EPC-1, EPC-2, EPC-3 & EPC-4 POULTRY CONTROLLER MANUAL

ABOUT INSTRUCTION MANUAL

Instruction manual of EPC consists of three main sections. Explanation of these sections are below. Also, there is another section which include technical specifications of the device. All titles and page numbers in instruction manual are in "**CONTENTS**" section. User can reach to any title with section number.

Installation:

In this section, physical dimensions of the device, panel mounting, electrical wiring, physical and electrical installation of the device to the system are explained.

User Section:

In this section, user interface of the device, how to access to the user parameters, description of the parameters are explained.

Also in these sections, there are warnings to prevent serious injury while doing the physical and electrical mounting or using the device.

Technician Section

In this section, how to access to the technician parameters, description of the parameters and functions are explained.

Explanation of the symbols which are used in these sections are given below.

This symbol is used for safety warnings. User must pay attention to these warnings.

This symbol is used to determine the dangerous situations as a result of an electric shock. User must pay attention to these warnings definitely.

This symbol is used to determine the important notes about functions and usage of the device.

This symbol is used for VDC

This symbol is used for VAC

CONTENTS

CONTENTS

EU DECLARATION OF CONFORMITY

Manufacturer Company Name   : Emko Elektronik A.S.

Manufacturer Company Address   : DOSAB, Karanfil Sokak, No:6, 16369 Bursa, Turkiye

The manufacturer hereby declares that the product conforms to the following standards and conditions.

Product Name   : **Electrical control equipment for generating sets**

Model Number   : **EPC**

Type Number   : **EPC-1, EPC-2, EPC-3, EPC-4**

Product Category   : **Electrical equipment for measurement, control and laboratory use**

Conforms to the following directives :

EMC   : **BS EN 61000-6-4, EMC Generic Emission Standard for industrial equipment**
BS EN 61000-6-2, EMC Generic Immunity Standard for industrial equipment
Electrical Safety   : **EN 61010-1, Safety Requirements for electrical equipment for measurement, Control and laboratory use**

1. INTRODUCTION

FUNCTIONS	EPC1	EPC2&3	EPC4
Pt-100 input -1, Room Temperature Measurement	YES	YES	YES
Pt-100 input -2, Room Temperature Measurement	YES	YES	YES
Pt-100 input -3, Outside Temperature Measurement	YES	YES	YES
8 Relay Outputs for Fans	YES	YES	YES
0-10 V Analog Output for Fans	YES	YES	YES
Heater-1 and Heater-2 Relay Outputs	YES	YES	YES
Cooling Relay Output	YES	YES	YES
Alarm Relay Output and 2 Alarm Signal Inputs	YES	YES	YES
Shutter Open/Close Relay outputs	YES	YES	YES
0-10V Analog Output for Shutter Control	YES	YES	YES
Humidity Control Relay Output & %RH measurement	YES	YES	YES
Feeding Relay Output & Feeding weight measument	NO	YES	YES
Feeding Consumption log	NO	YES	YES
0-10V Analog Output for Lighting control	NO	YES	YES
Lighting curves & Lighting Relay Output	NO	YES	YES
Water & Electricity Consumption measurement input (pulse) & Log	NO	NO	YES
Weight-1, Weight-2, Weight-3 measurement inputs & weight logging	NO	NO	YES

Beside of all these features EPC is developed controller with modbus communication and easy to use menu.

Feaures
- Two zones house temperature measurement and control,
- Heating, cooling and humidity control,
- Outside temperature measurement and intelligent influence on controls,
- Ventilation control with stages' relay outputs and analog output,
- Shutter open / close control with relay outputs and analog output,
- Feeding control from age curves, feeding storage silo weight measurement and control,
- Food consumption data recording and logging,
- Lighting control from age curves, lighting control with analog output,
- Water consumption measurement, data recording and logging,
- Animal weight measurement from up to 3 scales placed in house, animal weighings data.

	MICROCONTROLLER	
SUPPLY VOLTAGE 24V⎓ +/-15%		
ROOM TEMP1 Pt100 INPUT		HEATER 1 RELAY OUTPUT
ROOM TEMP2 Pt100 INPUT		HEATER 2 RELAY OUTPUT
OUTSIDE TEMP Pt100 INPUT		COOLING RELAY OUTPUT
HUMIDITY (0-10V⎓) ANALOG INPUT		FAN RELAY OUTPUTS
(EPC 3&4) FEEDING (0-10V⎓) ANALOG INPUT		ALARM 1 RELAY OUTPUT
(EPC 4) WEIGHT 1 (0-10V⎓) ANALOG INPUT		SHUTTER OPEN RELAY OUTPUT
(EPC 4) WEIGHT 2 (0-10V⎓) ANALOG INPUT		SHUTTER CLOSE RELAY OUTPUT
(EPC 4) WEIGHT 3 (0-10V⎓) ANALOG INPUT		HUMIDITY RELAY OUTPUT
ALARM 1 DIGITAL INPUT		FEEDING RELAY OUTPUT (EPC 3&4)
NEGATIVE PRESSURE DIGITAL INPUT		LIGHTING RELAY OUTPUT (EPC 3&4)
(EPC 3&4) FEEDING DIGITAL INPUT		SHUTTER (0-10V⎓) ANALOG OUT.
(EPC 4) ELECTRICITY CONSUMPTION DIGITAL INPUT		FANS (0-10V⎓) ANALOG OUT.
(EPC 4) WATER CONSUMPTION DIGITAL INPUT		LIGHTING (0-10V⎓) ANALOG OUT. (EPC 3&4)
PUSH BUTTONS		RS-232 PC COMM.
		RS-485 COMMUNICATION
		STATUS INDICATORS

1.2 WARRANTY

EMKO Elektronik warrants that the equipment delivered is free from defects in material and workmanship. This warranty is provided for a period of two years. The warranty period starts from the delivery date. This warranty is in force if duty and responsibilities which are determined in warranty document and instruction manual performs by the customer completely.

1.3 MAINTENANCE

Repairs should only be performed by trained and specialized personnel. Cut power to the device before accessing internal parts.
Do not clean the case with hydrocarbon-based solvents (Petrol, Trichlorethylene etc.). Use of these solvents can reduce the mechanical reliability of the device. Use a cloth dampened in ethyl alcohol or water to clean the external plastic case.

2. INSTALLATION

⚠ **Before beginning installation of this product, please read the instruction manual and warnings below carefully.**

Carefully unpack the unit and check for damage to the unit or to the cables supplied. Retain the packing in case of future need, e.g. returning the unit for adjustment.
Check the contents, as follows:
• **One EPC unit.**
• **Operating Manual.**
• **Screw fixings.**
• **RS-232 Cable.**

Before commencing installation:
• **Disconnect all electrical power to the machine.**
• **Make sure the machine cannot operate during installation.**
• **Follow all of the machine manufacturer's safety warnings.**
• **Read and follow all installation instructions.**

A visual inspection of this product for possible damage occured during shipment is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product.

Be sure to use the rated power supply voltage to protect the unit against damage and to prevent failure.

Keep the power off until all of the wiring is completed so that electric shock and trouble with the unit can be prevented.

Never attempt to disassemble, modify or repair this unit. Tampering with the unit may results in malfunction, electric shock or fire.

Do not use the unit in combustible or explosive gaseous atmospheres.

During the equipment is putted in hole on the metal panel while mechanical installation some metal burrs can cause injury on hands, you must be careful.
Montage of the product on a system must be done with it's own fixing screws. Do not do the montage of the device with inappropriate fixing screws. Be sure that device will not fall while doing the montage.
It is your responsibility if this equipment is used in a manner not specified in this instruction manual.

Report any shortage or damage to your local sales office as soon as possible.

Label Pocket

Label Pocket

Electrical Connection

Mounting Holes

Front Panel IP65 protection NEMA 4X

Electrical Connection

2.2 DIMENSIONS

204mm

144mm

Panel cut-out dimensions: 196 mm overall width, 186 mm inner width, 5mm margins on both sides, 138 mm overall height, 103.5 mm between mounting holes, 17.25mm offsets, R=4.5mm corner radii.
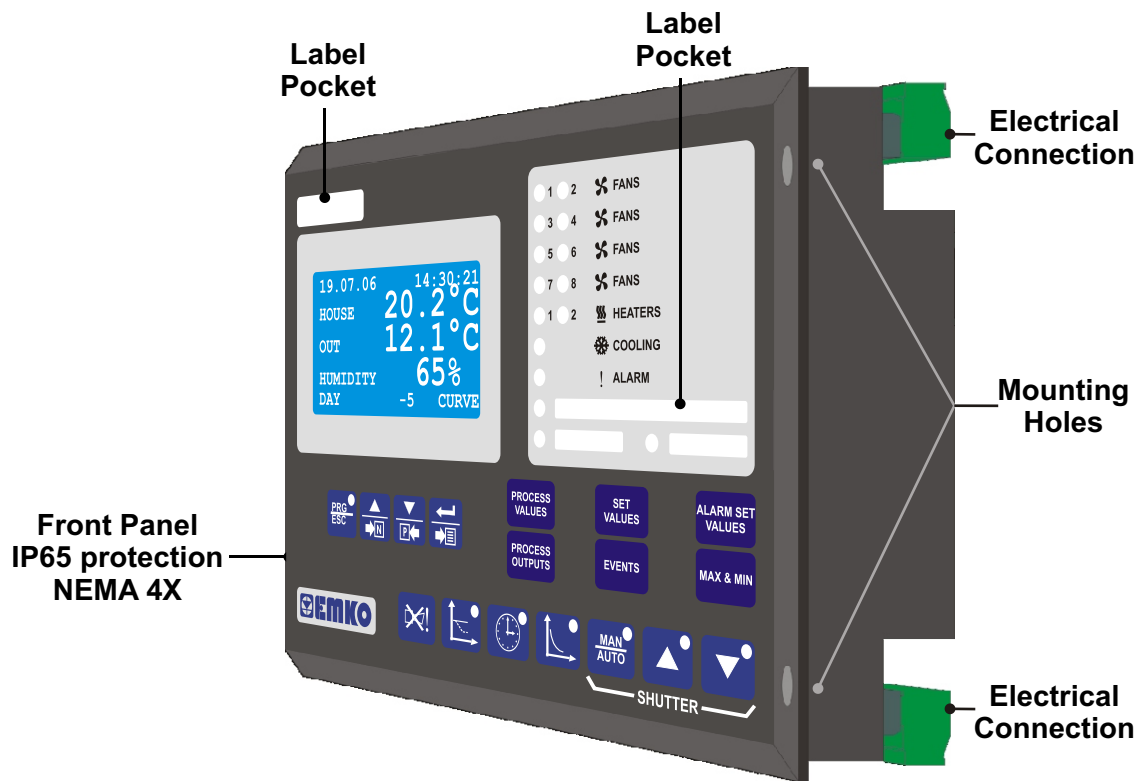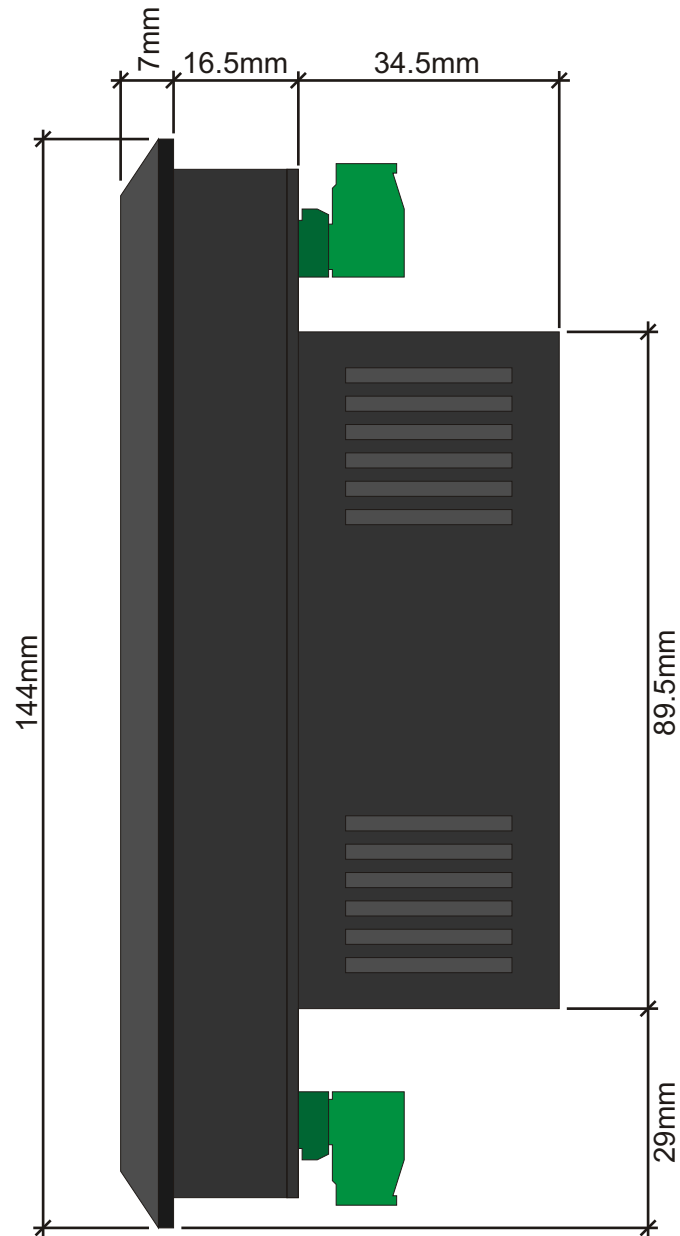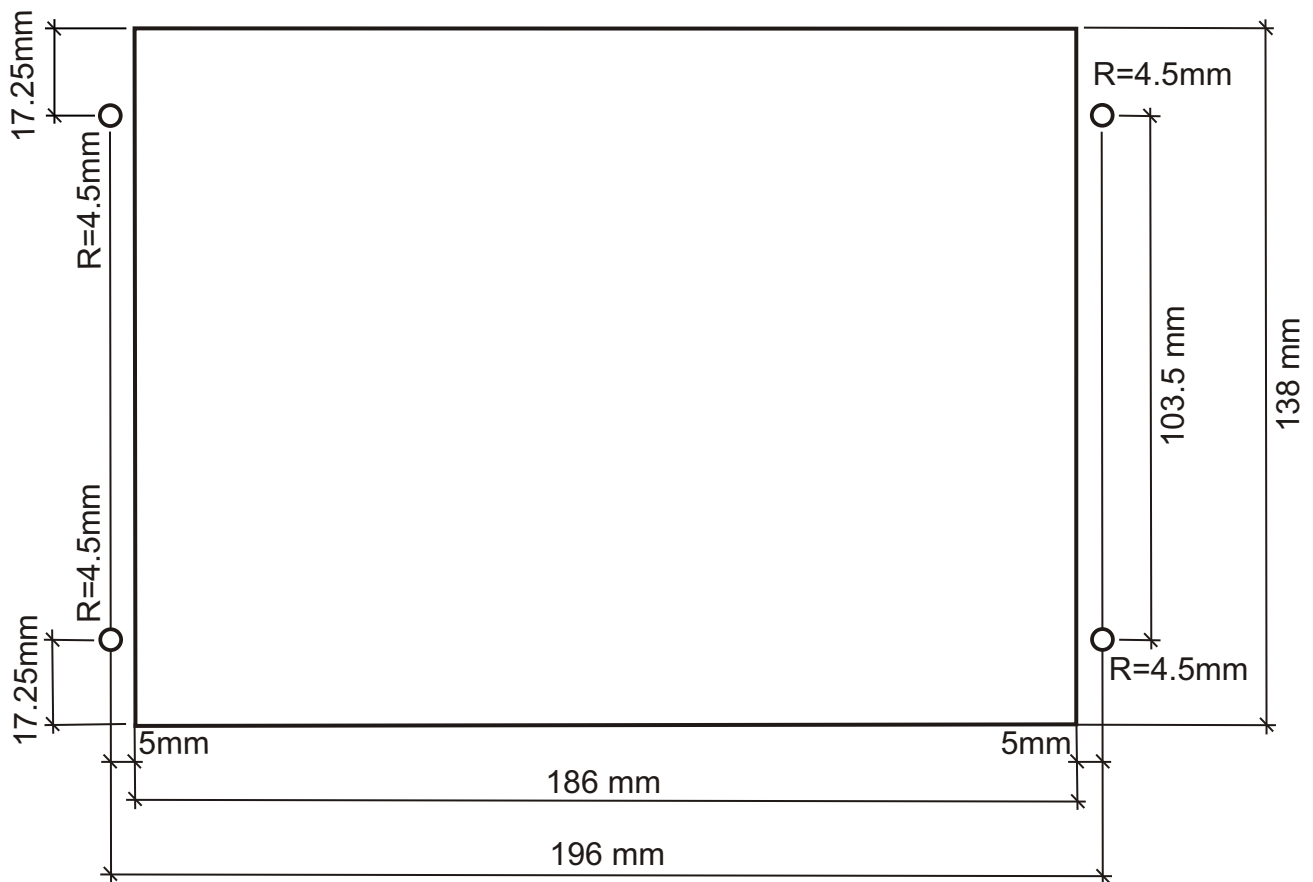
2.5 ENVIRONMENTAL RATINGS

Operating Conditions

Operating Temperature   : -25°C to 70°C

Max. Operating Humidity : 90% Rh (non-condensing)

Altitude   : Up to 2000m.

Forbidden Conditions:
Corrosive atmosphere
Explosive atmosphere
Home applications (The unit is only for industrial applications)

2.6 PANEL MOUNTING
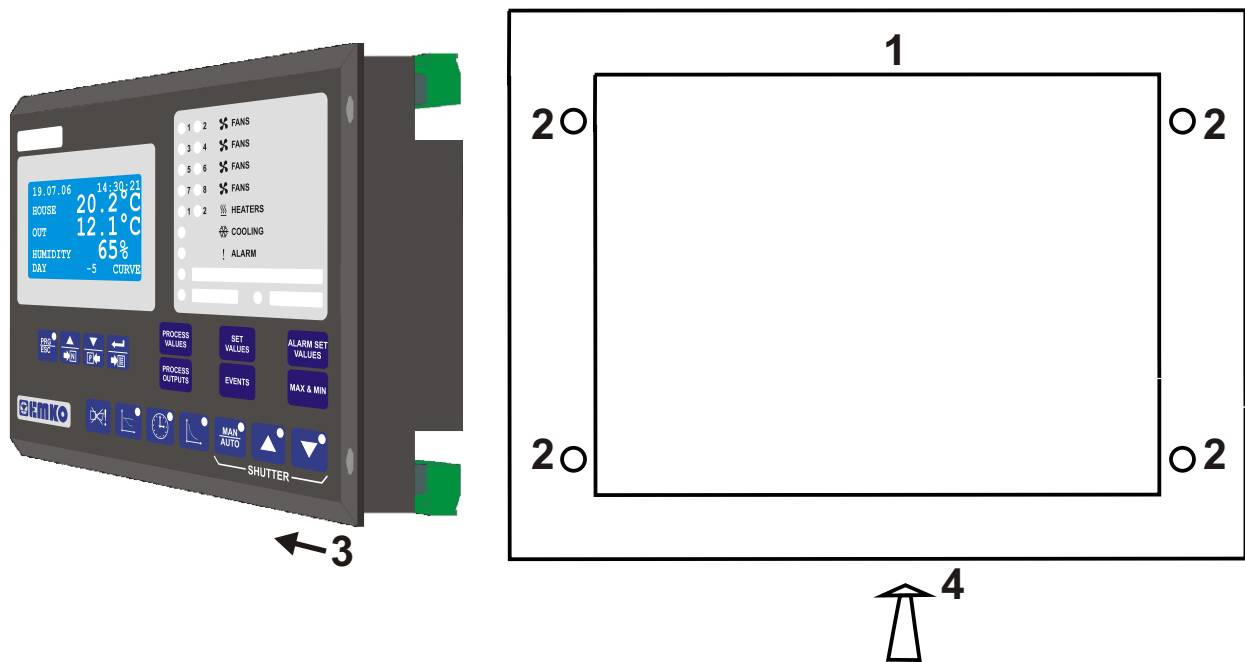
1. Before mounting the device in your panel, make sure that the cut-out is of the right size
2. Make sure that the diameter of the holes are of the right size and coordinate of the holes are true.
3. Check front panel gasket position
4. Insert the device through the cut-out. If the mounting screws are on the unit, put out them before inserting the unit to the panel.

