for the display masks:

Bit 0:	Error messages.
Bit 1:	Credit info.
Bit 2:	Date and Time.
Bit 3	Selection
Bit 4:	Scrolling text.
Bit 5:	Multi brew info.
Bit 6:	High priority messages.
Bit 7:	Low priority messages.
Bit 8:	Delivery bar indicator.
Bit 9:	Delivery cup indicator.

As a higher priority message over writes all messages with lower priorities, care should be taken when defining these display masks. It might be a bit of a puzzle to make all these messages interact in a proper and non confusing way.

**Table C**

<b>Message type:</b>	<b>Displayed texts:</b>	<b>Text length: max. no of characters</b>
High priority messages	Please wait ! Insert cup ! Insert pot ! Sold out !	12
Multi brew info.	Pot no : {XX}	9
Display of selected beverage	Example: Coffee black	12
Credit info.	If BDV or EXEC: Credit : {XXXX} Price: {XXX}	8 If the credit is 100.00 or greater the 8'th char. will be truncated
	If Price line: Please wait ! Insert money Select drink	12
Error messages	Undefined water level low Temperature low Heater error Brewer error Battery low Energy save Insert cup Grinder error Remove cup Bucket full Exact change! Door open ! FB Assembly Int. error FB filter plate Water leak. Temp high No water flow	12
Date and Time	Year.Date.Month Week day.Hour.Minute	Not definable by user.
Roll texts	Free definable text	Max.240
Low priority messages	Free vend Insert money	12

## Scrolling commercials:

It is possible to define 2 texts for scrolling commercials. One displayed during the normal operating mode and one displayed within a happy hour period. The maximum number of characters is 240. Note that leading blank characters are not added automatically by the machine. In order to make the display of the scrolling texts look nice the first and last 13 characters should be blanks. Because of limitations in the protocol this text is split up in blocks of 16 characters.

VIDTS record:

MC5\*Index\*40@Block no@Text block ( Text during the normal operating mode)  
MC5\*Index\*45@Block no@Text block ( Text during a happy hour period )

Index: MC5 block no  
Block no Text block no. Must be the same as Index. (0..14)  
Text block Text block of 16 characters. If less than 16 characters are defined, the block is considered the last block.

Example:

```
MC5*0*40@0@ -- Fres  
MC5*1*40@1@hbrewed Coffee -  
MC5*2*40@2@ Chocolate - Cho  
MC5*3*40@3@comilk - Cappucc  
MC5*4*40@4@ino - Cappuccino  
MC5*5*40@5@ - EspressoChoco  
MC5*6*40@6@ - Hot water --  
MC5*LAST*40@7@
```

## Display messages:

The following VIDTS record is used to define the messages given in table c

VIDTS record:

MC5\*Index\*41@Text no@Text

Index:	MC5 block no.(0..13)
Text no	Text no Must be the same as Index.(0..13)
Text	Text of max. 16 characters. Note that depending on the type of the text not all 16 characters will be displayed. See table c

Example:

```
MC5*0*41@0@Not used !
MC5*1*41@1@Select new drink
MC5*2*41@2@Not used !
MC5*3*41@3@Service mode !
MC5*4*41@4@Please wait !
MC5*5*41@5@Error,remove cup
MC5*6*41@6@Price :
MC5*7*41@7@Credit:
MC5*8*41@8@Pot. No:
MC5*9*41@9@Not used !
MC5*10*41@10@Insert Cup
MC5*11*41@11@Insert Pot
MC5*12*41@12@Free vend
MC5*13*41@14@Select drink
MC5*14*41@13@Insert money
MC5*15*41@13@Sold out !
```

## Error Texts :

The following VIDTS record is used to define the error texts given in table c

VIDTS record:

MC5\*Index\*40@Text no@Text

Index:	MC5 block no.(0..18)
Text no:	Text no Must be the same as Index.(0..18)
Text :	Text of max. 16 characters. Note that depending on the type of the text not all 16 characters will be displayed. see table c.

Example:

```
MC5*0*42@0@Unknown err.  
MC5*1*42@1@Water l. low  
MC5*2*42@2@Temp. low  
MC5*3*42@3@Heater error  
MC5*4*42@4@Brewer error  
MC5*5*42@5@Battery low  
MC5*6*42@6@Energy save  
MC5*7*42@7@Not used !  
MC5*8*42@8@Valve error!  
MC5*9*42@9@ Not used !  
MC5*10*42@10@Bucket full  
MC5*11*42@11@Exact change  
MC5*12*42@12@Door open !  
MC5*13*42@13@FB assembly  
MC5*14*42@14@Internal err  
MC5*15*42@15@Motor error  
MC5*16*42@16@Whipper err.  
MC5*17*42@17@Filterplate!  
MC5*18*42@18@Valve leak!
```

## Water Tank settings

### Temperatures:

The temperature of the water tank is controlled by the following record.

