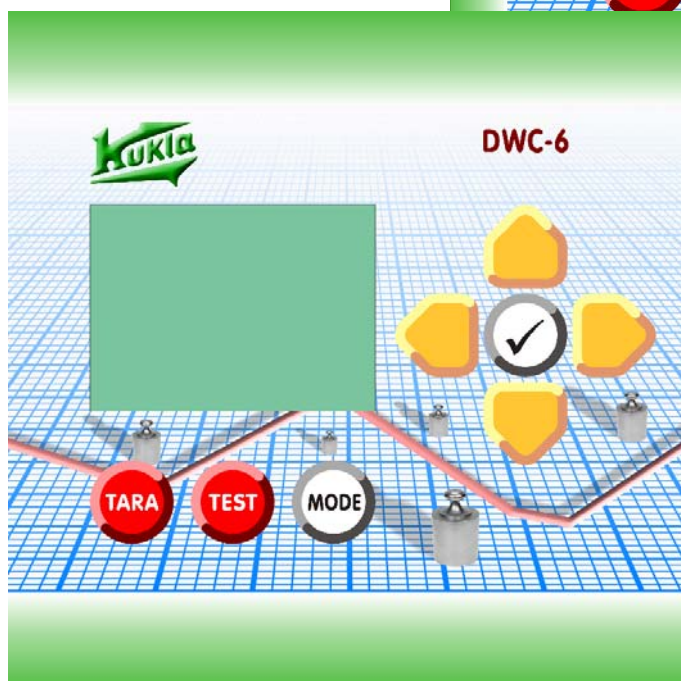
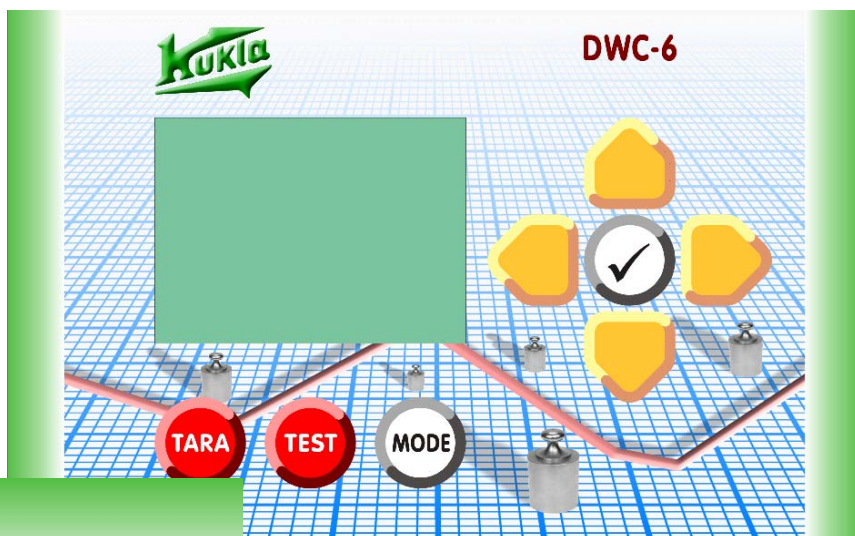


Weighing computer

Service Instructions Parameterizing T2

DWC-6



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Plug connections DWC-6-device
Dimension sheet DWC-6

Software indication

These instructions are based on Software version P01.26

In course of the technical progress changes can be carried out at the software. At subsequent software versions therefore only negligible deviations are possible against these instructions.

***** SAFETY REGULATIONS *****

Being under voltage the device must not be opened. Danger of electric shock exists. Service works at the weighing equipment are permitted only for qualified personnel. In case of works at the weighing belt the drive must be switched off.

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Parameterizing of the weighing computer DWC-6

These instructions exclusively describe the parameterizing of the weighing computer.

1 General description / Service information

In order to reach the parameterizing mode, the switch PA at the rear side of the device must be turned upwards from normal operation.

In the parameterizing mode the adjustment of the weighing electronics to the scale's parameter is made.

The evaluation unit is provided with a foil keyboard with 8 keys (Push-buttons).

The two red keys „TARE“ and „TEST“ in general serve for calling the functions of the same name.

Key „MODE“ in general serves for calling the menu structure or returning to it.