⚠ **During installation into a metal panel, care should be taken to avoid injury from metal burrs which might be present. The equipment can loosen from vibration and become dislodged if installation parts are not properly tightened. These precautions for the safety of the person who does the panel mounting.**

2.7 INSTALLATION FIXING SCREWS
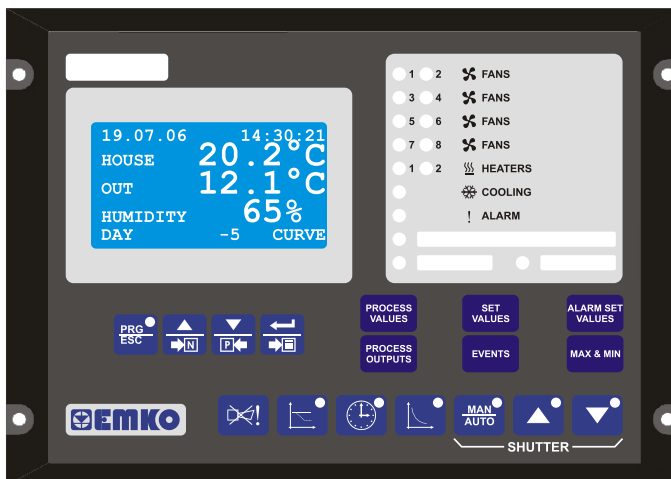
The unit is designed for panel mounting. Fixing is done by four screw fixings.
1. Insert the unit in the panel cut-out from the front side.
2. Insert the fixings through the mounting holes and tighten the fixing screws to secure the unit against the panel.

⚠ **During mechanical installation, beware of any sharp burrs on the metal panel aperture. Ensure that the fixings are properly tightened to prevent the fixings becoming loose due to panel vibration.**

Montage of the unit to a system must be done with it's own fixing screws. Do not do the montage of the device with inappropriate fixing screws. Be sure that device will not fall while doing the montage.

Before starting to remove the unit from panel, power off the unit and the related system.

1. Loosen the screws.
2. Pull the unit through the front side of the panel

3. INPUT AND OUTPUT CONNECTIONS

EPC - 1

ANALOG OUTPUTS (0-10 V⎓)
1 COMMON 2 SHUTTER 3 FANS

ANALOG INPUTS
5 6 ROOM TEMP 1 PT-100 | 7 8 ROOM TEMP 2 PT-100 | 9 10 OUTSIDE TEMP PT-100 | 11 12 HUMIDITY (0 - 10V⎓)

DIGITAL INPUTS
21 COMMON 22 ALARM 1 23 NEG PRES

RS 485 EXPANSION BOARD
RS 232 PC COMM.

3 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
27 COMMON 1 | 28 HEATER 1 | 29 HEATER 2 | 30 COOLING

8 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
31 32 33 34 35 36 37 38 39 COMMON 2 — FAN OUTPUTS 1 2 3 4 5 6 7 8
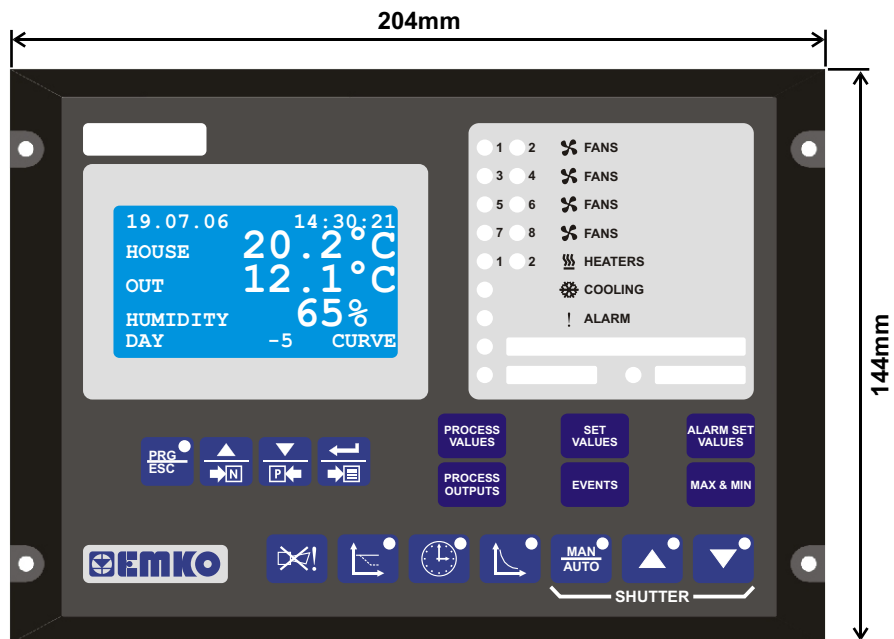
SUPPLY VOLTAGE 24 V⎓ +/-15%
40 — 41 +

RELAY 5A @ 250 V~ (RESISTIVE LOAD)
42 COMMON 4 | 43 ALARM 1

3 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
44 COMMON 3 | 45 SHUTTER OPEN | 46 SHUTTER CLOSE | 47 HUMIDITY

EPC - 2

ANALOG OUTPUTS (0-10 V⎓)
1 COMMON 2 SHUTTER 3 FANS 4 LIGHTING

ANALOG INPUTS
5 6 ROOM TEMP 1 PT-100 | 7 8 ROOM TEMP 2 PT-100 | 9 10 OUTSIDE TEMP PT-100 | 11 12 HUMIDITY (0 - 10V⎓)

FEEDING (0 - 10V⎓)
13 14

DIGITAL INPUTS
21 COMMON 22 ALARM 1 23 NEG PRES 24 FEEDING

RS 485 EXPANSION BOARD
RS 232 PC COMM.

3 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
27 COMMON 1 | 28 HEATER 1 | 29 HEATER 2 | 30 COOLING

8 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
31 32 33 34 35 36 37 38 39 COMMON 2 — FAN OUTPUTS 1 2 3 4 5 6 7 8

SUPPLY VOLTAGE 24 V⎓ +/-15%
40 — 41 +

RELAY 5A @ 250 V~ (RESISTIVE LOAD)
42 COMMON 4 | 43 ALARM 1

5 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
44 COMMON 3 | 45 SHUTTER OPEN | 46 SHUTTER CLOSE | 47 HUMIDITY | 48 FEEDING | 49 LIGHTING

EPC - 3

ANALOG OUTPUTS (0-10 V⎓)
1 COMMON 2 SHUTTER 3 FANS 4 LIGHTING

ANALOG INPUTS
5 6 ROOM TEMP 1 PT-100 | 7 8 ROOM TEMP 2 PT-100 | 9 10 OUTSIDE TEMP PT-100 | 11 12 HUMIDITY (0 - 10V⎓)

FEEDING (0 - 10V⎓)
13 14

DIGITAL INPUTS
21 COMMON 22 ALARM 1 23 NEG PRES 24 FEEDING

RS 485 EXPANSION BOARD
RS 232 PC COMM.

3 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
27 COMMON 1 | 28 HEATER 1 | 29 HEATER 2 | 30 COOLING

8 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
31 32 33 34 35 36 37 38 39 COMMON 2 — FAN OUTPUTS 1 2 3 4 5 6 7 8

SUPPLY VOLTAGE 24 V⎓ +/-15%
40 — 41 +

RELAY 5A @ 250 V~ (RESISTIVE LOAD)
42 COMMON 4 | 43 ALARM 1

5 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
44 COMMON 3 | 45 SHUTTER OPEN | 46 SHUTTER CLOSE | 47 HUMIDITY | 48 FEEDING | 49 LIGHTING

EPC - 4

ANALOG OUTPUTS (0-10 V⎓)
1 COMMON 2 SHUTTER 3 FANS 4 LIGHTING

ANALOG INPUTS
5 6 ROOM TEMP 1 PT-100 | 7 8 ROOM TEMP 2 PT-100 | 9 10 OUTSIDE TEMP PT-100 | 11 12 HUMIDITY (0 - 10V⎓)

13 14 FEEDING (0 - 10V⎓) | 15 16 WEIGHT 1 (0 - 10V⎓) | 17 18 WEIGHT 2 (0 - 10V⎓) | 19 20 WEIGHT 3 (0 - 10V⎓)

DIGITAL INPUTS
21 COMMON 22 ALARM 1 23 NEG PRES 24 FEEDING 25 ELECTRICITY 26 WATER CONSUMP.

RS 485 EXPANSION BOARD
RS 232 PC COMM.

3 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
27 COMMON 1 | 28 HEATER 1 | 29 HEATER 2 | 30 COOLING

8 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
31 32 33 34 35 36 37 38 39 COMMON 2 — FAN OUTPUTS 1 2 3 4 5 6 7 8

SUPPLY VOLTAGE 24 V⎓ +/-15%
40 — 41 +

RELAY 5A @ 250 V~ (RESISTIVE LOAD)
42 COMMON 4 | 43 ALARM 1

5 RELAYS 5A @ 250 V~ (RESISTIVE LOAD)
44 COMMON 3 | 45 SHUTTER OPEN | 46 SHUTTER CLOSE | 47 HUMIDITY | 48 FEEDING | 49 LIGHTING

Table 3.1 shows the connections and recommended cable sizes. Table 3.2 describes the functions of the connections.

Table 3.1 Unit wiring

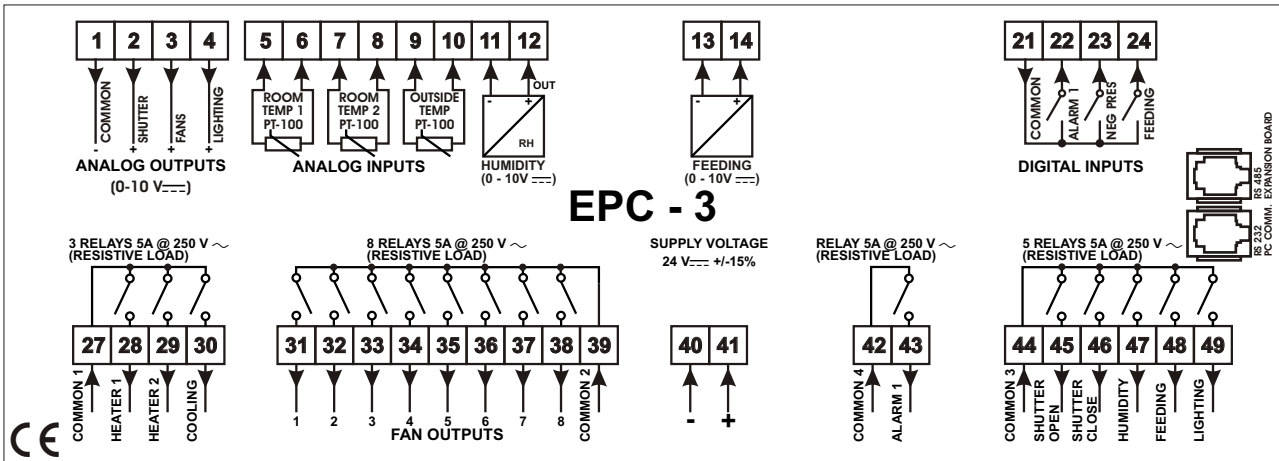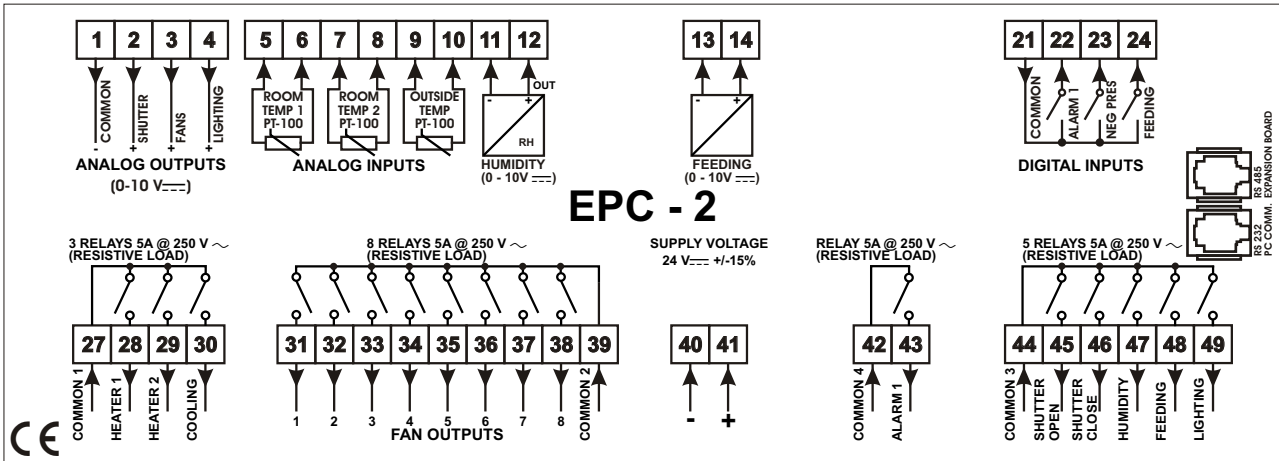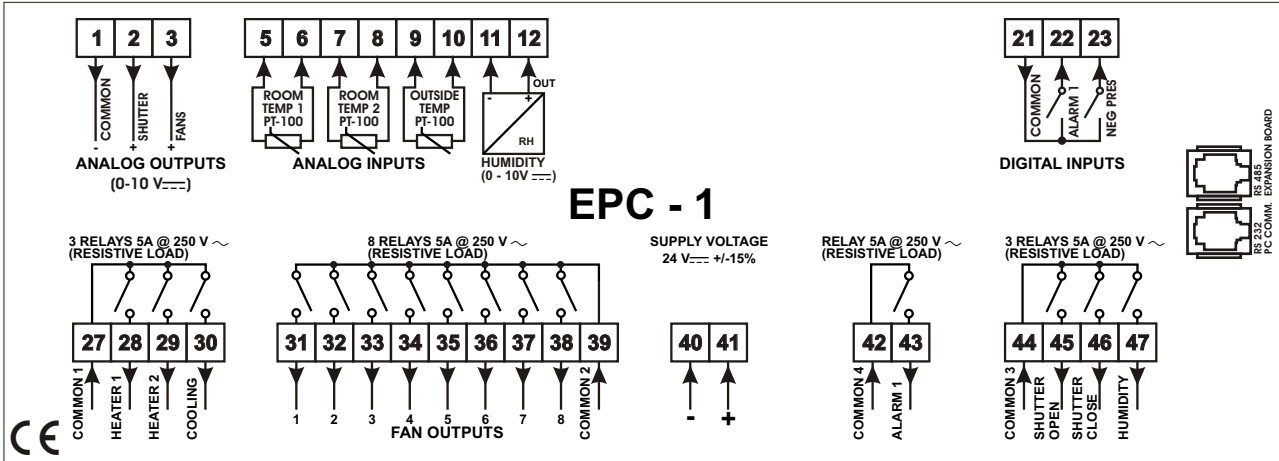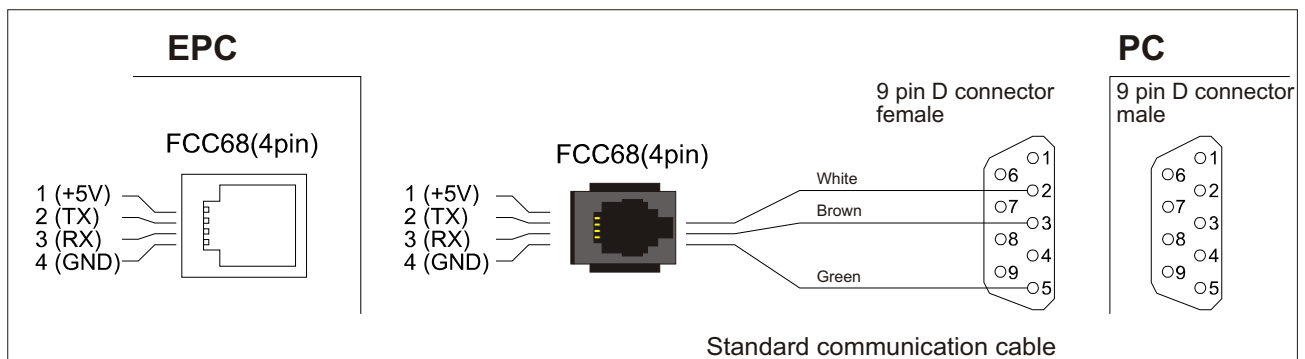| Pin	Description	Cable Size (mm)	Notes
1	Analog output's common	1.0	Analog output's common
2	Shutter analog output (EPC 3&4)	1.0	Analog output
3	Fan's analog output	1.0	Analog output
4	Lighting analog output (EPC 3&4)	1.0	Analog output
5	Room Temp 1 PT-100	1.0	PT-100 input
6	Room Temp 1 PT-100	1.0	PT-100 input
7	Room Temp 2 PT-100	1.0	PT-100 input
8	Room Temp 2 PT-100	1.0	PT-100 input
9	Outside Temp PT-100	1.0	PT-100 input
10	Outside Temp PT-100	1.0	PT-100 input
11	Humidity	1.0	- line (0 - 10V⎓) input
12	Humidity	1.0	+ line(0 - 10V⎓) input
13	Feeding (EPC 3&4)	1.0	- line (0 - 10V⎓) input
14	Feeding (EPC 3&4)	1.0	+ line(0 - 10V⎓) input
15	Weight 1 (EPC 4)	1.0	- line (0 - 10V⎓) input
16	Weight 1 (EPC 4)	1.0	+ line(0 - 10V⎓) input
17	Weight 2 (EPC 4)	1.0	- line (0 - 10V⎓) input
18	Weight 2 (EPC 4)	1.0	+ line(0 - 10V⎓) input
19	Weight 3 (EPC 4)	1.0	- line (0 - 10V⎓) input
20	Weight 3 (EPC 4)	1.0	+ line(0 - 10V⎓) input
21	Digital input's common line	1.0	
22	Alarm 1 digital input	1.0	Switch to 0 V⎓ (NO)
23	Negative pressure digital input	1.0	Switch to 0 V⎓ (NO)
24	Feeding digital input (EPC 3&4)	1.0	Switch to 0 V⎓ (NO)
25	Electricity cons. digital input (EPC 4)	1.0	Switch to 0 V⎓ (NO)
26	Water consumption digital input (EPC 4)	1.0	Switch to 0 V⎓ (NO)
27	Relay output's Common 1	1.0	
28	Heater 1	1.0	Relay output (5 A @ 250 V∼)
29	Heater 2	1.0	Relay output (5 A @ 250 V∼)
30	Cooling	1.0	Relay output (5 A @ 250 V∼)
31	Fan output 1	1.0	Relay output (5 A @ 250 V∼)
32	Fan output 2	1.0	Relay output (5 A @ 250 V∼)
33	Fan output 3	1.0	Relay output (5 A @ 250 V∼)
34	Fan output 4	1.0	Relay output (5 A @ 250 V∼)
35	Fan output 5	1.0	Relay output (5 A @ 250 V∼)
36	Fan output 6	1.0	Relay output (5 A @ 250 V∼)
37	Fan output 7	1.0	Relay output (5 A @ 250 V∼)
38	Fan output 8	2.5	Relay output (5 A @ 250 V∼)
39	Fan Relay output's Common 2	1.0	Fan relay output's common line
40	Supply voltage	2.5	- line (24V⎓ +/-15% max.350 mA)
41	Supply voltage	2.5	+ line (24V⎓ +/-15% max.350 mA)
42	Common 4	1.0	Alarm 1 relay output's common line
43	Alarm 1	1.0	Relay output (5 A @ 250 V~)
44	Common 3	1.0	
45	Shutter open	1.0	Relay output (5 A @ 250 V∼)
46	Shutter close	1.0	Relay output (5 A @ 250 V∼)
47	Humidity	1.0	Relay output (5 A @ 250 V∼)
48	Feeding (EPC 3&4)	1.0	Relay output (5 A @ 250 V∼)
49	Lighting (EPC 3&4)	1.0	Relay output (5 A @ 250 V∼)