VIDTS record:

MC5\*LAST\*33@0\*Day nominal temp\*Day unlock temp\*Day lock temp.\*Night nominal temp.\*Hysteresis

Day nominal temperature	The average day temperature in the water tank. This is not the max. temperature in the water tank, The peak value of the water tank is 2-3 deg. higher than the average temperature.(0..99)
Day unlock temp	If the machine has been inhibited, the temperature must raise to this temperature before the machine is enabled. (0..99)
Day lock temp	If the temperature drops below this temperature, the machine inhibits.(0..99)
Night nominal temp	The average temperature in energy saving mode. (0..99)
Hysteresis	Definition of the temperature hysteresis. If this is set to 1 and the temperature is set to 94 °C, the heater will switch on at 92 °C and off at 95°C. This value should not be smaller than 1, as it will cause the heater relay to toggle a lot.

The temperature overshoot is due to the inertia of the temperature sensor and the hysteresis. Care should be taken if the nominal temperature is set to more than 94 °C as the max. temperature will be about 97 °C due to the overshoot. The deviations of the atmospheric pressure will cause boiling temperature to vary +/- 1°C. If the machine is calibrated at a high atmospheric pressure the machine will measure 1°C less than the real temperature. When the atmospheric pressure now drops the boiling temperature of water drops 1 °C. **Now the water in the water tank boils and the controller measures only 98 °C !!!**.

For the ES model only the nominal day and night temperatures are used.

Example:

MC5\*LAST\*33@0\*94\*85\*80\*65\*2

## Energy Saving Periods

It is possible to define up to 7 energy saving periods for the machine. In these periods the temperature will be shot down to the temperature defined in the MC5-33 record. Actually it is not the energy saving periods that is defined, but the active periods in which the machine will operate normally. The period between two active periods are considered energy saving periods.

VIDTS record:

EC2\*EGS@Period no\*Day\*Hour\*Minutes\*\*Duration

Period no	The period number (0-6)
Day	The start day of the period. (mo.=0;su.=6;all days=7)
Hour	The start hour of the period (0-23)
Minutes	The start minute of the period (0-59)
Duration	The duration of a period in minutes. This may exceed 1 day. The max is 1 week. If the value is 0 the period is considered off. A period definition must not exceed sunday midnight. Thus a definition from friday - tuesday is illegal.(0..10080)

Example:

EC2\*EGS@0\*7\*0\*0\*\*1439

## Leak detector

The leak detector sums up the time the inlet valve is open between the dispensing of two beverages. If this time exceeds the defined value, the machine is inhibited, the leak error is set and the inlet valve is closed.

VIDTS record:

MC5\*LAST\*44@0\*\*Water leak time\*\*\*\*\*

Water leak time	Allowed water inlet time before the leak error is set. The unit of this value is 10ms (100=1 sec.). (0..65535, 0.. app. 11 minutes)
-----------------	--

Example:

MC5\*LAST\*44@0\*\*1000\*\*\*\*\*



## Setting the brewer profile

### Brew cycle

A brew cycle can be split up in the following steps (initial position = near closed) :

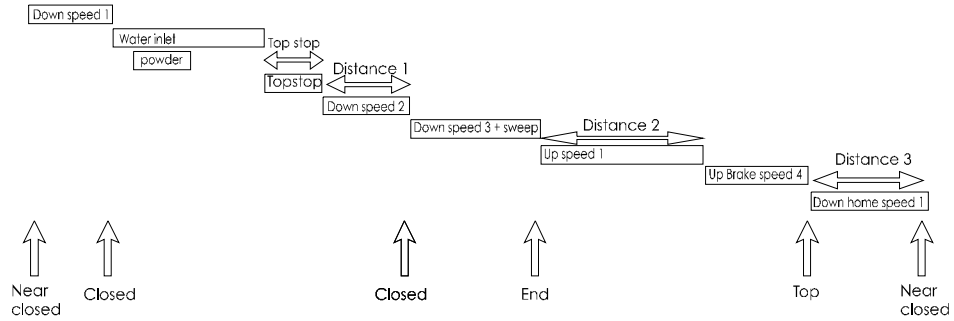
1. Cylinder closes
2. Water inlet start
3. Powder dosing
4. Water inlet stop
5. Delay, top stop time/infusion time
6. Piston down
7. Piston up
8. Cylinder opens
9. Scraper moves
10. Cylinder closing, stops in the near closed position