The arrow keys „UPWARD“ and „DOWNWARD“ are used for (vertical) moving of the cursor or for changing a number. The arrow keys „LEFT“ and „RIGHT“, however, are used for horizontal moving of the input-cursor.

The key with the checkmark is called key „OK“ and serves for confirming inputs.

In singular cases individual keys may be allocated by special functions, which are described either in the display or in the operating instructions.

At DWC-6AF on the rear side of the device there is a small switch which activates the parameterizing level. At DWC-6AW this switch is in the cable socket.

The manufacturer recommends handling of the parameterizing level only by qualified staff. .

Many parameters have standard adjustments and have to be changed only as an exception.

Numerical parameters are provided with limits. In case of trying to adjust values beyond these limits a selected value is self-adjusting.

1.1 Parameter printout

Along with each Kukla-system a parameter printout is supplied within the documentation. By comparing the parameters it can be stated if parameters have been changed. Thereby is to observe that the value of the test weight as well as the AD-Span at material test or test with test weight (test load) can be changed by the system itself.

2 Parameter menu

```
+PARAMETER      +
> SPRACHE/LANGU
  DATA INPUT
  ActualParamet
  WEIGHING CHANNEL

  KUK-Setup
  EXIT->MODE
```

PARAMETER MAIN MENU:

The input arrow can be moved upward or downward with keys „UPWARD“ and „DOWNWARD“ (??). The menus are selected one after the other by pressing the arrow-keys.

The menu selected at a time is provided with key <OK> (?)..

3 Adjustment of operating language

```
+ SPRACHE/LANGU+
>#German
  English
. French
  Italiano
  Espanol

  EXIT->MODE
```

Language selection:

Here the selection of the system language requested is possible.

The selection is done with arrow keys „UPWARD“ and „DOWNWARD“ (??) and has to be taken over with <OK> (?)..

4 "Data input"

The adjustment of the most important scale-specific parameters is done in menu point "Data input".

Should a totally new adjustment be done, a cold start (page 16) has to be carried out before selecting "Data input".

After calling "Data input" the actual adjustment is leafed through with key <MODE> and can thereby be changed.

If an impermissible figure is adjusted, a pre-defined value is adjusted.

The course at "Data input" is as follows:

```
+ Serial number +

      8312
      ^
.
Act      2500
Min      2000
Max      19999
  EXIT->MODE
```

Serial number:

The serial number serves for internal administration of information at the manufacturer's works and has to be indicated with each contact in order to clearly identify the system.

By pressing key „MODE“ the next picture is selected.

+ Nominal capacity

```

      100000 kg/h
      ^
.
Act    100000
Min     0
Max   10000000
EXIT->MODE

```

Nominal capacity (kg/h):

The nominal capacity corresponds to the calculated nominal conveying range of the scale.

+ Rated frequency +

```

      50 Hz
      ^
.
Act     50
Min     5
Max    1000
EXIT->MODE

```

Rated frequency (Hz):

If the number of impulses per second parameterized here is measured at the tacho input, this corresponds to 100% material conveying speed (usually this parameter should correspond to the indicated tacho frequency).

+ Speed+

```

      100 mm/s
      ^
.
Act     100
Min     1
Max   65000
EXIT->MODE

```

Speed (mm/s):

This parameter corresponds to the absolute belt speed in mm/s at a conveying speed of 100 %.

+ Belt length .+

```

      20000 mm
      ^
.
Act    20000
Min     10
Max  10000000
EXIT->MODE

```

Belt length (mm):

This parameter serves for calculating the belt revolution time. By that also the duration of TARE- and TEST-process is calculated.

+ Min load .+

```

      20.0 %
      ^
.
Act    20.0 %
Min     0.0 %
Max   100.0 %
EXIT->MODE

```

Min load / Threshold (%):

If the actual material load (g) is falling under this value, the status / error message Min-Limit is activated.

+Belt empty .+

```

      4.0 %
      ^
.
Act    4.0 %
Min     0.0 %
Max   50.0 %
EXIT->MODE

```

Belt empty (%):

If the actual material load (g) is falling under this value, the status / error message „Belt empty“ is activated and the counting is deactivated.