4.RS-232 SERIAL INTERFACE, PROGRAMMING THE DEVICE OVER PC

4.1 CABLE CONNECTION BETWEEN RS-232 TERMINAL OF THE DEVICE AND PC

EPC

FCC68(4pin)

1 (+5V)
2 (TX)
3 (RX)
4 (GND)

FCC68(4pin)

1 (+5V)
2 (TX)
3 (RX)
4 (GND)

White
Brown
Green

PC

9 pin D connector female

9 pin D connector male

Standard communication cable

Note: For 9600 baud rate, cable length must be maximum 10 meters.
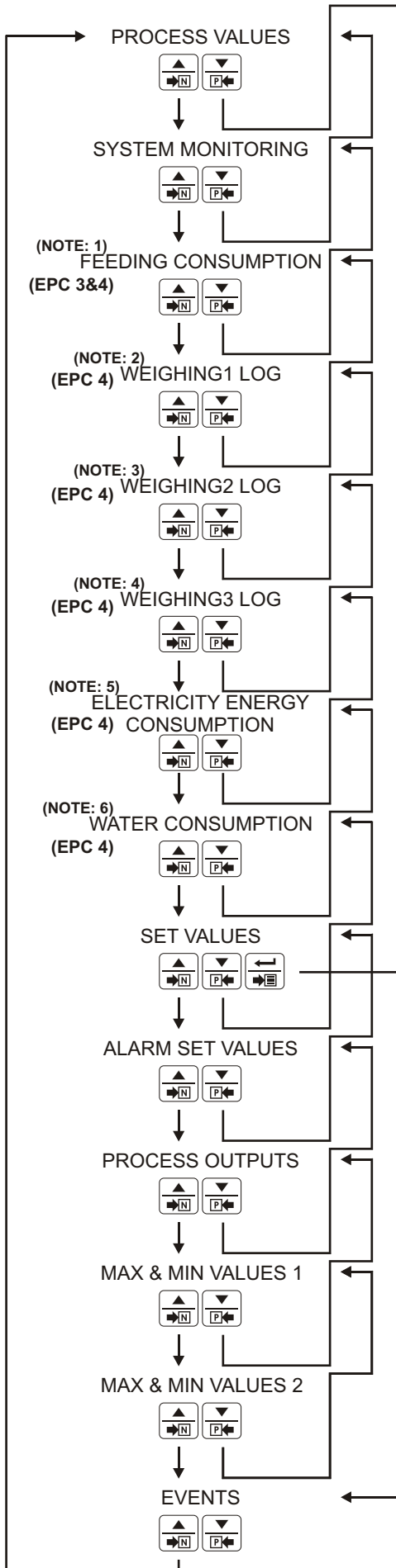
4.2 PC INTERFACE

The PC interface kit comprises of a 9 pin D connector/FCC68(4 pin) connection lead with 2 meters of cable and the optional PC Software (Supplied on CD-ROM)

4.2.1 TECHNICAL SPECIFICATIONS

RS-232 **non-isolated** Serial interface
Modbus ASCII communication protocol,
Selectable Baud Rate,
8 data bits,
Selectable Parity,
Selectable Stop Bit.

5.1 EASY ACCESS DIAGRAM FOR PAGES

PROCESS VALUES

SYSTEM MONITORING

(NOTE: 1)
FEEDING CONSUMPTION
(EPC 3&4)

(NOTE: 2)
(EPC 4) WEIGHING1 LOG

(NOTE: 3)
(EPC 4) WEIGHING2 LOG

(NOTE: 4)
(EPC 4) WEIGHING3 LOG

(NOTE: 5)
ELECTRICITY ENERGY
(EPC 4) CONSUMPTION

(NOTE: 6)
WATER CONSUMPTION
(EPC 4)

SET VALUES

ALARM SET VALUES

PROCESS OUTPUTS

MAX & MIN VALUES 1

MAX & MIN VALUES 2

EVENTS

(NOTE: 7)
SET SHUTTER

(NOTES:1, 8)
FEEDING PARAMETERS
(EPC 3&4)
(NOTE: 7)

(NOTES:8, 9)
LIGHTING PARAMETERS
(EPC 3&4)
(NOTE: 7)

NOTES:

1: If **CONTROL FUNC PAGE 2 PAGE** FEEDING parameter is enabled then this page is visible
2: If **CONTROL FUNC PAGE 2 PAGE** CHICKS W1 parameter is enabled then this page is visible
3: If **CONTROL FUNC PAGE 2 PAGE** CHICKS W2 parameter is enabled then this page is visible.
4: If **CONTROL FUNC PAGE 2 PAGE** CHICKS W3 parameter is enabled then this page is visible
5: If **CONTROL FUNC PAGE 1 PAGE** ELECT CONSUM parameter is enabled then this page is visible
6: If **CONTROL FUNC PAGE 1 PAGE** WATER CONSUM parameter is enabled then this page is visible
7: If the last parameter is selected.
8: If **CONTROL FUNC PAGE 1 PAGE** CURVE parameter is enabled then this page is visible
9: If **CONTROL FUNC PAGE 2 PAGE** LIGHTING parameter is enabled then this page is visible
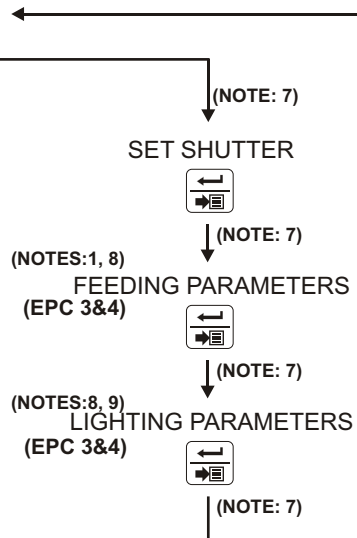
and buttons are used to access to the pages, some pages can be accessed direct by pushing their buttons. These buttons are called "shortcut buttons".
Shortcut buttons and their pages are seen below;

| PROCESS VALUES | → | 19.07.06   14:30:21
HOUSE   20.2°C
OUT   12.1°C
HUMIDITY   65%
DAY   -5 |

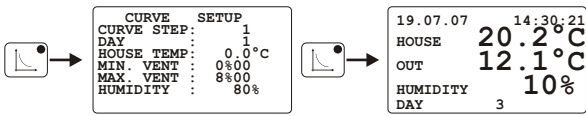| PROCESS OUTPUTS | → | PROCESS OUTPUTS
HEATING1   :   0%
HEATING2   :   0%
COOLING   :   0%
HUMIDITY   :   0%
VENTILATION   : 0%00
SHUTTER   : 0%00
LIGHTING ANALOG: 0% |

| ALARM SET VALUES | → | ALARM SET VALUES
ABSOLUTE MIN: 0.0°C
ABSOLUTE MAX: 99.0°C
DIFFERENTIAL: 0.0°C
TYPE   :NONLATCH |

| MAX & MIN | → | MAX & MIN VALUES 1
HOUSE MIN :   0.0°C
TIME   :   00.00
HOUSE MAX :   0.0°C
TIME   :   00.00 | MAX & MIN | → | MAX & MIN VALUES 2
OUTSIDE MIN: 0.0°C
TIME   :   00.00
OUTSIDE MAX: 0.0°C
TIME   :   00.00 | MAX & MIN |

| [alarm icon] | → | ALARM STATUS 1
ABSOLUTE MIN   :OFF
ABSOLUTE MAX   :OFF
DIFFERENTIAL   :OFF
ALARM1   :OFF
NEGATIVE PRESSURE:OFF
HUMIDITY SENSOR   :OFF
NO ENOUGH FEED   :OFF | [alarm icon] | → | ALARM STATUS 2
ROOM1 OFL   :OFF
ROOM2 OFL   :OFF
OUTSIDE OFL   :OFF | [alarm icon] | → | 19.07.06   14:30:21
HOUSE   20.2°C
OUT   12.1°C
HUMIDITY   65%
DAY   -5 |

| [clock icon] | → | DATE SETUP
YEAR :   2007
MONTH :   1
DAY   :   24
HOUR :   16
MINUTE :   31
SECOND :   36 | [clock icon] | → | 19.07.06   14:30:21
HOUSE   20.2°C
OUT   12.1°C
HUMIDITY   65%
DAY   -5 |

| [graph icon] | → | INFLUENCE 1
F.L.O.T/MN.VNT: NON
T.L.O.T/MN.VNT: -25.0
MAX.VENT.COOL :   8%00
F.L.O.T/T.OFF :   NON
T.L.O.T/T.OFF : -25.0 | [graph icon] | → | 19.07.06   14:30:21
HOUSE   20.2°C
OUT   12.1°C
HUMIDITY   65%
DAY   -5 |

[▲N] Or [▼P]

↓

INFLUENCE 2
T.O.TMP OFFS: NON
T.RH OFFSET :   5.0
NEG PRESSURE: NON
NEG.PRE.TON :   0
NEG.PRE.TOFF: 0

[▲N] Or [▼P]

| EVENTS | → | EVENTS
EVENT 1
11.05.2006 11:07:03
DIFFERENTIAL ALARM |

Push ⌾ button to access to curve pages or exit from curve mode pages and return to PROCESS VALUES page **(NOTE:1)**

```
      CURVE   SETUP
CURVE STEP:      1
DAY      :       1
HOUSE TEMP:   0.0°C
MIN. VENT :   0%00
MAX. VENT :   8%00
HUMIDITY  :    80%
```
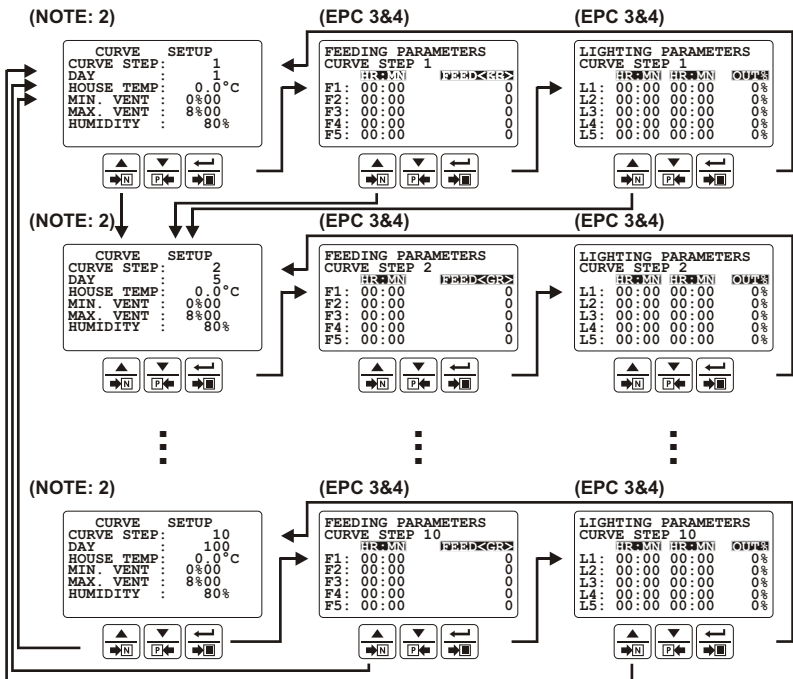
```
19.07.07   14:30:21
HOUSE      20.2°C
OUT        12.1°C
HUMIDITY     10%
DAY        3
```

(NOTE: 3)

FORWARD DIRECTION

(NOTE: 2)

```
      CURVE   SETUP
CURVE STEP:      1
DAY      :       1
HOUSE TEMP:   0.0°C
MIN. VENT :   0%00
MAX. VENT :   8%00
HUMIDITY  :    80%
```

(EPC 3&4)

```
FEEDING PARAMETERS
CURVE STEP 1
      HR MN      FEED GR
F1:  00:00          0
F2:  00:00          0
F3:  00:00          0
F4:  00:00          0
F5:  00:00          0
```

(EPC 3&4)

```
LIGHTING PARAMETERS
CURVE STEP 1
     HR MN HR MN  OUT%
L1: 00:00 00:00    0%
L2: 00:00 00:00    0%
L3: 00:00 00:00    0%
L4: 00:00 00:00    0%
L5: 00:00 00:00    0%
```

(NOTE: 2)

```
      CURVE   SETUP
CURVE STEP:      1
DAY      :       1
HOUSE TEMP:   0.0°C
MIN. VENT :   0%00
MAX. VENT :   8%00
HUMIDITY  :    80%
```

(EPC 3&4)

```
FEEDING PARAMETERS
CURVE STEP 9
      HR MN      FEED GR
F1:  00:00          0
F2:  00:00          0
F3:  00:00          0
F4:  00:00          0
F5:  00:00          0
```

(EPC 3&4)

```
LIGHTING PARAMETERS
CURVE STEP 9
     HR MN HR MN  OUT%
L1: 00:00 00:00    0%
L2: 00:00 00:00    0%
L3: 00:00 00:00    0%
L4: 00:00 00:00    0%
L5: 00:00 00:00    0%
```

(NOTE: 2)

```
      CURVE   SETUP
CURVE STEP:      1
DAY      :       1
HOUSE TEMP:   0.0°C
MIN. VENT :   0%00
MAX. VENT :   8%00
HUMIDITY  :    80%
```

(EPC 3&4)

```
FEEDING PARAMETERS
CURVE STEP 10
      HR MN      FEED GR
F1:  00:00          0
F2:  00:00          0
F3:  00:00          0
F4:  00:00          0
F5:  00:00          0
```

(EPC 3&4)

```
LIGHTING PARAMETERS
CURVE STEP 10
     HR MN HR MN  OUT%
L1: 00:00 00:00    0%
L2: 00:00 00:00    0%
L3: 00:00 00:00    0%
L4: 00:00 00:00    0%
L5: 00:00 00:00    0%
```

BACKWARD DIRECTION

(NOTE: 2)

```
      CURVE   SETUP
CURVE STEP:      1
DAY      :       1
HOUSE TEMP:   0.0°C
MIN. VENT :   0%00
MAX. VENT :   8%00
HUMIDITY  :    80%
```

(EPC 3&4)

```
FEEDING PARAMETERS
CURVE STEP 1
      HR MN      FEED GR
F1:  00:00          0
F2:  00:00          0
F3:  00:00          0
F4:  00:00          0
F5:  00:00          0
```

(EPC 3&4)

```
LIGHTING PARAMETERS
CURVE STEP 1
     HR MN HR MN  OUT%
L1: 00:00 00:00    0%
L2: 00:00 00:00    0%
L3: 00:00 00:00    0%
L4: 00:00 00:00    0%
L5: 00:00 00:00    0%
```

(NOTE: 2)

```
      CURVE   SETUP
CURVE STEP:      2
DAY      :       5
HOUSE TEMP:   0.0°C
MIN. VENT :   0%00
MAX. VENT :   8%00
HUMIDITY  :    80%
```

(EPC 3&4)

```
FEEDING PARAMETERS
CURVE STEP 2
      HR MN      FEED GR
F1:  00:00          0
F2:  00:00          0
F3:  00:00          0
F4:  00:00          0
F5:  00:00          0
```

(EPC 3&4)

```
LIGHTING PARAMETERS
CURVE STEP 2
     HR MN HR MN  OUT%
L1: 00:00 00:00    0%
L2: 00:00 00:00    0%
L3: 00:00 00:00    0%
L4: 00:00 00:00    0%
L5: 00:00 00:00    0%
```

(NOTE: 2)

```
      CURVE   SETUP
CURVE STEP:     10
DAY      :     100
HOUSE TEMP:   0.0°C
MIN. VENT :   0%00
MAX. VENT :   8%00
HUMIDITY  :    80%
```

(EPC 3&4)

```
FEEDING PARAMETERS
CURVE STEP 10
      HR MN      FEED GR
F1:  00:00          0
F2:  00:00          0
F3:  00:00          0
F4:  00:00          0
F5:  00:00          0
```

(EPC 3&4)

```
LIGHTING PARAMETERS
CURVE STEP 10
     HR MN HR MN  OUT%
L1: 00:00 00:00    0%
L2: 00:00 00:00    0%
L3: 00:00 00:00    0%
L4: 00:00 00:00    0%
L5: 00:00 00:00    0%
```

NOTES:
1. If **CONTROL FUNC PAGE 1 PAGE** CURVE parameter is enabled then this page is visible.
2. If **CONTROL FUNC PAGE 1 PAGE** HUMIDITY parameter is enabled then **CURVE SETUP PAGES** HUMIDITY parameter's value can change.