figure c shows the data for the brewer profile that can be freely defined ( VIDTS upload ). Note that step 6 is divided into 2 steps where the speed can be changed/reduced after running a distance (distance 1) into the cylinder. This is necessary because of the rising pressure inside the cylinder as the piston moves down. For the second distance in the cylinder, a sweep can be defined, in this case the speed figure gives an initial value for the speed, which is decremented after a given number of tachometer pulses (sweep definition). If the sweep definition equals 0, no sweep is performed and a steady speed given in the speed figure is used. When the piston runs back and the brewer opens the speed can be changed after a given distance (distance 3). This feature is used to reduce the speed of the brewer during the last part of the movement of the scraper, in order to prepare the brewer for stopping at the shortest possible distance. Finally, the home position of the brewer can be defined by changing the distance 3.

In figure c two examples of brewer profiles are shown. The first example shows a sweep profile, the advantage using this profile is that the pressure in the brewer is low and steady during the coffee delivering. This means that the coffee can be delivered with almost no splashes in the cup. This is specially important when a coffee whipper is used. The disadvantage of this profile is a lower yield from the coffee compared to the second profile and that the brew cycle becomes about 2 sec. longer. The second profile uses a steady speed when the coffee is delivered, this means that the brew pressure rises during delivery and thus makes a quicker and more splashy delivering, but with a higher yield and power consumption.



# 5100 Brew cycle specification



Free definable parameters :

Speed 1,2,3,4: (ms/tacho)

sweep: (no of tachos between speed decrements,  
0= no sweep, lowest sweep speed = 15 ms/tacho)

Distance 1,2,3: (mm)

Top stop: (sec)

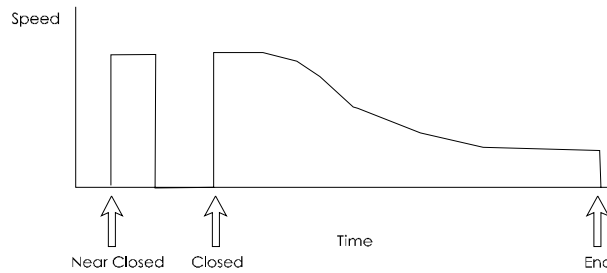
## Profile implementation

Profile 1:

Speed = 2,2,2,7  
Sweep = 70  
Distance = 0, 140, 45

Performance (120 cc cup) :

Cycle time = 25,5 s  
Water coffee contact = 12,0 s



Profile 2:

Speed = 2,4,7,7  
Sweep = 0  
Distance = 45, 140, 0

Performance (120 cc cup) :

Cycle time = 24,5 s  
Water coffee contact = 12,5 s

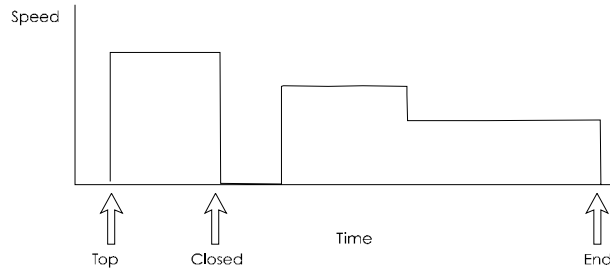


Figure C

VIDTS record:

MC5\*LAST\*47@0\*Speed 1\*Speed 2\*Speed 3\*Speed 4 \*Sweep def.\*Distance 1\*Distance 2\*Distance 3

Speed 1,2,3,4

Speed definitions, see the above description.

Sweep def.

Sweep definition, see the above description.

Distance 1,2,3

Distance definition, see the above description.

Example:

MC5\*LAST\*47@0\*2\*2\*2\*8\*70\*0\*140\*3

## Payment settings

### Payment type

Setting the payment type (protocol) and payment mode is defined in the following record.