For TARE and TEST with TEST WEIGHT the load has to go below this value!

```

+DisableCount  .+
                2.0 %
                ^
Act            2.0 %
Min            0.0 %
Max           10.0 %
EXIT->MODE

```

DisableCount (%):

If the effective material load (g) falls below this value, the counting is disabled.

```

+TestWeight TW .+
                60.00 %
                ^
Act           20.00 %
Min            0.00 %
Max          150.00 %
EXIT->MODE

```

Test weight (%):

The test weight serves for easy checking of the scale. At the test with test weight this value should be achieved. If not, the deviation to the actually measured weight can be determined.

```

+ITG-Speed      .+
                20
                ^
Act           20.00 %
Min            0.00 %
Max          150.00 %
EXIT->MODE

```

ITG-Speed (Averaging Speed):

With this parameter a damping of the speed measuring is done. Depending on the tacho frequency adjusted an average for speed is made several times per second.
(e.g.: tacho frequency = 50Hz, ITG-Speed = 20 → 50Hz/20 = 2,5
At frequency of 50Hz and ITG-Speed of 50Hz per second 2,5 times a new speed value is made.)

```

+ITG-Load       .+
                5
                ^
Act              5
Min              0
Max             100
EXIT->MODE

```

ITG-Load (Averaging Load):

This parameter allows a smoothing of the weight signal and is functionally similar to the foregoing parameter.

```

+Tacho - Sim  +
                0 Hz
                ^
Act              0
Min              0
Max             1000
EXIT->MODE

```

Tacho-Simulation (Hz):

By input of a positive value a tacho signal can be simulated. This possibility serves for checking the scale or for simulation of a tacho at bulk stream measuring devices.

Attention: A simulation is only done, if the input message „Belt runs“ is activated !

It is not allowed to connect additional tacho impulses during an active simulation.

- Offset / Span -> SEE WEIGHT MEASURING / WEIGHING CHANNEL Calibration (page 10)

+Bus-AddressDP+

```

          126
          ^
.
Act      126
Min      1
Max      126
EXIT->MODE

```

Bus-AddressDP:

Here the Fieldbus-Address is adjusted.

If the Fieldbus is not used, 126 should be adjusted.
In this case all Bus-Routines are deactivated.

See details for operation of a Fieldbus-connection in the Fieldbus manual.

5 ACTUAL PARAMETERIZED

In this menu all parameters are represented acc. to PA-list. . They cannot be changed.

+ Nom. capacity +

```

          100000 kg/h
          ^
.
Min      0
Max      10000000
NEXT-> OK
EXIT->MODE

```

ActualParam.:

Key „OK“ calls the next parameter.
With key „MODE“ the menu can be left prematurely.

6 Weight measuring / Weighing channel calibration

A continuous scale generally always has to detect material weight and material speed as precise as possible in order to guarantee an accurate performance measurement.

Thereto the mV-signal transmitted by the load cell is converted into a numerical value with the help of a high-resolution AD-converter.

In order to detect the mere material weight, the tare weight existent throughout (e.g. rollers, conveyor belt, fastenings, etc.) must not be included in the calculation. This is called blank value or Offset.

6.1 Manual calibration of OFFSET and SPAN

```
+WIEGEKANAL      +
  Einmessen
> Offset
  Span
  LinTab1
  LinTab2

EXIT->MODE
```

: With „Calibration“ a semi-automatic routine for pre-setting the measuring range can be selected.

The menu points „Offset“ and „Span“ permit a manual adjustment of both values with the arrow keys..

6.2 Calibration OFFSET

For semi-automatic calibration of OFFSET the weighing bridge must be empty, the test weight must not be laid on.

In order to calibrate the weighing channel, select menu „Weighing channel“ and then „Calibration“ First always „OFFSET“ and then „SPAN“ has to be calibrated .

The error message "A/D-Error" is activated under 1000 resp. over 40.000

```
OFFSET/SPAN SETUP 40
          AD=16571
>0<  -> OFFSET 11413
TEST  -> SPAN   30000

          g1= 17.1%
EXIT->MODE
```

: The value of „AD“ corresponds to the actual measured value.

With key „>0<“ the actual value in this picture can directly be taken over into the Offset value. Also the tare cells are described with this measured value.

If a weighing channel calibration is carried out, therefore also a subsequent taring is required (at running belt). The Offset value of 35.000 should not be exceeded.