5.3 EDITING A PARAMETER

To understand how to edit a parameter please read following example;

1. Sample display,

```
        INFLUENCE 2
T.O.TMP OFFS:        NON
T.RH OFFSET :        5.0
NEG PRESSURE:        NON
```

2. Push [↵] button. First parameter is selected,

```
        INFLUENCE 2
T.O.TMP OFFS:        NON
T.RH OFFSET :        5.0
NEG PRESSURE:        NON
```

3. Use [▲N] or [▼P] buttons to edit parameter

Password query page will be seen (once for each new page first parameter accessing),

```
     ENTER USER
     PASSWORD
       0000
```

4. Push [↵] button,

```
     ENTER USER
     PASSWORD
       0000
```

5. Use [▲N] or [▼P] buttons to enter password,

```
     ENTER USER
     PASSWORD
       3675
```

6. Push [↵] button to enter password and return back to the application page,

6.a. If the entered password is wrong then EPC return back to application without tab symbol,

```
        INFLUENCE 2
T.O.TMP OFFS:        NON
T.RH OFFSET :        5.0
NEG PRESSURE:        NON
```

6.b. If the entered password is true then EPC return back to application with tab symbol,

```
        INFLUENCE 2
T.O.TMP OFFS:        NON
T.RH OFFSET :        5.0
NEG PRESSURE:        NON
```

7. Push [▲N] and [▼P] buttons to change the value.

```
        INFLUENCE 2
T.O.TMP OFFS:        0.5
T.RH OFFSET :        5.0
NEG PRESSURE:        NON
```

8.a. Push [↵] button to save the parameter and pass to the next parameter.

```
        INFLUENCE 2
T.O.TMP OFFS:        0.5
T.RH OFFSET :        5.0
NEG PRESSURE:        NON
```

8.b. Push [PRG ESC] button to cancel changing.

```
        INFLUENCE 2
T.O.TMP OFFS:        NON
T.RH OFFSET :        5.0
NEG PRESSURE:        NON
```

5.4 SCREENS, PARAMETERS AND FUNCTIONS

5.4.1 PROCESS VALUE

When the EPC is energized first PROCESS VALUES page is seen.
PROCESS VALUES page has four different screens. All screens are seen below;

```
19.07.06      14:30:21
HOUSE      20.2°C
OUT        12.1°C
HUMIDITY      65%
DAY      -5   CURVE
```

CONTROL FUNC PAGE 1 PAGE HUMIDITY parameter is enabled,
CONTROL FUNC PAGE 1 PAGE OUTSIDE TEMP parameter is enabled.

```
19.07.06      14:30:21
HOUSE      20.2°C
OUT        12.1°C
FEEDING       0KG
DAY      -5   CURVE
```

CONTROL FUNC PAGE 1 PAGE HUMIDITY parameter is disabled,
CONTROL FUNC PAGE 1 PAGE OUTSIDE TEMP parameter is enabled.
(EPC3 and EPC4 feature)

```
19.07.06      14:30:21
HOUSE      20.2°C
ROOM1        20.2°C
ROOM2        30.4°C
HUMIDITY      65%
DAY      -5   CURVE
```

CONTROL FUNC PAGE 1 PAGE HUMIDITY parameter is enabled,
CONTROL FUNC PAGE 1 PAGE OUTSIDE TEMP parameter is disabled.

```
19.07.06      14:30:21
HOUSE      20.2°C
ROOM1        22.4°C
ROOM2        20.2°C
FEEDING       0KG
DAY      -5   CURVE
```

CONTROL FUNC PAGE 1 PAGE HUMIDITY parameter is disabled,
CONTROL FUNC PAGE 1 PAGE OUTSIDE TEMP parameter is disabled.
(EPC3 and EPC4 feature)

DATE: The unit shows current date (day.month.year).
TIME: The unit shows current time (hour.minute.second).
HOUSE:
If **TEMPERATURE SETTINGS PAGE** SENS OPENING parameter is ROOM1;
HOUSE = ROOM1 sensor's reading temperature value,
If **TEMPERATURE SETTINGS PAGE** SENS OPENING parameter is ROOM2;
HOUSE = ROOM2 sensor's reading temperature value,
If **TEMPERATURE SETTINGS PAGE** SENS OPENING parameter is ROOM1&2;
HOUSE =(ROOM1 sensor's reading temperature value + ROOM2 sensor's reading temperature value) / 2.
ROOM1: Temperature that is reading from ROOM1 sensor.
ROOM2: Temperature that is reading from ROOM2 sensor.
OUT: Temperature that is reading from OUTSIDE sensor.
HUMIDITY: Humidity that is reading from HUMIDITY sensor.
FEEDING: Silo feed amount that is reading from FEEDING sensor.
DAY: Day number. **PROCESS VALUES PAGE** DAY, **SET VALUES PAGE** DAY are the same parameters.
PROCESS VALUES PAGE DAY parameter is a read-only parameter.
CURVE: If curve mode is enabled then "CURVE" word is seen.

5.4.2 SYSTEM MONITORING

SYSTEM MONITORING page has four different screens. All screens are seen below;

```
SYSTEM MONITORING
TMPSETCURVE:    20.0°C
ROOM1 TEMP :    15.1°C
ROOM2 TEMP :    19.4°C
OUTSIDE TMP:    25.3°C
MAXVNTCURVE:     8%00
MINVNTCURVE:     0%00
VENTILATION:     0%00
```

CONTROL FUNC PAGE 1 PAGE CURVE parameter is enabled,
CONTROL FUNC PAGE 1 PAGE OUTSIDE TEMP parameter is enabled.

```
SYSTEM MONITORING
TMPSET:         20.0°C
ROOM1 TEMP :    15.1°C
ROOM2 TEMP :    19.4°C
OUTSIDE TMP:    25.3°C
MAXVNT     :     8%00
MINVNT     :     0%00
VENTILATION:     0%00
```

CONTROL FUNC PAGE 1 PAGE CURVE parameter is disabled,
CONTROL FUNC PAGE 1 PAGE OUTSIDE TEMP parameter is enabled.

```
SYSTEM MONITORING
TMPSETCURVE:    20.0°C
ROOM1 TEMP :    15.1°C
ROOM2 TEMP :    19.4°C
MAXVNTCURVE:     8%00
MINVNTCURVE:     0%00
VENTILATION:     0%00
```

CONTROL FUNC PAGE 1 PAGE CURVE parameter is enabled,
CONTROL FUNC PAGE 1 PAGE OUTSIDE TEMP parameter is disabled.

```
SYSTEM MONITORING
TMPSET:         20.0°C
ROOM1 TEMP :    15.1°C
ROOM2 TEMP :    19.4°C
MAXVNT     :     8%00
MINVNT     :     0%00
VENTILATION:     0%00
```

CONTROL FUNC PAGE 1 PAGE CURVE parameter is disabled,
CONTROL FUNC PAGE 1 PAGE OUTSIDE TEMP parameter is disabled.

MAXVNTCURVE/MAXVNT: If curve is enabled; **MAXVNTCURVE**= Max. Ventilation set value from curve,
If curve is disabled; **MAXVNT**= **SET VALUES PAGE** VENT. MAX set value,
MINVNTCURVE/MINVNT: If curve is enabled; **MINVNTCURVE**= Min. Ventilation set value from curve,
If curve is disabled; **MINVNT**= **SET VALUES PAGE** VENT. MIN set value,
TMPSETCURVE/TMPSET: If curve is enabled; **TMPSETCURVE**= HOUSE TEMP set value from curve,
If curve is disabled; **TMPSET**= **SET VALUES PAGE** TEMP.HOUSE set value.
ROOM1 TEMP: ROOM1 SENSOR reading temperature value.
ROOM2 TEMP: ROOM2 SENSOR reading temperature value.
OUTSIDE TMP: OUTSIDE SENSOR reading temperature value.
VENTILATION: Active Ventilation output value.

5.4.3 FEEDING CONSUMPTION (EPC 3&4)

```
FEEDING CONSUMPTION
03.07.06      02:11:27
TARE         :        NO
RESET CONSUM:        NO
REQUIREDFEED:     151KG
EXIST FEED  :     368KG
TOTAL CONSUM:    8400KG
DAY NUMBER  :        12
```

TARE: Tare enable parameter (Range: NO- YES / Factory Setting: NO).
RESET CONSUM: (Range: NO- YES / Factory Setting: NO).
To reset **FEEDING CONSUMPTION** TOTAL CONSUM parameter, please change **FEEDING CONSUMPTION**

RESET CONSUM parameter from NO to YES and push [⏎] button, after that the

FEEDING CONSUMPTION TOTAL CONSUM parameter will reset and
FEEDING CONSUMPTION REST CONSUM parameter will change from YES to NO.
Also, curve enable event will reset **FEEDING CONSUMPTION** TOTAL CONSUM parameter.
REQUIREDFEED: Required feed amount to terminate step.
EXIST FEED: Feed weigh in silo.
TOTAL CONSUM: Total feed consumption at the active curve.
DAY NUMBER: Day Number.

```
WEIGHING1 LOG
03.07.06      02:11:27
TARE       :        NO
LOG CLEAR  :        NO
ACT AVERAGE :    151GR
YSTR AVERAGE:    143GR
TOTAL WEIGH :    980GR
DAY NUMBER  :       12
```
```
WEIGHING2 LOG
03.07.06      02:11:27
TARE       :        NO
LOG CLEAR  :        NO
ACT AVERAGE :    467GR
YSTR AVERAGE:    458GR
TOTAL WEIGH :   1400GR
DAY NUMBER  :       12
```
```
WEIGHING3 LOG
03.07.06      02:11:27
TARE       :        NO
LOG CLEAR  :        NO
ACT AVERAGE :    351GR
YSTR AVERAGE:    348GR
TOTAL WEIGH :   3980GR
DAY NUMBER  :       12
```

DATE: The unit shows current date (day.month.year).
TIME: The unit shows current time (hour.minute.second).
LOG CLEAR: Clear today and yesterday log fields (Range: NO- YES / Factory Setting: NO).
ACT AVERAGE: Actual average weigh (GR).

$$ACTUAL\ AVERAGE\ WEIGH = \sum_{Record\ No=1}^{Record\ No=Number\ Of\ Record} \frac{WEIGHT[Record\ No]}{Number\ Of\ Record}$$

Number Of Record: Quantitiy of recorded weigh in **WEIGHING PARAMETERS PAGE** AW SMPL PER time.
Number Of Record can't be lower than **WEIGHING PARAMETERS PAGE** AW MIN SMP.
If Number Of Record is lower than **WEIGHING PARAMETERS PAGE** AW MIN SMP,
new ACTUAL AVERAGE WEIGH is not calculated and EPC keeps on using old ACTUAL AVERAGE WEIGH
till Number Of Record will reach to **WEIGHING PARAMETERS PAGE** AW MIN SMP.

YSTR AVERAGE: Yesterday average weigh(GR).

$$YESTERDAY\ AVERAGE\ WEIGH = \sum_{Record\ No=1}^{Record\ No=Number\ Of\ Yesterday's\ Records} \frac{WEIGHT[Record\ No]}{Number\ Of\ Record}$$

Number Of Yesterday's Records: Quantitiy of recorded weigh in yesterday.

TOTAL WEIGH: Weigh reading from weigh1 input (-5000 GR - 5000 GR).
DAY NUMBER: Day Number.

5.4.5 ELECTRICITY ENERGY CONSUMPTION (EPC 4)

```
ELECTRICITY ENERGY
CONSUMPTION
03.07.06     02:11:27
RESET CONSUM:       NO
DAILY CONSUM:   15KWH
TOTAL CONSUM: 5018KWH
DAY NUMBER  :      12
```

DATE: The unit shows current date (day.month.year).
TIME: The unit shows current time (hour.minute.second).
RESET CONSUM: Reset DAILY CONSUM and TOTAL CONSUM parameters
(Range: NO- YES / Factory Setting: NO).
DAILY CONSUM: Daily electricity consumption (Kwh).
TOTAL CONSUM: Total electricity consumption (Kwh) at the active curve.
DAY NUMBER: Day Number.

Curve enable event will reset **ELECTRICITY ENERGY CONSUMPTION PAGE** DAILY CONSUM and **ELECTRICITY ENERGY CONSUMPTION PAGE** TOTAL CONSUM parameters.

To switch **ELECTRICITY ENERGY CONSUMPTION PAGE** DAILY CONSUM to enabled from disabled and

pushing [button] button will reset **ELECTRICITY ENERGY CONSUMPTION PAGE** DAILY CONSUM and

ELECTRICITY ENERGY CONSUMPTION PAGE TOTAL CONSUM parameters.
ELECTRICITY ENERGY CONSUMPTION PAGE DAILY CONSUM parameters is reset at each equinox.

5.4.6 WATER CONSUMPTION (EPC 4)

```
WATER CONSUMPTION

03.07.06     02:11:27
RESET  CONSUM:       NO
DAILY  CONSUM:    430LT
TOTAL  CONSUM: 15316LT
DAY NUMBER   :      12
```

DATE: The unit shows current date (day.month.year).
TIME: The unit shows current time (hour.minute.second).
RESET CONSUM: Reset DAILY CONSUM and TOTAL CONSUM parameters
(Range: NO- YES / Factory Setting: NO).
DAILY CONSUM: Daily water consumption (Liter).
TOTAL CONSUM: Total water consumption (Liter).
DAY NUMBER: Day Number (Read only).

To reset **WATER CONSUMPTION PAGE** DAILY CONSUM and
WATER CONSUMPTION PAGE TOTAL CONSUM parameters, please change

WATER CONSUMPTION PAGE RESET CONSUM parameter from NO to YES and push [button] button,

after that the **WATER CONSUMPTION PAGE** DAILY CONSUM and
WATER CONSUMPTION PAGE TOTAL CONSUM parameters will reset and
WATER CONSUMPTION PAGE RESET CONSUM parameter will change from YES to NO.

Also, curve enable event will reset **WATER CONSUMPTION PAGE** DAILY CONSUM and
WATER CONSUMPTION PAGE TOTAL CONSUM parameters.

5.4.7 SET VALUES

SET VALUES page showing depends on curve selection.
If curve is enabled "Page II" is seen, otherwise "Page I" is seen.

```
         SET VALUES
TEMP.HOUSE:   20.0°C
TEMP.HEAT :   -2.0°C
TEMP.COOL :   -1.0°C
HUMIDITY  :     20%
VENT.MIN  :    0%00
VENT.MAX  :    8%00
DAY       :     -5
```
CURVE is DISABLED
Page I

```
         SET VALUES
TEMP.HEAT :   -2.0°C
TEMP.COOL :   -1.0°C
DAY       :     -5
```
CURVE is ENABLED
Page II

TEMP.HOUSE: Temperature house set value (Range: 0.0 °C - 50.0 °C / Factory Setting: 30.0 °C).
TEMP. HEAT: Temperature heat set value
(If **HEATING1 PARAMETERS PAGE** SET POINT or **HEATING2 PARAMETERS PAGE** SET POINT is ABSOLUTE then; Range: 0.0 °C - 40.0 °C otherwise, Range: -9.9 °C - 0.0 °C / Factory Setting: -0.5 °C)
HEATING1 PARAMETERS PAGE SET POINT and **HEATING2 PARAMETERS PAGE** SET POINT parameters are the same.
TEMP.COOL: Temperature cool set value
(If **COOLING PARAMETERS PAGE** SET POINT is ABSOLUTE then
Range: 0.0 °C - 40.0 °C otherwise 0.0 °C - 9.9 °C/ Factory Setting: 4.0 °C)
HUMIDITY: Humidity set value (Range: 0% RH - 100% RH / Factory Setting: 65% RH).
VENT.MIN: Minimum ventilation set value (Range: 0%00 - 8%00 / Factory Setting: 0%00).
VENT.MAX: Maximum ventilation set value (Range: 0%00 - 8%00 / Factory Setting: 8%00)
DAY: Current day set number. **PROCESS VALUES PAGE** DAY, **SET VALUES PAGE** DAY are the same parameters.
SET VALUES PAGE DAY parameter can change. (Range: -5 - 999 / Factory Setting: -1)

5.4.8 SHUTTER

5.4.8.1 SHUTTER PARAMETERS

```
SET SHUTTER
CORRMINVENT:        0%
CORRMAXVENT:        0%
CORRPBVENT :      0.0°C
```

CORRMINVENT: Shutter minimum set value depends on Min. Vent. set value
(Range: -20% - 20% / Factory Setting: 0%)
CORRMAXVENT: Shutter maximum set value depends on Max. Vent. set value
(Range: -20% - 20% / Factory Setting: 0%)
CORRPBVENT: Correction for Shutter set value depends on ventilation
(Range: -20.0 °C - 20.0 °C / Factory Setting: 0.0 °C)

Push ⬆/N button to access to ALARM SET VALUES PAGE (If no parameter is selected)

Push ⬇/P button to access to PROCESS VALUES PAGE (If no parameter is selected)

Push ↵ button to access to FEEDING PARAMETERS PAGE (If the last parameter is selected)

5.4.8.2 SHUTTER FUNCTION

1. Shutter analog output:
Shutter value is related with **SET SHUTTER PAGE** CORRMINVENT, **SET SHUTTER PAGE** CORRMAXVENT, **SET SHUTTER PAGE** CORRPBVENT and ventilation outputs.
Shutter analog output (SHUTTER) is between 0 V‗‗ - 10 V‗‗.
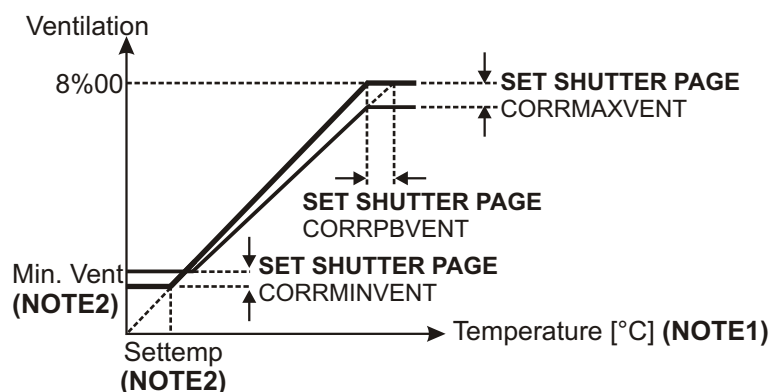
2. Shutter motorized control

Default control mode is AUTO.

Push MAN/AUTO button to switch between AUTO and MANUAL control modes.

Manual Control: Control the shutter by using ▲ ▼ buttons.

```
SHUTTER   PARAMETERS
STROKE  TIME:   100SEC
STEP       :     1.0%
```

Auto Control: Control the shutter by using SHUTTER PARAMETERS PAGE parameters.

SHUTTER PARAMETERS PAGE STROKE TIME:
It can be adjusted from 5 to 600 second. It defines after how many seconds shutter is completely opened. For determining the parameter correctly, close the shutter manually. Be sure that shutter is closed completely, then open it manually without stopping and measure that how many seconds have passed for opening it completely. Parameter must be entered "measured value + 5% of measured value".

SHUTTER PARAMETERS PAGE STEP:
It can be adjusted from 0.1 to 5.0 %. It is % of **SHUTTER PARAMETERS PAGE** STROKE TIME parameter. Minimum movement steps of shutter while opening or closing are determined as % ratio. If shutter oscillates while controlling, INCREASE this parameter value.