VIDTS record:

```
MC5*LAST*34@0*Payment type*****Price mode***
```

Payment type	Type of payment system. 0=no payment system 1=Executive 2=BDV 3=2-price line interface. 4=MDB.
--------------	---

Price mode	Mode of the payment system. 0=Real 1=Index
------------	--

If the Mode is set to real the real price is sent to the payment system, and the price setting is done in the machine. If the mode is set to index, the price setting in the machine must be set to a price number used by the payment system to calculate the price. Thus, the prices are held in the payment system and not in the machine. Be aware that all windows in the menu system concerning amounts are masked off in the index mode. The mode setting is a “don’t care” setting if the 2-price line setting is chosen. In this mode all windows in the menu system concerning amounts are masked off.

Example:

```
MC5 *LAST* 34@0* 1 ***** 0***
```

### BDV/MDB settings

If a BDV payment system is chosen the following additional settings will be available.

VIDTS record:

```
MC5*LAST*01@0*Coin inh.*Low change inh.*Multi vend*Obligation to buy*Exact change eq.*Key board inh*Max credit*Max change*Exact change offset
```

Note that only coin 1-8 can be programmed for the Coin inh and Low change inh. Settings. (value=0 –255)

See BDV specification for the actual payment system.

For the MDB/ICP protocol the following can be set:

VIDTS record:

MC5\*LAST\*34@0\*\*\*\*\*ZKA mode\*Show MDB texts

ZKA mode

0=off

1=on

When this option is on a credit of 9999.99 can be displayed. When off only 999.99 can be displayed

Show MDB texts

0=off

1=on

When this option is on the 5100 display information will be over written if a MDB card reader sends display info.

Example:

MC5\*LAST\*34@0\*\*\*\*\*1\*1

## Decimal point

This setting is used for setting the decimal point in the credit display and in the menu system. This setting is controlled by the payment system. Setting the decimal point by VIDTS will not have any effect if the payment system is running.

## Setting prices

The product prices are set up in the PC1 record.

VIDTS record:

PC1\*Index\*Price

Index

The product no see table a.(0..20)

Price

The product price. Decimal point must not be included.  
If the price is 14.45 the value should be 1445.(0..99999)

Example:

PC1 \* 0 \* 1

## Free vend

The machine can be switched into the free vend mode by sending this record.

VIDTS record:

MC5\*LAST\*34@0\*\*\*Free vend\*\*\*\*\*

Freevend

1=Freevend

0=Payed vend

Example:

MC5\*LAST\*34@0\*\*\*1\*\*\*\*\*

Free vend of one or more individual products can be achieved by setting the product price to 0.

## Price mode

The price mode setting defined whether real prices are transferred to the payment system or a price number, used by the payment system as an index to the payment systems internal price table. If this "Index" mode is used, the price setting must now be programmed to hold a price no and not the real price. All windows in the menu system concerning amounts are not shown and the decimal point will not be shown in the price setting window.

VIDTS record:

```
MC5*LAST*34@0*****Price mode***
```

Price mode	0 = Real prices
	1 = Index (price no)

Example:

```
MC5*LAST*34@0*****0***
```

## Special Audit

The way the 100% key or happy hour discount is audited can be changed using the special audit function. A 100 % discount vend will be counted in the No.free counter under "basic operation" and in the totals counter. The vend is not counted in the total discount counter. This special audit function is activated by uploading the following VIDTS record:

VIDTS record:

```
MC5*LAST*34@0*****Special Audit**
```

Special Audit	0 = Special audit off
	1 = Special audit on

Example:

```
MC5*LAST*34@0*****1**
```



## Discounts

It is possible to set up a time period based discount, referred to as Happy Hour discount, and a discount given when the key on the selection panel is activated, referred to as Key discount. The following record sets up these 2 discount types.

MC5\*LAST\*34@0\* \*Key discount\*\*\*Happy hour discount\*\*\*\*

Audit Mode	If set to 1 a discount of 100 % is audited as a freevend.
Key discount	Defines the discount % given. Valid range: 0 - 100 %
Default cups for multibrew	0..16
Happy Hour discount	Defines the discount % given. Valid range: 0 - 100 %

Example:

MC5\*LAST\*34@0\*1\*100\*\*\*50\*\*\*\*

Up to 3 Happy Hour periods can be defined using the following record.