6.3 Calibration SPAN

The SPAN can be calibrated with the test weight. Admissible range for "SPAN" = = 1.000 bis 39.500

6.3.1 Calibration with test weight

The percental load value with test weight must be deposited in parameter "**Test weight**" (data input).

To which load value the test weight is corresponding is indicated in the "Technical data".

Load weighing bridge with test weight.

The actual weighing channel (WC) measured value less the value "**OFFSET**" is extrapolated to the value **SPAN**" and stored.

OFFSET/SPAN SETUP 40	
AD=19182	
>0<	-> OFFSET 11413
TEST	-> SPAN 12948
g1= 60.0%	
EXIT->MODE	

:

With key „TEST“ the actual measured value of the test weight can be taken over into the Span-value. The Span-value thereby is automatically calculated to 100% measuring range.

6.4 Linearisation / DFM

The operation characteristic of a flow measuring in most cases is not linear but exponential. Therefore a linearisation is required.

In both tables LinTab1 and LinTab2 altogether 12 linearisation points for the measured load are offered (Lin (10%) – Lin (120%))

```
+LinTab1+
Lin  (10%):  0
>Lin  (20%):  0
Lin  (30%):  0
Lin  (40%):  0
Lin  (50%):  0
Lin  (60%):  0
EXIT->MODE
```

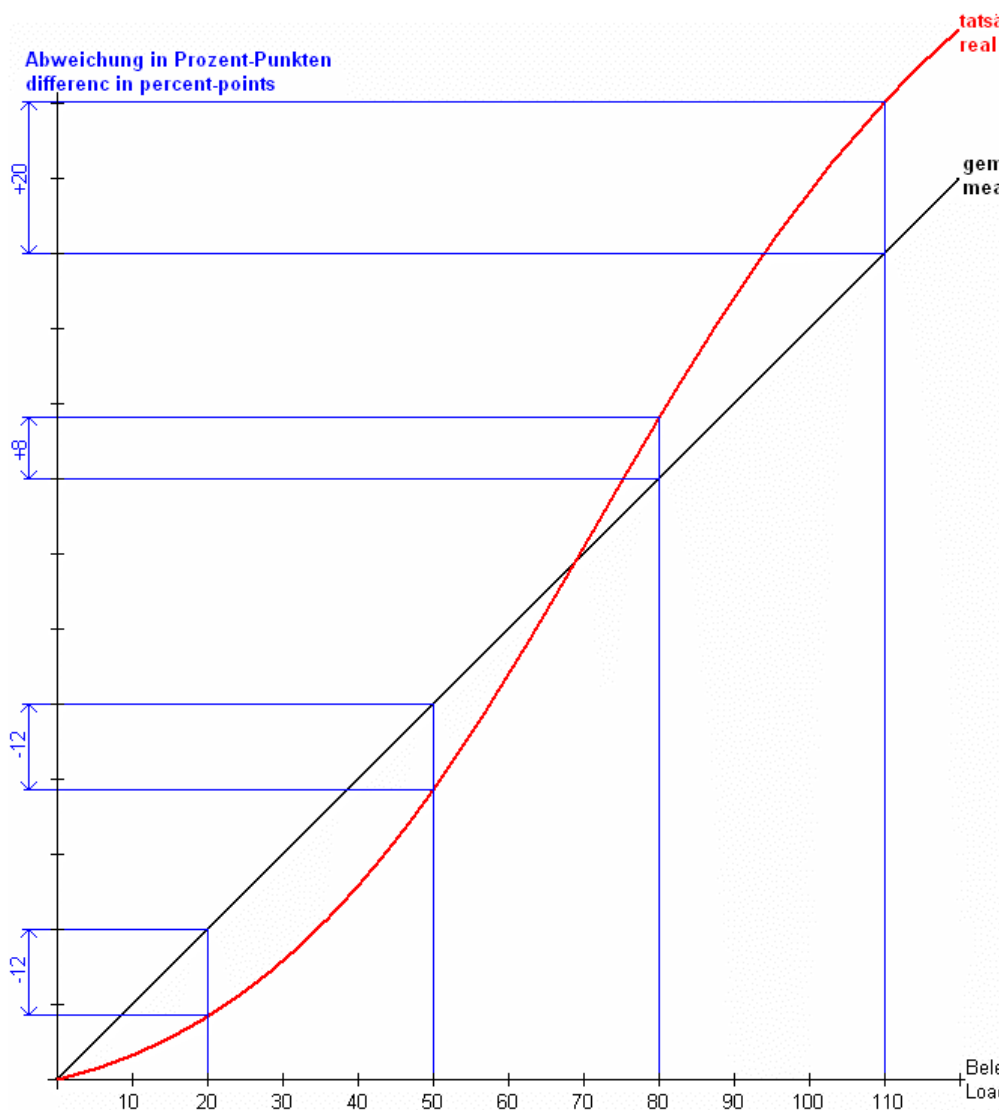
The values can be adjusted by pressing key LEFT resp. RIGHT to a value of -5000 up to 5000. This corresponds to a deviation of -50 up to 50 percentage points at the linearisation point.