NOTE1:
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If curve is enabled;
Settemp= HOUSE TEMP from curve, Min.Vent= MIN. VENT from curve, Max.Vent=MAX. VENT from curve,
If curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE, Min.Vent= **SET VALUES PAGE** VENT. MIN,
Max.Vent= **SET VALUES PAGE** VENT. MAX.

5.4.9 FEEDING PARAMETERS (EPC 3&4)

```
FEEDING PARAMETERS

         HR:MN        FEED<KG>
F1:  00:00                  0
F2:  00:00                  0
F3:  00:00                  0
F4:  00:00                  0
F5:  00:00                  0
```
Start Time   Feed Amount

HR:MN (COLUMN): Step start time
(Range: 00:00 - 23:59 / Factory Setting: 00:00).
FEED <KG> (COLUMN): Feed amount for related step
(Range: 0 KG - 10000 KG / Factory Settings please look below).

```
FEEDING PARAMETERS

         HR:MN        FEED<KG>
F1:  00:00                600
F2:  07:00                  0
F3:  00:00                  0
F4:  00:00                  0
F5:  00:00                  0
```

Push [▲ / N] button to access to ALARM SET VALUES PAGE (If no parameter is selected)

Push [▼ / P] button to access to PROCESS VALUES PAGE (If no parameter is selected)

Push [↵ / ▤] button to change parameter (If no parameter is selected)

Push [↵ / ▤] button to access to LIGHTING PARAMETERS PAGE (If the last parameter is selected)

5.4.9.1 FEEDING FUNCTION (EPC 3&4)

```
FEEDING PARAMETERS

         HR:MN        FEED<KG>
F1:  06:00                150
F2:  10:00                200
F3:  12:00                100
F4:  19:00                100
F5:  22:00                200
```
Start Time   Feed Amount

Depend on sample screen above;
EPC gives;

At 06:00: 150kg feed (F1 step)
At 10:00: 200kg feed (F2 step)
At 12:00: 100kg feed (F3 step)
At 19:00: 100kg feed (F4 step)
At 22:00: 200kg feed (F5 step)

Important :As long as a running step is not completed EPC will not run next step, even if next step's start time is reached. So all steps must be entered properly.

5.4.10 LIGHTING PARAMETERS (EPC 3&4)

```
LIGHTING PARAMETERS

       HR:MN  HR:MN   OUT%
L1:    00:00  00:00     0%
L2:    00:00  00:00     0%
L3:    00:00  00:00     0%
L4:    00:00  00:00     0%
L5:    00:00  00:00     0%
     Start Time Duration  Analog
                          Output
```

HR:MN (START TIME COLUMN): Step start time
(Range:00:00 - 23:59 / Factory Setting: 00:00).
HR:MN (DURATION COLUMN): Step duration
(Range:00:00 - 23:59 / Factory Setting: 00:00).
OUT% (ANALOG OUTPUT COLUMN): Analog lighting output
(Range:0% - 100% / Factory Setting: 0%).

Push [▲ N] button to access to ALARM SET VALUES PAGE (If no parameter is selected)

Push [▼ P] button to access to PROCESS VALUES PAGE (If no parameter is selected)

Push [↵ ▤] button to change parameter (If no parameter is selected)

Push [↵ ▤] button to access to SET VALUES PAGE (If the last parameter is selected)

Using of LIGHTING PARAMETERS PAGE is explained in details at Technician Section.

5.4.11 ALARMS

5.4.11.1 ALARM SET VALUES

```
ALARM SET VALUES
ABSOLUTE MIN:    0.0°C
ABSOLUTE MAX:   99.0°C
DIFFERENTIAL:    0.0°C
TYPE        :NONLATCH
```

ABSOLUTE MIN: Absolute minimum alarm set value
(Range: 0.0 °C - 50.0 °C / Factory Setting: 16.0 °C).
ABSOLUTE MAX: Absolute maximum alarm set value
(Range: 0.0 °C - 99.9 °C / Factory Setting: 38.0 °C).
DIFFERENTIAL: Differential alarm set value (Range: 0.0 °C - 25.0 °C / Factory Setting: 6.0 °C).
TYPE: Alarm type set value (Range: NONLATCH- LATCH- CYCLIC / Factory Setting: NONLATCH).

5.4.11.2 ALARM TYPES

EPC has 10 different alarm types. These are listed below;
1- ABSOLUTE MIN alarm,
2- ABSOLUTE MAX alarm,
3- DIFFERENTIAL alarm,
4- ALARM1,
5- NEGATIVE PRESSURE alarm,
6- HUMIDITY SENSOR alarm,
7- NO ENOUGH FEED alarm,
8- ROOM1 OFL alarm,
9- ROOM2 OFL alarm,
10- OUTSIDE OFL alarm.

```
ALARM SET VALUES
ABSOLUTE MIN:    0.0°C
ABSOLUTE MAX:   99.0°C
DIFFERENTIAL:    0.0°C
TYPE        :NONLATCH
```

```
ALARM STATUS 1
ABSOLUTE MIN      :OFF
ABSOLUTE MAX      :OFF
DIFFERENTIAL      :OFF
ALARM1            :OFF
NEGATIVE PRESSURE:OFF
HUMIDITY SENSOR   :OFF
NO ENOUGH FEED    :OFF
```

```
ALARM STATUS 2
ROOM1 OFL         :OFF
ROOM2 OFL         :OFF
OUTSIDE OFL       :OFF
```

1. ABSOLUTE MIN alarm:

If Temperature**(NOTE1)** is lower than **ALARM SET VALUES** ABSOLUTE MIN value for more than a minute **ALARM STATUS 1** ABSOLUTE MIN is switched ON.

2. ABSOLUTE MAX alarm:

If Temperature**(NOTE1)** is higher than **ALARM SET VALUES** ABSOLUTE MAX value for more than a minute **ALARM STATUS 1** ABSOLUTE MAX is switched ON.

3. DIFFERENTIAL alarm:

First situation;

If outside temperature is lower than Settemp**(NOTE2)** plus **SET VENTILATION PAGE** VENTILATION8 and if Temperature **(NOTE1)** is higher than Settemp**(NOTE2)** plus **SET VENTILATION PAGE** VENTILATION8 plus **ALARM SET VALUES** DIFFERENTIAL for more than a minute **ALARM STATUS 1** DIFFERENTIAL alarm is switched ON.

(Outside temp.<=Temperature **(NOTE1)** + **SET VENTILATION PAGE** VENTILATION8)
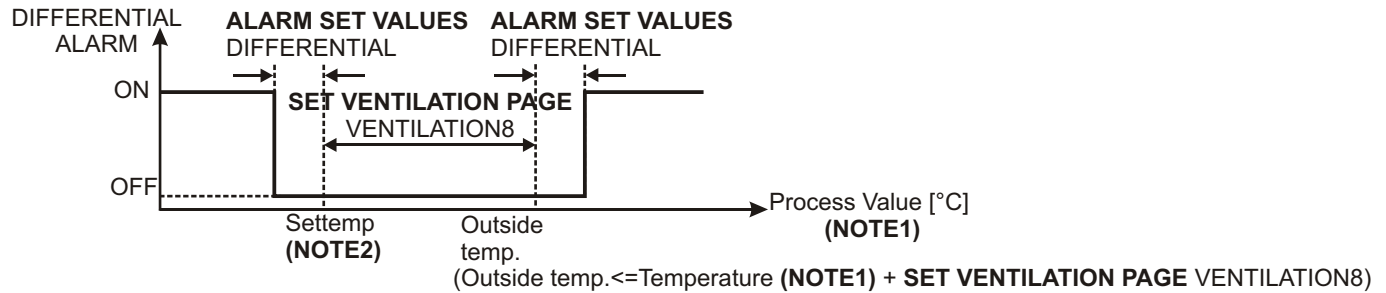
Second situation:

If the outside temperature is lower than or equal **ALARM SET VALUES PAGE** ABSOLUTE MAX and if Temperature **(NOTE1)** is higher than the outside temperature plus **ALARM SET VALUES PAGE** DIFFERENTIAL for more than a minute **ALARM STATUS PAGE 1** DIFFERENTIAL alarm is switched ON.

(Outside temp.<=**ALARM SET VALUES** ABSOLUTE MAX and Outside temp.>Temperature **(NOTE1)** + **SET VENTILATION PAGE** VENTILATION8)

NOTE1:

If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.

NOTE2:

If curve is enabled;
Settemp= HOUSE TEMP from curve.
Min.Vent= MIN. VENT from curve.
Max.Vent=MAX. VENT from curve.
If curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE.
Min.Vent= **SET VALUES PAGE** VENT. MIN.
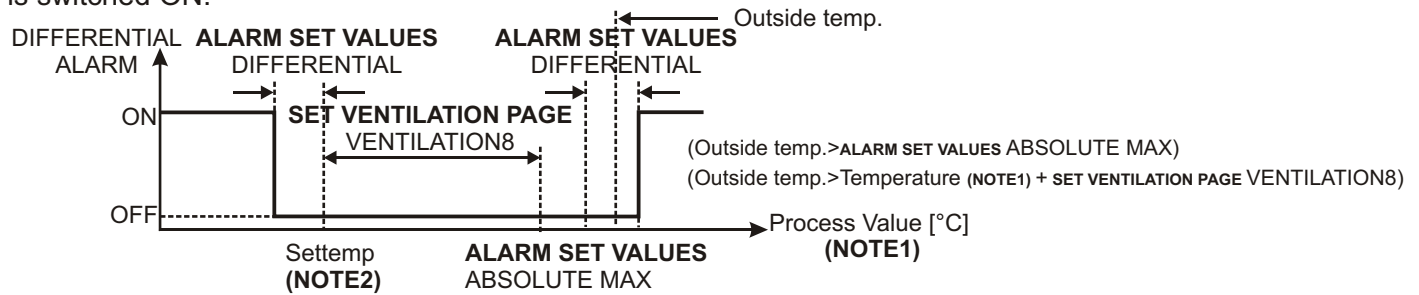Max.Vent= **SET VALUES PAGE** VENT. MAX.

Third situation:
If Temperature**(NOTE1)** is higher than **ALARM SET VALUES** ABSOLUTE MAX plus
ALARM SET VALUES DIFFERENTIAL for more than a minute **ALARM STATUS 1** DIFFERENTIAL alarm
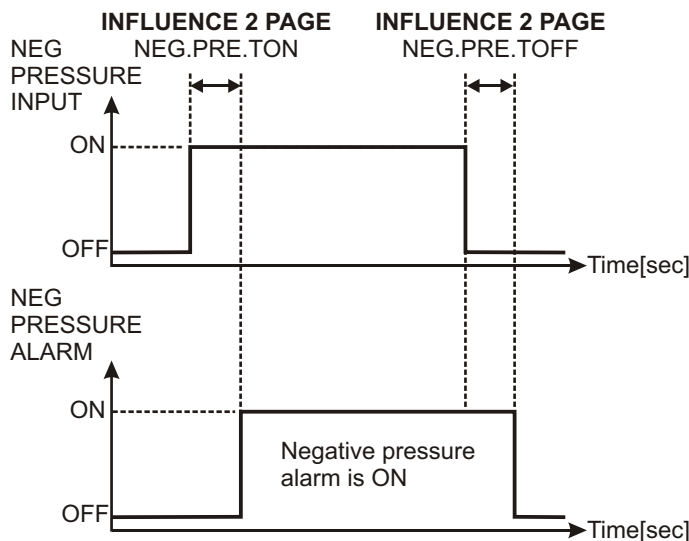is switched ON.

4. ALARM1 alarm
If ALARM1 input is ON then **ALARM STATUS 1** DIFFERENTIAL alarm is switched ON.

5. NEGATIVE PRESSURE alarm
As long as **INFLUENCE 2 PAGE** NEG PRESSURE parameter is different from NON, negative pressure input
is enabled. Otherwise negative pressure input is disabled.

6. HUMIDITY alarm
If HUMIDITY sensor is broken while EPC is working then **ALARM STATUS 1** HUMIDITY alarm is switched
ON.

7. NO ENOUGH FEED alarm
EPC always controls the silo just before to run a step. If **FEED UNIT PARAMETERS** UNIT parameter is
WEIGHT and there is not enough feed in silo to run the step then **ALARM STATUS 1** NO ENOUGH FEED
alarm is switched ON.

8. ROOM1 OFL alarm
If ROOM1 sensor is broken while EPC is working then **ALARM STATUS 2** ROOM1 OFL alarm is switched
ON.

NOTE1:
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If curve is enabled;
Settemp= HOUSE TEMP from curve.
Min.Vent= MIN. VENT from curve.
Max.Vent=MAX. VENT from curve.
If curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE.
Min.Vent= **SET VALUES PAGE** VENT. MIN.
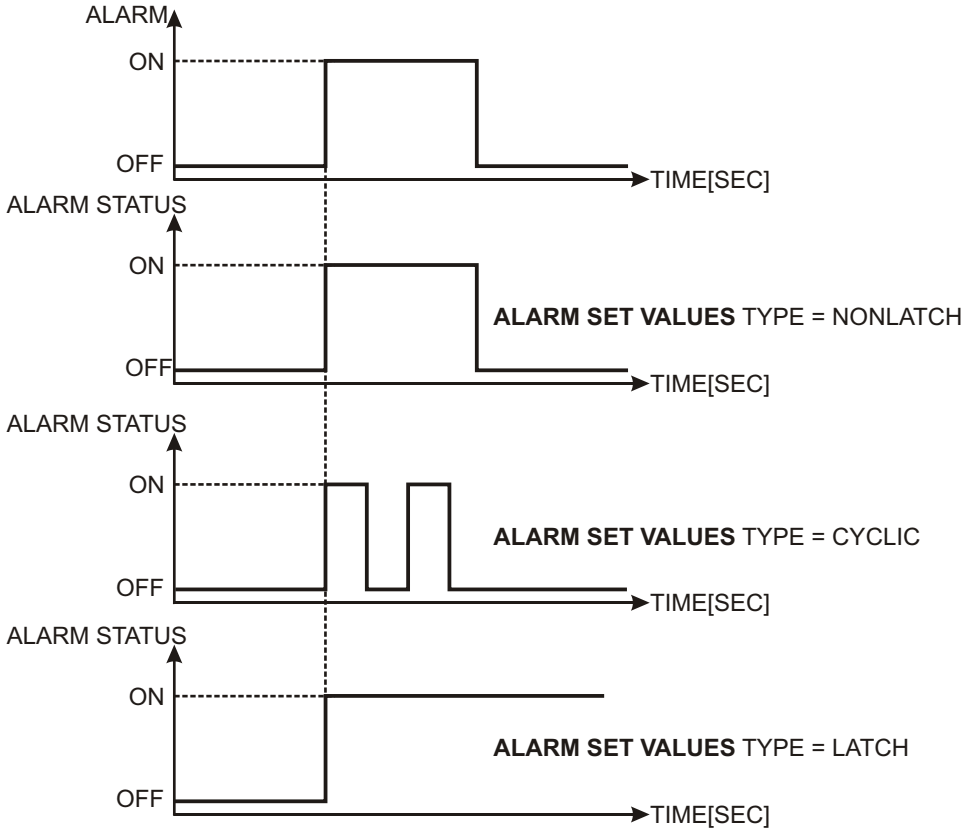Max.Vent= **SET VALUES PAGE** VENT. MAX.

9. ROOM2 OFL alarm

If ROOM2 sensor is broken while EPC is working then **ALARM STATUS 2** ROOM2 OFL alarm is switched ON.

10. OUTSIDE OFL alarm

If OUTSIDE sensor is broken while EPC is working then **ALARM STATUS 2** OUTSIDE OFL alarm is switched ON.

11. ALARM TYPES: NONLATCH, CYCLIC and LATCH

12. ALARM STATUS PAGES

ALARM STATUS pages are used to see and clear alarms. If a new alarm is occured then alarm relay and alarm led becomes ON. To switch OFF the alarm relay and alarm led, ALARM STATUS pages are accessed. If an alarm is occured(for example ALARM1 is ON) then;

Push [🔇!] button to access to ALARM STATUS 1 page and clear ALARM1 alarm.

```
ALARM STATUS 1
ABSOLUTE MIN      :OFF
ABSOLUTE MAX      :OFF
DIFFERENTIAL      :OFF
ALARM1            :OFF
NEGATIVE PRESSURE:OFF
HUMIDITY SENSOR   :OFF
NO ENOUGH FEED    :OFF
```

Push [🔇!] button to access to ALARM STATUS 2 page.

```
ALARM STATUS 2
ROOM1 OFL         :OFF
ROOM2 OFL         :OFF
OUTSIDE OFL       :OFF
```

Push [🔇!] button to clear alarm output, alarm led and return to the PROCESS VALUES page.

```
19.07.06    14:30:21
HOUSE    20.2°C
OUT      12.1°C
HUMIDITY    65%
DAY      -5
```

5.4.12 PROCESS OUTPUTS

```
      PROCESS OUTPUTS
HEATING1          :    0%
HEATING2          :    0%
COOLING           :    0%
HUMIDITY          :    0%
VENTILATION       : 0%00
SHUTTER           : 0%00
LIGHTING ANALOG:     0%
```

HEATING1: HEATER 1 output value (Range: 0% - 100%).
HEATING2: HEATER 2 output value (Range: 0% - 100%).
COOLING: COOLING output value (Range: 0% - 100%).
HUMIDITY: HUMIDITY output value (Range: 0% - 100%).
VENTILATION: Ventilation output value (Range: 0%00 - 8%00).
SHUTTER: Shutter output value (Range: 0%00 - 8%00).
LIGHTING ANALOG: Lighting 0- 10 V⎓ output value (Range: 0% - 100%).

5.4.13 MAX & MIN VALUES

```
MAX & MIN VALUES 1

HOUSE MIN :    0.0°C
TIME      :    00.00
HOUSE MAX :    0.0°C
TIME      :    00.00
```

```
MAX & MIN VALUES 2

OUTSIDE MIN:    0.0°C
TIME       :    00.00
OUTSIDE MAX:    0.0°C
TIME       :    00.00
```

HOUSE MIN: Minimum Temperature value of last 24 hours (NOTE 1).
TIME: Minimum Temperature value's captured time (hour.minute) (NOTE 1).
HOUSE MAX: Maximum Temperature value of last 24 hours (NOTE 1).
TIME: Maximum Temperature value's captured time (hour.minute) (NOTE 1).
OUTSIDE MIN: Minimum Temperature value of OUTSIDE of last 24 hours (NOTE 2).
TIME: Minimum Temperature value's captured time (hour.minute) (NOTE 2).
OUTSIDE MAX: Maximum Temperature value of OUTSIDE of last 24 hours (NOTE 2).
TIME: Maximum Temperature value's captured time (hour.minute) (NOTE 2).

NOTE 1: MAX & MIN VALUES 1 PAGE shows the saved minimum and maximum temperature values of last 24 hours that was token from
ROOM1 or
ROOM2 or
(ROOM1 + ROOM2)/2
The selection depends on **SELECT HOUSE SENSOR PAGE** FOR MINMAX parameter.
- If sensor is broken then EPC keeps on showing last measured maximum and minimum temperatures.
- If **SELECT HOUSE SENSOR PAGE** FOR MINMAX parameter is ROOM1&2 and one of two sensors is broken then EPC keeps on working by using other one.
- EPC will show nothing if using sensor or sensors are broken before energized EPC.