VIDTS record:

EC2\*HPH@Period no\*Day\*Hour\*Minutes\*\*Duration

Period no	The period number (0-2)
Day	The start day of the period. (mo.=0;su.=6;all days=7)
Hour	The start hour of the period (0-23)
Minutes	The start minute of the period (0-59)
Duration	The duration of a period in minutes. This may exceed 1 day. The max is 1 week. If the value is 0 the period is considered off. A period definition must not exceed sunday midnight. Thus a definition from friday - tuesday is illegal. (0..10080)

Example:

EC2\*HPH@0\*7\*0\*0\*\*1439

## Machine maintenance

### Rinse Request

VIDTS record:

MC5\*LAST\*35@0\*\*\*\*\*Rinse req. interval\*Rinse req action

Rinse req. interval	No of vends before a rinse request occurs (0..10000)
Rinse req. action	0=off 1=Display only (Warning shown in the display, vending continues) 2=Stop vending (Warning shown in the display, vending is inhibited)

### Empty canister detection

VIDTS record:

MC5\*LAST\*44@0\*\*\*Canister 1 weight\* Canister 2 weight \* Canister 3 weight \* Canister 4 weight \*  
Canister 5 weight \*\_Canister 6 weight \* Canister empty %

Canister x weight	The full weight of the canister in Kg. (steps of 0.1 Kg i.e. a value of 18 = 1.8 Kg). The maximum value is 2.9 Kg. Canister positions are mapped as follows:  Canister 1 = FB Canister 2 = IN1 Canister 3 = IN2 Canister 4 = IN3 Canister 5 = IN4 Canister 6 = IN5
Canister empty %	The percentage, of powder left in the canisters, at which the canisters will be reported empty (1-99). If this setting is set to 0 the empty detect function is switched off. The percentage will be used for all the canisters. However, this percentage may be set individually for each canister, but this is only possible from the menu system.

## Miscellaneous settings

This section describes miscellaneous settings of low complexity. Please refer to the service manuals for further information.

### Clock

VIDTS record:

```
MC5*LAST*35@0*****Clock**
```

Clock Turns the clock function on/off. (0=off;1=on)

Example:

```
MC5*LAST*35@0*****1**
```

### Cup sensor

VIDTS record:

```
MC5*LAST*44@0*Cup sensor*****
```

Cup sensor Turns the cup sensor on/off. (0=off;1=on)

Example:

```
MC5*LAST*44@0*0*****
```

### SPC beep

No VIDTS record is implemented for setting the SPC beep on/off.

### Multibrew

VIDTS record:

```
MC5*LAST*35@0*Multibrew*****
```

Multibrew Turns the multibrew function on/off and sets the max. no of cupe available for the multi brew function.  
0=OFF  
1..99 = max cups.

Example:

```
MC5*LAST*35@0*1*****
```

VIDTS record:

MC5\*LAST\*34@0\*\*\*\*Default cups\*\*\*\*\* Sets the default no of cups for multibrew (1..15)

Example:

MC5\*LAST\*34@0\*\*\*\*5\*\*\*\*\*

## Machine type

VIDTS record:

IC1\*Machine type

Machine type Text string of 8 characters identifying the machine configuration.

Example:

IC1\*UK\_00035

## Password

No VIDTS record is implemented for setting the password.

## Language

VIDTS record:

IC4\*\*Language

Language Defines the language shown in the menu system  
(0=UK;1=NL) .

Example:

IC4\*\*0

## Hardware ID

VIDTS record:

MC5\*LAST\*35@0\*\*Hardware id\*\*\*\*\*

Hardware id.

Identifies the machine type in which the programme is running. (2=FB5100; 3=IN5100; 4=ES5100). Note that if this value is not defined, the machine will start but continue to show "Please wait" in the display. It is very important that this value is set correct. If wrong, the machine may damage brewers, valves etc.

Example:

MC5\*LAST\*35@0\*\*2\*\*\*\*\*

## User limits

VIDTS record:

MC5\*LAST\*46@0\*Limit valve\*Limit whipper\*Limit powder

Limit valve/whipper/powder

Sets the max. scaling percentage, relative to the ingredient definition, for the ingredient adjustment in the "Basic operation - Quantities" window.(0..99)

Example:

MC5\*LAST\*46@0\*20\*20\*20

## Defining download records

By default only records concerning audit are down loaded (using the download function). This can be changed by specifying the records to be down loaded. This is done by up loading the SD1 record. This setting is stored during power down.

VIDTS record:

SD1\*\*\*Record(1), Record(2), ..., Record(n), \*

Record(n)

The record id for the record to be downloaded. If "ALL" is defined, all records will be downloaded. In this case, no further records must be defined.

Example:

SD1\*\*\*MA5\_33, ID1, EGS, PA1 \*  
SD1\*\*\*ALL\*