The values of the deviations between two linearisation points are calculated by percental reliant average determination.

```
+LinTab2+
>Lin  (70%):  0
Lin  (80%):  0
Lin  (90%):  0
Lin  (100%):  0
Lin  (110%):  0
Lin  (120%):  0
EXIT->MODE
```

e.g.: at point **_Lin (10%)** there is a deviation of 5 %points. At point **_Lin (20%)** there is a deviation of 10 %points.

By that for the load values **a=12%, b=15%, c=18%** a deviation of: **a=6%, b=7,5%, c=9%** results.



7 KUK-Setup

The menu "KUK-Setup" permits access to standard- and special parameters in the form of a tree structure.

Thus, it is not necessary to call the parameters one after the other.

This sub-menu is above all meant for trained specialists and allows the call of special functions

```
+KUK-Setup      .+
> RATED DATA

  LIMITING VALUES
  IO- ADJUSTMENTS
  Test weight
  Serial number
EXIT->MODE
```

KUK-Setup:

All names written WITH A CAPITAL on their part call sub-menus in which then the effective parameters can be adjusted.

7.1 RATED DATA

```
+ RATED DATA .+
> Nom. capacity
  Rated freque.
  Speed
  Belt length

EXIT->MODE
```

RATED DATA:

In sub-menu Rated Data the parameters „Nom. capacity“, „Rated freque.“, „Speed“ and „Belt length“ can be adjusted

7.2 LIMITING VALUES

```
+ LIMITING VALUES
.+
> Min-Limit
  Max-Limit
  Belt empty
  DisableCount

EXIT->MODE
```

LIMITING VALUES:

In sub-menu Limiting Values the parameters „Min-Limit“, „Max-Limit“ and „Belt empty“ and „DisableCount“ can be adjusted.

The parameter „Max-Limit“ activates the status message of the same name, if the actual material load (g) is increasing over this value. Analogically thereto the parameters „MinLimit“ and „Belt empty“

activate as well the status messages of the same name in case of falling below these values.

7.3 IO-Adjustments

```

+-ADJUSTMENTS .+
> Analog output G
  DIGITAL-IO

  Bus-AddressDP

EXIT->MODE

```

IO-ADJUSTMENTS:

In sub-menu IO-Adjustments the parameters „Analog output“ and „Bus-AddressDP“ can be adjusted and the sub-menu „Digital-IO“ can be called..

7.3.1 ANALOG OUTPUT

```

+ Analog output +
># P      -> Out
  g      -> Out
  v      -> Out
  100%   -> Out
  DA-Offset
  DA-Span
EXIT->MODE

```

This parameter determines which value is written onto the Analog output:

P / Nominal capacity

g / Actual load

v / Actual speed

100 % simulation for purpose of test

In case of demand also the Offset- and Span-values can be adjusted..

```

+DA-Offset      +
                190
                ^
.
Act             190
Min              0
Max             350
EXIT->MODE

```

The number 190 corresponds to an Offset of 4mA.

For a 0-20mA-signal the value must be reduced to almost 0.

```

+DA-Span        +
                720
                ^
.
Act             720
Min              50
Max            5000
EXIT->MODE

```

The number 720 corresponds to an Offset of 16mA (4-20mA)

For a 0-20mA-signal the value must be raised to over 900.

By changing the parameters OFFSET and SPAM the analog output can be scaled to any value desired.