NOTE 2: MAX & MIN VALUES 1 PAGE shows the saved minimum and maximum temperature values of last 24 hours that was token from OUTSIDE sensor.
- If outside sensor is broken then EPC keeps on showing last measured maximum and minimum temperatures.
- EPC will show nothing, if outside sensor is broken before energized EPC.

5.4.14 ALARM STATUS

```
ALARM STATUS 1
ABSOLUTE MIN       :OFF
ABSOLUTE MAX       :OFF
DIFFERENTIAL       :OFF
ALARM1             :OFF
NEGATIVE PRESSURE:OFF
HUMIDITY SENSOR    :OFF
NO ENOUGH FEED     :OFF
```

```
ALARM STATUS 2
ROOM1 OFL          :OFF
ROOM2 OFL          :OFF
OUTSIDE OFL        :OFF
```

ABSOLUTE MIN: Absolute min. alarm status (Range: OFF- ON).
ABSOLUTE MAX: Absolute max. alarm status (Range: OFF- ON).
DIFFERENTIAL: Differential alarm status (Range: OFF- ON).
ALARM1: Alarm1 alarm status (Range: OFF- ON).
NEGATIVE PRESSURE: Negative pressure alarm status (Range: OFF- ON).
HUMIDITY SENSOR: Humidity sensor overflow alarm status (Range: OFF- ON).
NO ENOUGH FEED: No enough feed alarm status (Range: OFF- ON).
ROOM1 OFL: Room1 overflow alarm status (Range: OFF- ON).
ROOM2 OFL: Room2 overflow alarm status (Range: OFF- ON).
OUTSIDE OFL: Outside overflow alarm status (Range: OFF- ON).

5.4.15 EVENTS

```
              EVENTS

EVENT NUMBER ──→  EVENT  1

EVENT DATE ──→  11.05.2006 11:07:03   ←── EVENT TIME

EVENT ──→  DIFFERENTIAL ALARM
```
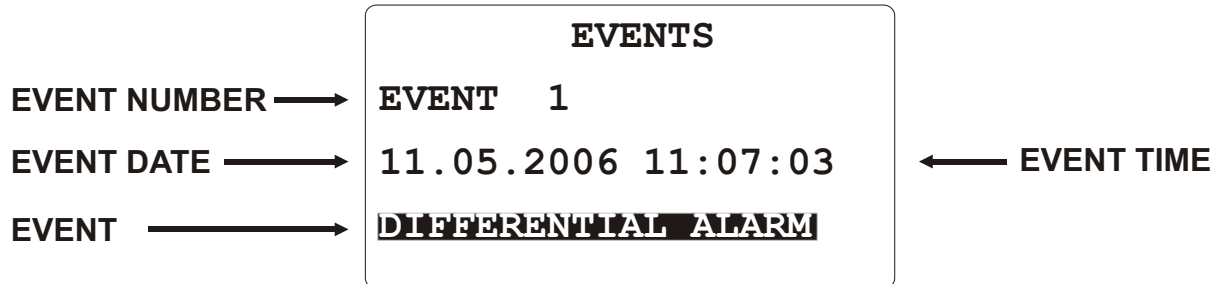
EVENT NUMBER: Number of event that is seen.
EVENT DATE: Date of event that is seen.
EVENT TIME: Time of event that is seen.
EVENT: EPC saves last 50 events.
Event Types;
1. MAX TEMP ALARM,
2. ABSOLUTE MIN ALARM,
3. ABSOLUTE MAX ALARM,
4. DIFFERENTIAL ALARM,
5. EXTERNAL ALARM1,
6. NEG PRESSURE ALARM,
7. NO ENOUGH FEED ALARM,
8. HUMIDITY OFL,
9. ROOM1 OFL,
10. ROOM2 OFL,
11. OUTSIDE OFL.

Push [⏎] button to access to older event(if you are already in EVENTS PAGE)

5.4.16 INFLUENCES

5.4.16.1 INFLUENCE PARAMETERS

```
        INFLUENCE 1                          INFLUENCE 2
F.L.O.T/MN.VNT:     NON          T.O.TMP OFFS:      NON
T.L.O.T/MN.VNT: -25.0            T.RH OFFSET :      5.0
MAX.VENT.COOL :  8%00            NEG PRESSURE:      NON
F.L.O.T/T.OFF :    NON           NEG.PRE.TON :        0
T.L.O.T/T.OFF : -25.0            NEG.PRE.TOFF:        0
```

F.L.O.T/MN.VNT: Influence Factor Low Outside Temperature/ Minimum Ventilation set value
(Range: NON, 0.5, 0.75, 1.0, 1.5, 2.0 / Factory Setting: NON).
T.L.O.T/MN.VNT: Trajectory Factor Low Outside Temperature/ Minimum Ventilation set value
(Range: -50.0 °C - -5.0 °C / Factory Setting: -25.0 °C)
MAX.VENT.COOL: Maximum Ventilation of Cooling set value
(Range: NON, 0%00 - 8%00 / Factory Setting: 8%00).
F.L.O.T/T.OFF: Influence Factor Low Outside Temperature/ Temperature Offset set value
(Range: NON, 0.5, 0.75, 1.0, 1.5, 2.0 / Factory Setting: NON).
T.L.O.T/T.OFF: Trajectory Factor Low Outside Temperature/ Temperature Offset set value
(Range: -50.0 °C - -5.0 °C / Factory Setting: -25.0 °C).

T.O.TMP OFFS: Influence Factor High Outside on Temperature Offsets set value
(Range: NON, 0.5, 0.75, 1.0, 1.5, 2.0 / Factory Setting: NON).
T.RH OFFSET: Trajectory Factor High Outside Temperature/ Temperature Offsets set value
(Range: 5.0 °C - 50.0 °C / Factory Setting: 5.0 °C).
NEG PRESSURE: Negative pressure influence set value
(Range: 5.0 °C - 50.0 °C / Factory Setting: 5.0 °C).
NEG.PRE.TON: Negative pressure influence Ton delay set value
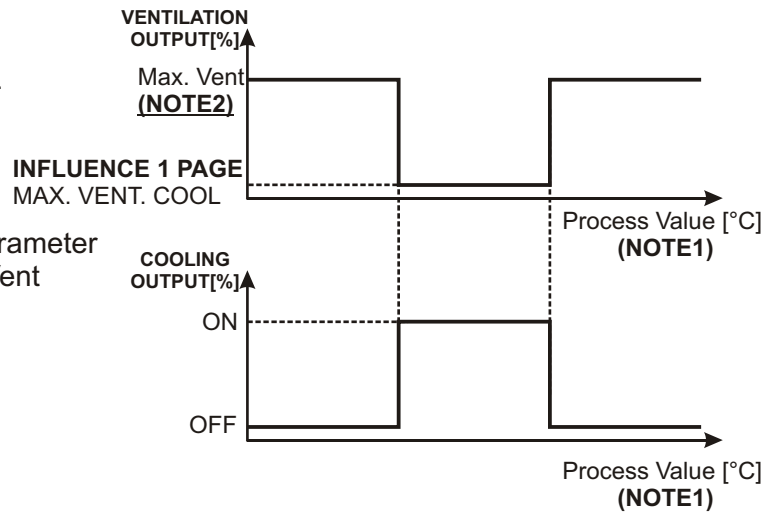(Range: 0 sec - 10 sec / Factory Setting: 0 sec).
NEG.PRE.TOFF: Negative pressure influence Toff delay set value
(Range: 0 sec - 10 sec / Factory Setting: 0 sec).

5.4.16.2 INFLUENCE FUNCTIONS

**1. Influence cooling on maximum ventilation:**
If the **COOLING PARAMETERS PAGE** CONTROL parameter is ON/OFF and COOLING OUTPUT is ON then Max. Vent value is equal to **INFLUENCE 1 PAGE** MAX. VENT. COOL parameter.
If the **INFLUENCE 1 PAGE** MAX. VENT. COOL parameter is NON or COOLING OUTPUT is OFF then Max. Vent value is defined in **NOTE2**.

VENTILATION OUTPUT[%]

Max. Vent **(NOTE2)**

INFLUENCE 1 PAGE MAX. VENT. COOL

Process Value [°C] **(NOTE1)**

COOLING OUTPUT[%]

ON

OFF

Process Value [°C] **(NOTE1)**

2. Influence low outside temperature on minimum ventilation
If outside temperature lower than inside to avoid draughts, minimum ventilation is depended on **INFLUENCE 1 PAGE** F.L.O.T/MN.VNT and **INFLUENCE 1 PAGE** T.L.O.T/MN.VNT parameters.
The influence starts 5 °C below the settemp.

Min.Vent [%]

0%30

Max. Inf.

0%15

7   17 22   Outside Temp. [°C] **(NOTE2)**

INFLUENCE 1 PAGE
T.L.O.T/MN.VNT
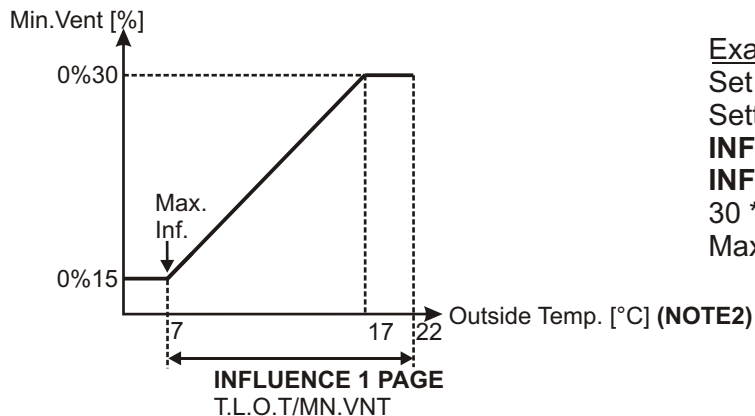
Example:
Set minimum ventilation   30%
Settemp   22 °C
INFLUENCE 1 PAGE T.L.O.T/MN.VNT   -15 °C
INFLUENCE 1 PAGE F.L.O.T/MN.VNT   0.5
30 * 0.5;
Max. Inf= 0%15

NOTE1:
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1;
Max. Inf. = Min.Vent * **INFLUENCE 1 PAGE** T.L.O.T/MN.VNT,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM2;
Max. Inf. = (any offset parameter from A**(NOTE3)** to H**(NOTE3)**) * **INFLUENCE 1 PAGE** T.L.O.T/T.OFF,
Influence factor high outside temperature on temperature offset;
Max. Inf. = (any offset parameter from A**(NOTE3)** to H**(NOTE3)**) * **INFLUENCE 2 PAGE** T.O.TMP OFFS.
NOTE2:
If curve is enabled;
Settemp= HOUSE TEMP from curve; Min.Vent= MIN. VENT from curve; Max.Vent=MAX. VENT from curve,
If curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE.
Min.Vent= **SET VALUES PAGE** VENT. MIN.
Max.Vent= **SET VALUES PAGE** VENT. MAX.
NOTE3:
A = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION1.
B = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION2.
C = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION3.
D = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION4.
E = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION5.
F = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION6.
G = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION7.
H = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION8.

3. Influence factor low outside temperature on temperature offsets

If outside temperature lower than inside to avoid draughts, ventilation stages are depended on **INFLUENCE 1 PAGE** F.L.O.T/T.OFF and **INFLUENCE 1 PAGE** T.L.O.T/T.OFF parameters. The influence starts 5 °C below the settemp.
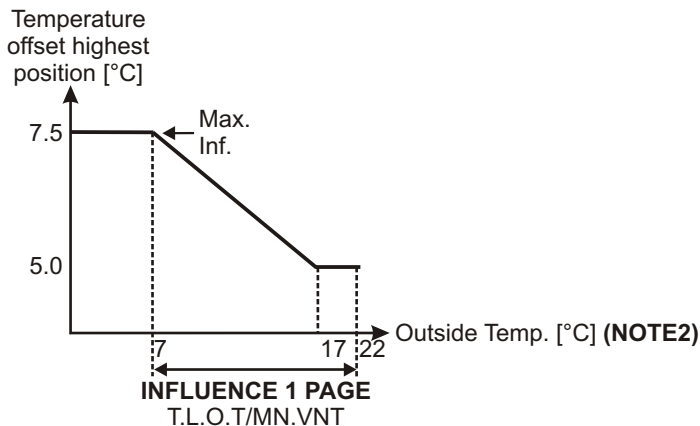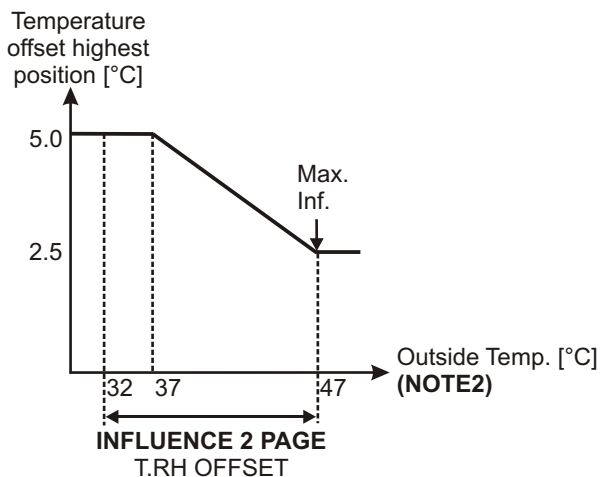

Example:

Set temperature offset(stage 1)	5.0 °C
Settemp	22 °C
INFLUENCE 1 PAGE T.L.O.T/T.OFF	15 °C
INFLUENCE 1 PAGE F.L.O.T/T.OFF	1.5

Max. Inf= 5.0 *1.5
Max. Inf= 7.5 °C

4. Influence factor high outside temperature on temperature offsets

If outside temperature higher than H**(NOTE3)** to avoid draughts, ventilation stages are depended on **INFLUENCE 2 PAGE** T.O.TMP OFFS and **INFLUENCE 2 PAGE** T.RH OFFSET parameters.The influence starts 5 °C above the H**(NOTE3)**.

Example:

SET VENTILATION PAGE VENTILATION8	10.0 °C
Set temperature offset(stage 1)	5.0 °C
Settemp	22 °C
INFLUENCE 2 PAGE T.RH OFFSET	15 °C
INFLUENCE 2 PAGE T.O.TMP OFFS	0.5

SET VENTILATION PAGE VENTILATION8 + Settemp = 22 + 10;
SET VENTILATION PAGE VENTILATION8 + Settemp = 32 °C
Max. Inf= 5.0 *0.5
Max. Inf= 2.5 °C

NOTE1:
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1;
Max. Inf. = Min.Vent * **INFLUENCE 1 PAGE** T.L.O.T/MN.VNT,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM2;
Max. Inf. = (any offset parameter from A**(NOTE3)** to H**(NOTE3)**) * **INFLUENCE 1 PAGE** T.L.O.T/T.OFF,
Influence factor high outside temperature on temperature ofset;
Max. Inf. = (any offset parameter from A**(NOTE3)** to H**(NOTE3)**) * **INFLUENCE 2 PAGE** T.O.TMP OFFS,
NOTE2:
If curve is enabled;
Settemp= HOUSE TEMP from curve; Min.Vent= MIN. VENT from curve; Max.Vent=MAX. VENT from curve,
If curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE.
Min.Vent= **SET VALUES PAGE** VENT. MIN.
Max.Vent= **SET VALUES PAGE** VENT. MAX.
NOTE3:
A = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION1.
B = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION2.
C = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION3.
D = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION4.
E = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION5.
F = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION6.
G = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION7.
H = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION8.

5. Influence negative pressure input on ventilation and shutter:
Negative pressure influence affects to reduce ventilation up to minimum ventilation. Also it set shutter to maximum value. As long as **INFLUENCE 2 PAGE** NEG PRESSURE parameter is different from NON, negative pressure is enabled. Otherwise negative pressure influence is disabled.
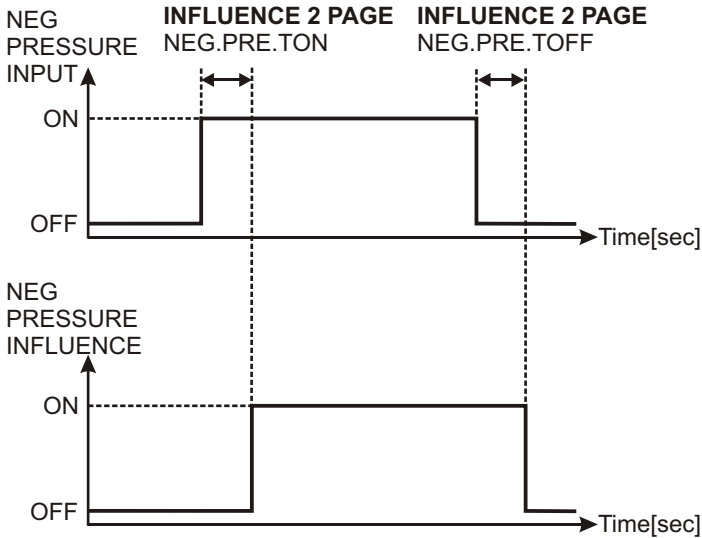
Briefly(it is assumed that negative pressure is active);

- **INFLUENCE 2 PAGE** NEG PRESSURE is "NON"
influence is disabled,
ventilation and shutter will not change

- **INFLUENCE 2 PAGE** NEG PRESSURE is anything but "NON"
influence is enabled,
ventilation = ventilation - **INFLUENCE 2 PAGE** NEG PRESSURE
shutter = shutter's maximum value

5.4.17 DATE SETUP

```
        DATE  SETUP
YEAR     :    2006
MONTH    :       1
DAY      :      24
HOUR     :      16
MINUTE   :      31
SECOND   :      36
```

YEAR: Current year set value (Range: 0- 99 / Factory Setting: Current year).
MONTH: Current month set value (Range: 1- 12 / Factory Setting: Current month).
DAY: Current day set value (Range: 1- 31 / Factory Setting: Current day).
HOUR: Current hour set value (Range: 0- 23 / Factory Setting: Current hour).
MINUTE: Current minute set value (Range: 0- 59 / Factory Setting: Current minute).
SECOND: Current second set value (Range: 0- 59 / Factory Setting: Current second).

5.4.18 CURVE

5.4.18.1 CURVE SETUP

```
     CURVE    SETUP
CURVE STEP:        X
DAY      :         1
HOUSE TEMP:    0.0°C
MIN. VENT :    0%00
MAX. VENT :    8%00
HUMIDITY  :      0%
```

X is the number between 1 and 10

DAY: Day set value (Range: 0- **CURVE STEP2** DAY / Factory settings are below).
HOUSE TEMP: House Temperature set value (Range: 0.0 °C- 50.0 °C / Factory settings are below).
MIN. VENT: Minimum ventilation set value (Range: 0%00- 8%00 / Factory settings are below).
MAX. VENT: Maximum ventilation set value (Range: 0%00- 8%00 / Factory settings are below).
HUMIDITY: Humidity set value (Range: 0%- 100% / Factory settings are below).

FACTORY SETTINGS:

```
     CURVE    SETUP              CURVE    SETUP
CURVE STEP:      1          CURVE STEP:      6
DAY      :       1          DAY      :      28
HOUSE TEMP:  33.0°C         HOUSE TEMP:  23.0°C
MIN. VENT :  0%01           MIN. VENT :  3%00
MAX. VENT :  1%00           MAX. VENT :  8%00
HUMIDITY  :     65%         HUMIDITY  :     65%
```

```
     CURVE    SETUP              CURVE    SETUP
CURVE STEP:      2          CURVE STEP:      7
DAY      :       3          DAY      :      34
HOUSE TEMP:  32.0°C         HOUSE TEMP:  20.0°C
MIN. VENT :  0%20           MIN. VENT :  4%00
MAX. VENT :  1%00           MAX. VENT :  8%00
HUMIDITY  :     65%         HUMIDITY  :     65%
```

```
     CURVE    SETUP              CURVE    SETUP
CURVE STEP:      3          CURVE STEP:      8
DAY      :       7          DAY      :      34
HOUSE TEMP:  28.0°C         HOUSE TEMP:  20.0°C
MIN. VENT :  0%50           MIN. VENT :  4%00
MAX. VENT :  2%00           MAX. VENT :  8%00
HUMIDITY  :     65%         HUMIDITY  :     65%
```

```
     CURVE    SETUP              CURVE    SETUP
CURVE STEP:      4          CURVE STEP:      9
DAY      :      14          DAY      :      34
HOUSE TEMP:  26.0°C         HOUSE TEMP:  20.0°C
MIN. VENT :  1%00           MIN. VENT :  4%00
MAX. VENT :  4%00           MAX. VENT :  8%00
HUMIDITY  :     65%         HUMIDITY  :     65%
```

```
     CURVE    SETUP              CURVE    SETUP
CURVE STEP:      5          CURVE STEP:     10
DAY      :      21          DAY      :      35
HOUSE TEMP:  24.0°C         HOUSE TEMP:  20.0°C
MIN. VENT :  2%00           MIN. VENT :  4%00
MAX. VENT :  6%00           MAX. VENT :  8%00
HUMIDITY  :     65%         HUMIDITY  :     65%
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

Start Time   **Feed Amount**

X is the number between 1 and 10

HR:MN COLUMN: Step start time
(Range: 00:00 - 23:59 / Factory settings are below).
FEED <KG> COLUMN: Feed amount for related step
(Range: 0 KG - 10000 KG / Factory settings are below).

FACTORY SETTINGS:

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  07:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  07:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  07:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
```

```
LIGHTING PARAMETERS
CURVE  STEP  X
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```
Start Time Duration Analog Output

X is the number between 1 and 10

HR:MN (START TIME COLUMN): Step start time
(Range: 00:00 - 23:59 / Factory settings are below).
HR:MN (DURATION COLUMN): Step duration
(Range: 00:00 - 23:59 / Factory settings are below).
OUT% (ANALOG OUTPUT COLUMN): Analog lighting output
(Range: 0% - 100% / Factory settings are below).

FACTORY SETTINGS:

```
LIGHTING PARAMETERS
CURVE  STEP  1
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

```
LIGHTING PARAMETERS
CURVE  STEP  6
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

```
LIGHTING PARAMETERS
CURVE  STEP  2
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

```
LIGHTING PARAMETERS
CURVE  STEP  7
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

```
LIGHTING PARAMETERS
CURVE  STEP  3
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

```
LIGHTING PARAMETERS
CURVE  STEP  8
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

```
LIGHTING PARAMETERS
CURVE  STEP  4
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

```
LIGHTING PARAMETERS
CURVE  STEP  9
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

```
LIGHTING PARAMETERS
CURVE  STEP  5
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

```
LIGHTING PARAMETERS
CURVE  STEP  10
          HR:MN  HR:MN    OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

1. What is a curve:
Optimal temperature, ventilation, humidity, feeding and lighting values change day by day. EPC can automaticly adjust optimal values depend on entered parameters which are in CURVE SETUP PAGES. This function is called "curve".

```
    CURVE    SETUP
CURVE STEP:      1
DAY     :        1
HOUSE TEMP:   0.0°C
MIN. VENT :   0%00
MAX. VENT :   8%00
HUMIDITY  :     80%
```

2. Changing of SET VALUES PAGE DAY parameter:
SET VALUES PAGE DAY parameter can be changed in two ways.
- SET VALUES PAGE DAY increases 1 each night at 24:00 hrs.
- SET VALUES PAGE DAY can be changed from SET VALUES PAGE.

```
CONTROL FUNC PAGE 1
CURVE      : DISABLE
HUMIDITY   :  ENABLE
OUTSIDE TEMP: ENABLE
COMMUNICATE : ENABLE
LOAD DEFAULT:     NO
WATER CONSUM: ENABLE
ELECT CONSUM: ENABLE
```

3. Programming a curve:

(EPC 4)

There are 10 steps for programming curve.
A **CURVE SETUP PAGE** DAY parameter value has to be higher than previous step's **CURVE SETUP PAGE** DAY parameter value.

If **CURVE MODE** CURVE parameter is DISABLE then curve is disabled. It means that even if **SET VALUES PAGE** DAY is between **CURVE SETUP PAGE** DAY(Step1) and **CURVE SETUP PAGE** DAY(Step10), curve doesn't work.

If **CURVE MODE** CURVE parameter is ENABLE settemp**(NOTE1),** minimum and maximum ventilations, humidity, feeding, lighting values are calculated by EPC depend on **SET VALUES PAGE** DAY and curve.

Example;
CURVE MODE CURVE parameter is ENABLE. The parameter values are given in graphic below;
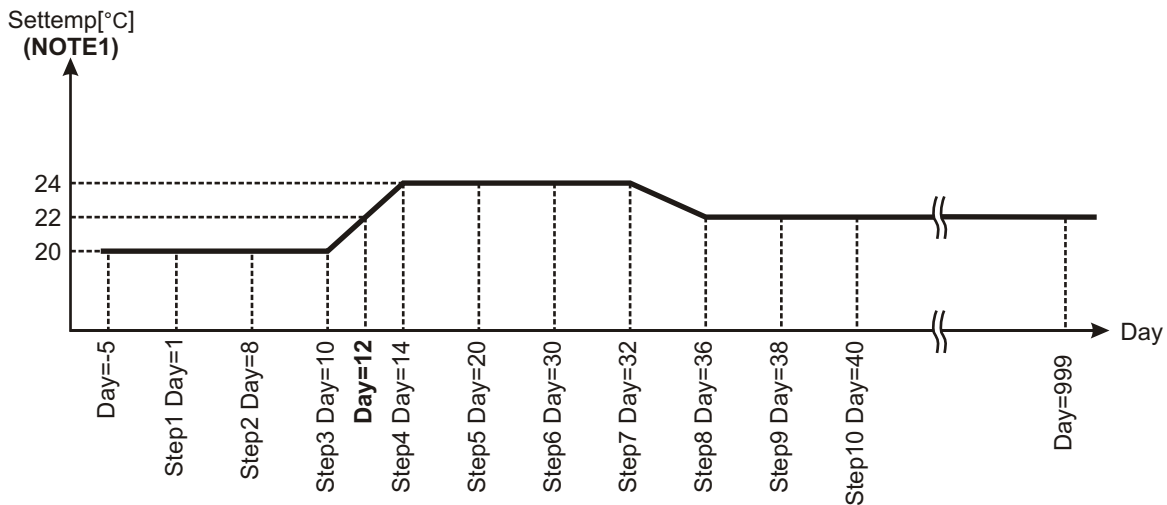
12. day is between Step3 and Step4. So 12. day; Settemp**(NOTE1)** is 22 °C

NOTE1:
If curve is enabled;
Settemp= HOUSE TEMP from curve.
Min.Vent= MIN. VENT from curve.
Max.Vent=MAX. VENT from curve.
If curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE.
Min.Vent= **SET VALUES PAGE** VENT. MIN.
Max.Vent= **SET VALUES PAGE** VENT. MAX.
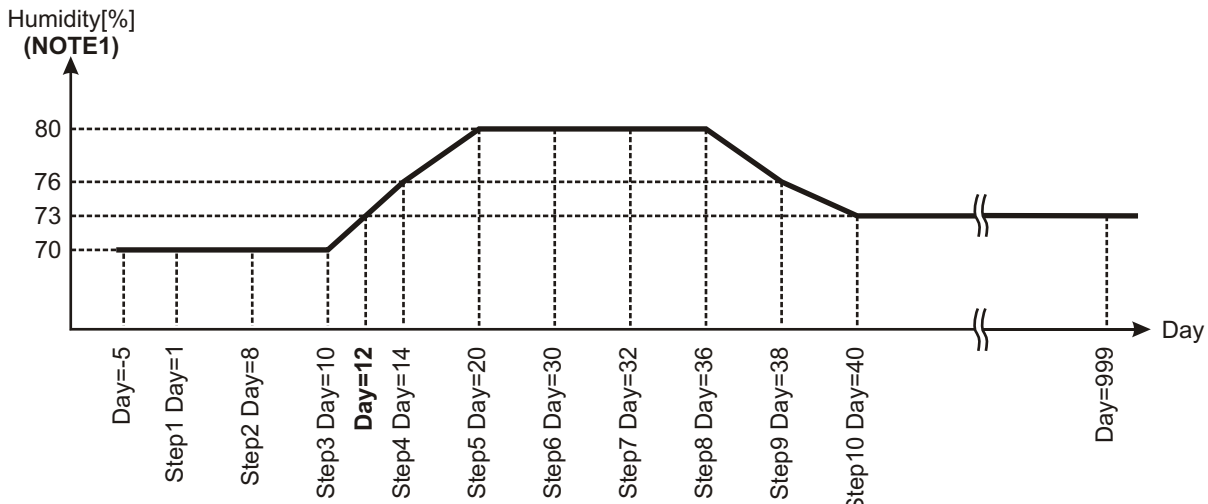
12. day is between Step3 and Step4. So 12. day; humidity**(NOTE1)** is 73%
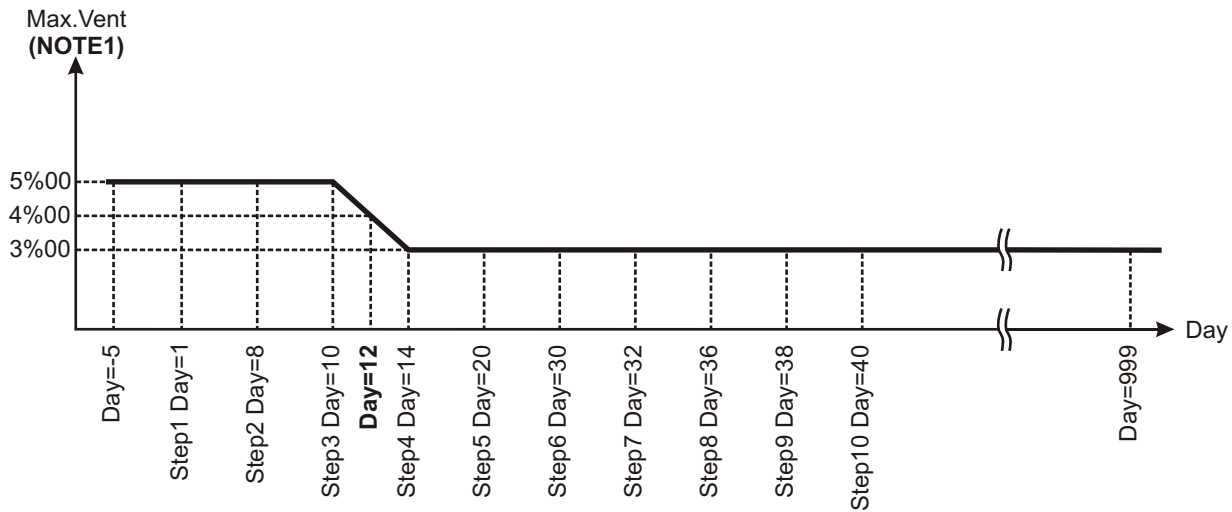
12. day is between Step3 and Step4. So 12. day; Max.Vent**(NOTE1)** is 4%00
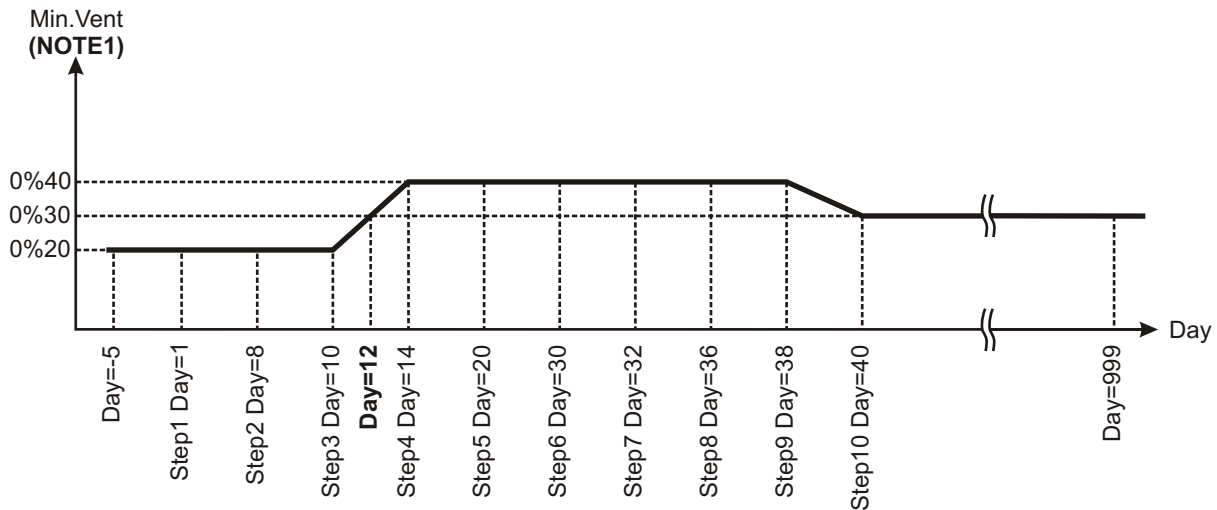
12. day is between Step3 and Step4. So 12. day; Min.Vent**(NOTE1)** is 0%30

NOTE1:
If working with curve;
Humidity= HUMIDITY from curve + **HUMIDITY PARAMETERS PAGE** OFFSET.
Min.Vent= MIN. VENT from curve.
Max.Vent=MAX. VENT from curve.
Eğri mod etkin değil ise;
Humidity= **SET VALUES PAGE** HUMIDITY + **HUMIDITY PARAMETERS PAGE** OFFSET.
Min.Vent= **SET VALUES PAGE** VENT. MIN.
Max.Vent= **SET VALUES PAGE** VENT. MAX.

Feeding Parameter (EPC 3&4)
Page Step No

Step10
Step9
Step8
Step7
Step6
Step5
Step4
Step3
Step2
Step1

Day

Day=-5
Step1 Day=1
Step2 Day=8
Step3 Day=10
Day=12
Step4 Day=14
Step5 Day=20
Step6 Day=30
Step7 Day=32
Step8 Day=36
Step9 Day=38
Step10 Day=40
Day=999
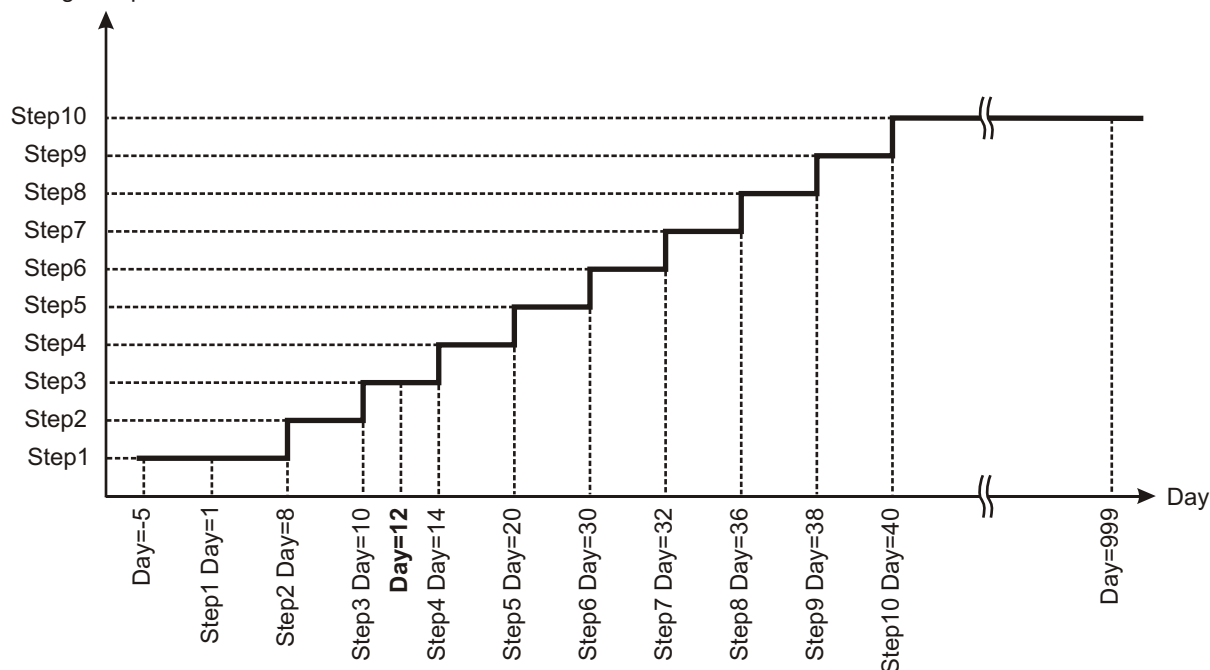
At the graphic above, it is seen how feeding is working in curve mode.
On 12. Day FEEDING PARAMETERS CURVE STEP 3 page is used for feeding (curve mode is enabled). The same page parameters are also used for 10, 11, 12, 13. Days. On 14. Days FEEDING PARAMETERS CURVE STEP 4 page parameters are used.

The explanation of the graphic is below;
SET VALUES PAGE DAY parameter is the current day.
 - If **SET VALUES PAGE** DAY parameter is lower than **CURVE STEP2** DAY parameter then FEEDING PARAMETERS CURVE STEP 1 parameters are used by curve.

 - If **SET VALUES PAGE** DAY parameter is higher than **CURVE STEP2** DAY parameter or equal to it and it is lower than **CURVE STEP3** DAY parameter then FEEDING PARAMETERS CURVE STEP 2 parameters are used by curve.
 - If **SET VALUES PAGE** DAY parameter is higher than **CURVE STEP3** DAY parameter or equal to it and it is lower than **CURVE STEP4** DAY parameter then FEEDING PARAMETERS CURVE STEP 3 parameters are used by curve.
 - If **SET VALUES PAGE** DAY parameter is higher than **CURVE STEP4** DAY parameter or equal to it and it is lower than **CURVE STEP5** DAY parameter then FEEDING PARAMETERS CURVE STEP 4 parameters are used by curve.
 - If **SET VALUES PAGE** DAY parameter is higher than **CURVE STEP5** DAY parameter or equal to it and it is lower than **CURVE STEP6** DAY parameter then FEEDING PARAMETERS CURVE STEP 5 parameters are used by curve.
 - If **SET VALUES PAGE** DAY parameter is higher than **CURVE STEP6** DAY parameter or equal to it and it is lower than **CURVE STEP7** DAY parameter then FEEDING PARAMETERS CURVE STEP 6 parameters are used by curve.
 - If **SET VALUES PAGE** DAY parameter is higher than **CURVE STEP7** DAY parameter or equal to it and it is lower than **CURVE STEP8** DAY parameter then FEEDING PARAMETERS CURVE STEP 7 parameters are used by curve.
 - If **SET VALUES PAGE** DAY parameter is higher than **CURVE STEP8** DAY parameter or equal to it and it is lower than **CURVE STEP9** DAY parameter then FEEDING PARAMETERS CURVE STEP 8 parameters are used by curve.
 - If **SET VALUES PAGE** DAY parameter is higher than **CURVE STEP9** DAY parameter or equal to it and it is lower than **CURVE STEP10** DAY parameter then FEEDING PARAMETERS CURVE STEP 9 parameters are used by curve.
 - If **SET VALUES PAGE** DAY parameter is higher than **CURVE STEP10** DAY parameter or equal to it then FEEDING PARAMETERS CURVE STEP 10 parameters are used by curve.

6. TECHNICIAN SECTION

6.1 FRONT PANEL

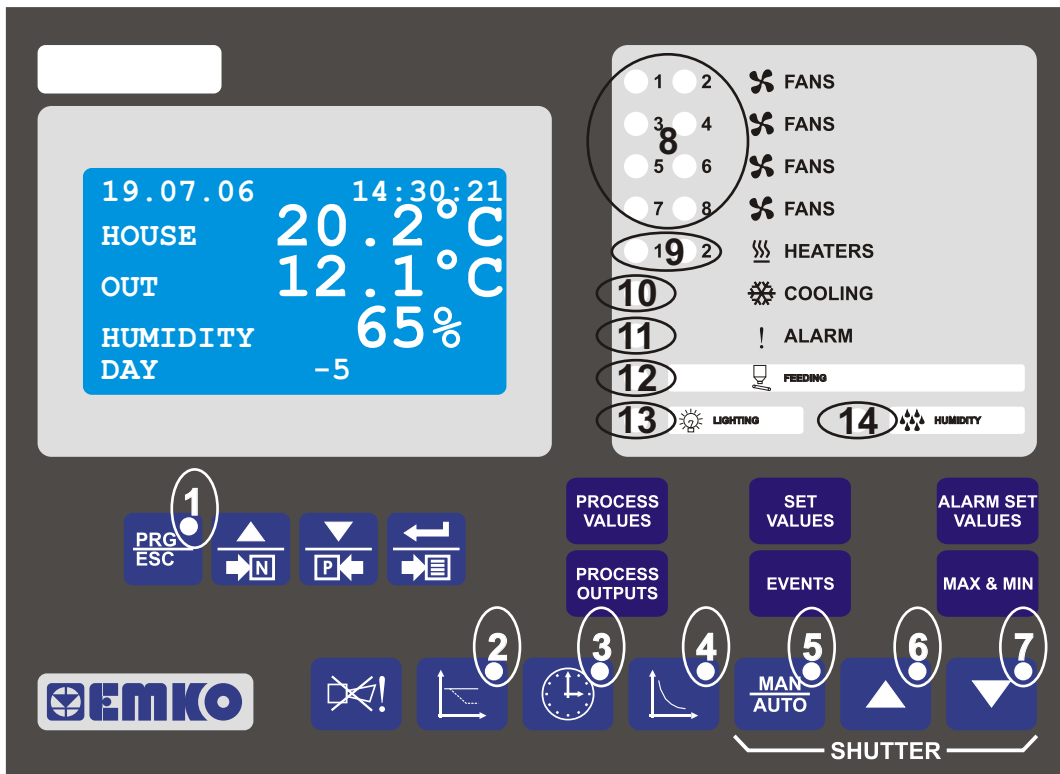## 6.1.1 BUTTONS EXPLANATIONS
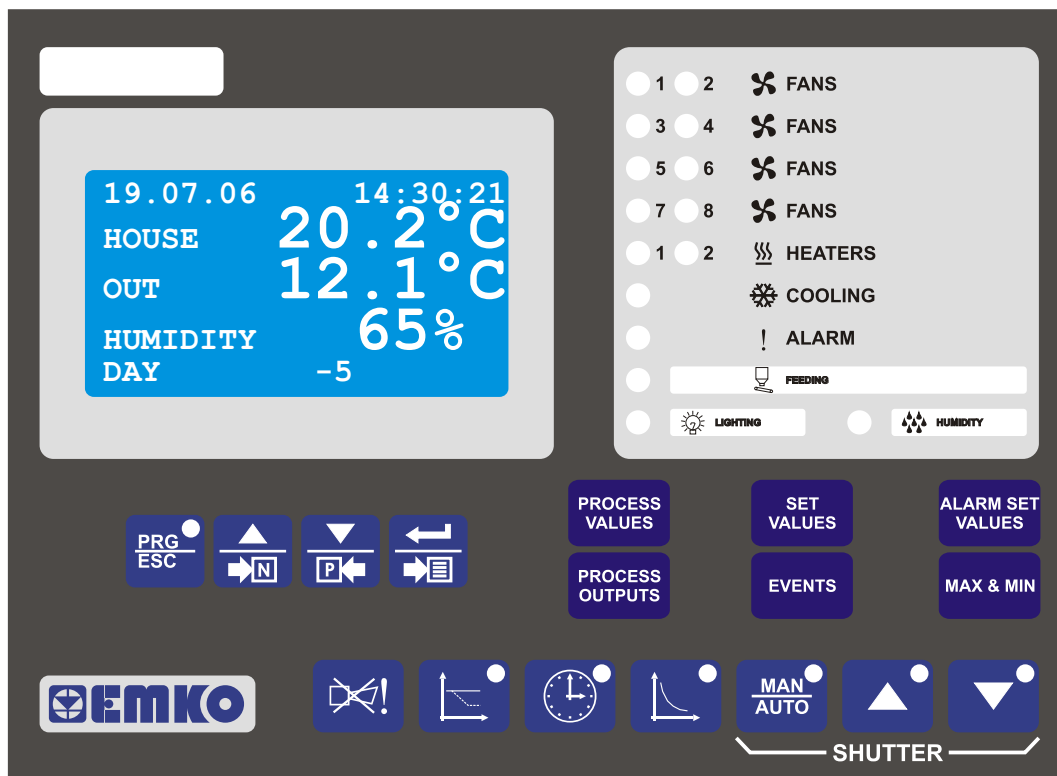
BUTTONS:

PRG/ESC	Used to access to technician parameters field and escape function.
▲/→N	Used to access to next page and increase the selected parameter.
▼/P←	Used to access to previous page and decrease the selected parameter.
←/→≣	Used to edit a parameter and access to the next parameter.
✕!	Used to check and clear the alarm.
⌐	Influences pages shortcut button.
⏱	Date page shortcut button.
⌐	Curve pages shortcut button.
MAN/AUTO	Shutter manual/ automatic control selection button.
▲	Shutter manual control up button.
▼	Shutter manual control down button.

PROCESS VALUES	Process values page shortcut button .
PROCESS OUTPUTS	Process output page shortcut button.
SET VALUES	Set values page shortcut button.
EVENTS	Events page shortcut button.
ALARM SET VALUES	Alarm set values page shortcut button.
MAX & MIN	Max & min values pages shortcut button.

Led no	Explanation
1	If technician field is accessed this led illuminates
2	If influence pages are accessed this led illuminates
3	If date setup page is accessed this led illuminates
4	If curve pages are accessed this led illuminates
5	If shutter mode is manual this led illuminates
6	If shutter up relay is on this led illuminates
7	If shutter down relay is on this led illuminates
8	These leds show which fan relays are on
9	These leds show which heat relays are on
10	This led illuminates during cooling relay is on
11	Whenever a new alarm occurs this led illuminates
12	This led illuminates during feeding relay is on(EPC3 and EPC4)
13	This led illuminates during lighting relay is on(EPC3 and EPC4)
14	This led illuminates during humidity relay is on

How to access to technician pages?

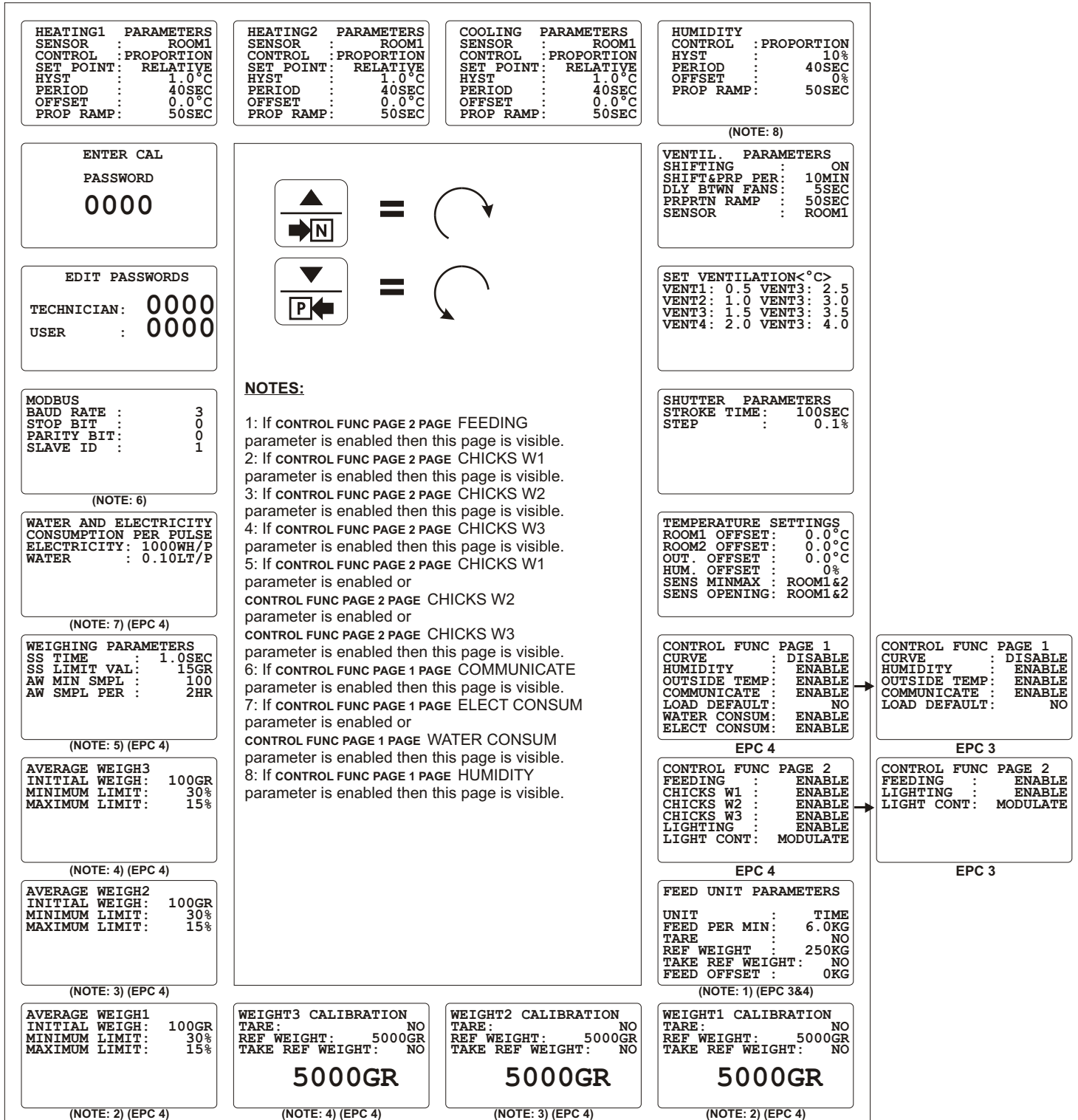There must be no selected parameter in current page.

The current page must be one of the following pages which are in user field;

PROCESS VALUES, SYSTEM MONITORING, FEEDING CONSUMPTION, WEIGHING1 LOG, WEIGHING2 LOG, WEIGHING3 LOG, ELECTRICITY ENERGY CONSUMPTION, WATER CONSUMPTION, SET VALUES, SET SHUTTER, FEEDING PARAMETERS, LIGHTING PARAMETERS, ALARM SET VALUES, PROCESS OUTPUTS, MAX MIN VALUES 1, MAX MIN VALUES 2, EVENTS

Under these conditions, push | PRG ESC | button.