7.3.2 DIGITAL INPUTS

```
+ DIGITAL-IO
+
> OPTOS
  RELAY
  Counterpulse
  Pulse length

EXIT->MODE
```

This menu serves for parameterizing the digital inputs (OPTO's) and digital outputs (RELAY):

7.3.3 OPTOS

```
+ OPTOS      +
  <>
U1! free
-----<OK>-----
U1 Belt runs
U2 B=>0 print
U3 C=>0 print
EXIT->MODE
```

Above the „OK“- line the input configuration requested can be compiled.

Then - with key „OK“- it is taken over into the actual configuration represented below.

The Opto-inputs „U1“ to „U3“ can be interconnected with arrow key „LEFT“.
 If the represented Opto-input shall work inverted, with arrow key „Right“ the character „!“ is faded in. Switching-off the inverting is done by arrow key, too.
 The function assigned to Opto-input can be changed with arrow keys „UPWARD“ and „DOWNWARD“.
 To take over the new adjustment, key <Enter> must be pressed.

Following functions are possible:

>0< Start	Starts the taring.
Free	Opto is not used.
Belt-mis-run	Activates Error.
Belt runs	If active and no tacho signal => Error Starts tacho-simulation
SYNC-input	Selectable only with „U3“. When selected, absolute value tare is active.
Fault motor	Opto for integration of motor monitoring devices (Thermo-relay, PTC-resistors) into the error message.
B=>0 print	The counter "B" is put out via the serial Interface and then reset to zero.
C=>0 print	The counter "C" is put out via the serial Interface and then reset to zero.
Field Input 1	Interconnects to Field relay1 (see Relays)
Field Input 2	Interconnects to Field relay2 (see Relays)
Test Start	Starts Test

Standard adjustment of OPTOS:
 U1 = Belt runs

```
U2 = B=>0 print
U3 = C=>0 print
```

7.3.4 RELAYS

```
+ RELAYS
+
<>
K1! Error

-----<OK>-----
K1 Error
K2 Min load
EXIT->MODE
```

Also here - as described for Optos - above the „OK“- line the input configuration requested can be compiled.

Then - with key „OK“- it is taken over into the actual configuration represented below.

The RELAY-outputs „K1“ to „K2“ can be interconnected with arrow key „LEFT“.
 If the represented RELAIS-output shall work inverted, with arrow key „Right“ the character „!“ is faded in. Switching-off the inverting is done by arrow key, too.
 The function assigned to RELAY-output can be changed with arrow keys „UPWARD“ and „DOWNWARD“(??).
 To take over the new adjustment, confirmation by pressing <OK> (?) has to be done.

Following functions are possible:

Error	Signals errors
free	Not used
Min load	Monitors belt load
Max load	Monitors belt load
Belt empty	Switches, when the load is under „Belt empty“
Test/Tare	Test or Taring runs
Field relay1	Switches signal of Field Input1 (see Optos)
Field relay2	Switches signal of Field Input2 (see Optos)
Belt stopped	Monitors speed
LAY ON TESTW.!	Lays on the test weight automatically, takes it off again.

Standard adjustment of relays:

```
K1 = Error
K2 = Min load
```

7.3.5 Counter pulse


```
+ Counter pulse
> ____0.1 kg
   ____1   kg
#0.010_ t
 0.100_ t
 1.000_ t
EXIT->MODE
```

With keys „UPWARD“ , „DOWNWARD“ and afterwards „OK“ the counter resolution can be selected.
Observe to select a resolution high enough!

The resolution selected here is used both in the display and at the digital impulse output.

7.3.6 Counter pulse length

```
+Pulse length      +
>  50 ms
100 ms
150 ms
200 ms
250 ms
EXIT->MODE
```

Mit diesem Parameter wird die Dauer des digitalen Ausgangssignals selektiert. Wie schon vorher erwähnt, ist unbedingt darauf zu achten, dass keine zu lange Impulsdauer gewählt wird.

8 COLD START

A manual cold start can be activated by simultaneously pressing the arrow keys „LEFT“ and „RIGHT“ in the parameterizing mode main menu (PA-switch in position UP).

!!! COLD START!!!!

```
KALTSTART
. COLDSTART
```

```
>0< + TEST
```

COLD START:

After appearance of this picture the will for cold start still has to be confirmed with the two red keys „>0<“ „TEST“ which have absolutely to be pressed simultaneously.

AFTER A COLD START ALL PARAMETERS HAVE TO BE RE-INPUT !