```
        TECHNICIAN
         PASSWORD
           0000
```

This page will be seen;

If right password is entered, then HEATING1 PARAMETERS page which is the first page of the technician pages is accessed.

```
HEATING1  PARAMETERS
SENSOR    :      ROOM1
CONTROL   :PROPORTION
SET POINT:    RELATIVE
HYST      :     1.0°C
PERIOD    :     40SEC
OFFSET    :     0.0°C
PROP RAMP:      50SEC
```

```
HEATING2  PARAMETERS
SENSOR    :      ROOM1
CONTROL   :PROPORTION
SET POINT:    RELATIVE
HYST      :     1.0°C
PERIOD    :     40SEC
OFFSET    :     0.0°C
PROP RAMP:      50SEC
```

```
COOLING   PARAMETERS
SENSOR    :      ROOM1
CONTROL   :PROPORTION
SET POINT:    RELATIVE
HYST      :     1.0°C
PERIOD    :     40SEC
OFFSET    :     0.0°C
PROP RAMP:      50SEC
```

```
HUMIDITY
CONTROL   :PROPORTION
HYST      :       10%
PERIOD    :     40SEC
OFFSET    :        0%
PROP RAMP:      50SEC
```
(NOTE: 8)

```
      ENTER CAL
      PASSWORD
        0000
```



```
VENTIL.   PARAMETERS
SHIFTING       :    ON
SHIFT&PRP PER:   10MIN
DLY BTWN FANS:   5SEC
PRPRTN RAMP  :  50SEC
SENSOR       :   ROOM1
```

```
    EDIT PASSWORDS

TECHNICIAN:   0000
USER      :   0000
```

```
SET VENTILATION<°C>
VENT1: 0.5 VENT3: 2.5
VENT2: 1.0 VENT3: 3.0
VENT3: 1.5 VENT3: 3.5
VENT4: 2.0 VENT3: 4.0
```

NOTES:

1: If **CONTROL FUNC PAGE 2 PAGE** FEEDING parameter is enabled then this page is visible.

2: If **CONTROL FUNC PAGE 2 PAGE** CHICKS W1 parameter is enabled then this page is visible.

3: If **CONTROL FUNC PAGE 2 PAGE** CHICKS W2 parameter is enabled then this page is visible.

4: If **CONTROL FUNC PAGE 2 PAGE** CHICKS W3 parameter is enabled then this page is visible.

5: If **CONTROL FUNC PAGE 2 PAGE** CHICKS W1 parameter is enabled or

CONTROL FUNC PAGE 2 PAGE CHICKS W2 parameter is enabled or

CONTROL FUNC PAGE 2 PAGE CHICKS W3 parameter is enabled then this page is visible.

6: If **CONTROL FUNC PAGE 1 PAGE** COMMUNICATE parameter is enabled then this page is visible.

7: If **CONTROL FUNC PAGE 1 PAGE** ELECT CONSUM parameter is enabled or

CONTROL FUNC PAGE 1 PAGE WATER CONSUM parameter is enabled then this page is visible.

8: If **CONTROL FUNC PAGE 1 PAGE** HUMIDITY parameter is enabled then this page is visible.

```
MODBUS
BAUD RATE :       3
STOP BIT  :       0
PARITY BIT:       0
SLAVE ID  :       1
```
(NOTE: 6)

```
SHUTTER   PARAMETERS
STROKE TIME:   100SEC
STEP       :    0.1%
```

```
WATER AND ELECTRICITY
CONSUMPTION PER PULSE
ELECTRICITY: 1000WH/P
WATER      : 0.10LT/P
```
(NOTE: 7) (EPC 4)

```
TEMPERATURE SETTINGS
ROOM1 OFFSET:   0.0°C
ROOM2 OFFSET:   0.0°C
OUT. OFFSET :   0.0°C
HUM. OFFSET :     0%
SENS MINMAX : ROOM1&2
SENS OPENING: ROOM1&2
```

```
WEIGHING PARAMETERS
SS TIME     :  1.0SEC
SS LIMIT VAL:   15GR
AW MIN SMPL :    100
AW SMPL PER :    2HR
```
(NOTE: 5) (EPC 4)

```
CONTROL FUNC PAGE 1
CURVE         : DISABLE
HUMIDITY      :  ENABLE
OUTSIDE TEMP:   ENABLE
COMMUNICATE :   ENABLE
LOAD DEFAULT:       NO
WATER CONSUM:  ENABLE
ELECT CONSUM:  ENABLE
```
EPC 4

```
CONTROL FUNC PAGE 1
CURVE         : DISABLE
HUMIDITY      :  ENABLE
OUTSIDE TEMP:   ENABLE
COMMUNICATE :   ENABLE
LOAD DEFAULT:       NO
```
EPC 3

```
AVERAGE WEIGH3
INITIAL WEIGH:  100GR
MINIMUM LIMIT:    30%
MAXIMUM LIMIT:    15%
```
(NOTE: 4) (EPC 4)

```
CONTROL FUNC PAGE 2
FEEDING      :  ENABLE
CHICKS W1 :     ENABLE
CHICKS W2 :     ENABLE
CHICKS W3 :     ENABLE
LIGHTING  :     ENABLE
LIGHT CONT: MODULATE
```
EPC 4

```
CONTROL FUNC PAGE 2
FEEDING      :  ENABLE
LIGHTING  :     ENABLE
LIGHT CONT: MODULATE
```
EPC 3

```
AVERAGE WEIGH2
INITIAL WEIGH:  100GR
MINIMUM LIMIT:    30%
MAXIMUM LIMIT:    15%
```
(NOTE: 3) (EPC 4)

```
FEED UNIT PARAMETERS

UNIT         :     TIME
FEED PER MIN:   6.0KG
TARE         :       NO
REF WEIGHT  :   250KG
TAKE REF WEIGHT:   NO
FEED OFFSET :     0KG
```
(NOTE: 1) (EPC 3&4)

```
AVERAGE WEIGH1
INITIAL WEIGH:  100GR
MINIMUM LIMIT:    30%
MAXIMUM LIMIT:    15%
```
(NOTE: 2) (EPC 4)

```
WEIGHT3 CALIBRATION
TARE:            NO
REF WEIGHT:  5000GR
TAKE REF WEIGHT:  NO

     5000GR
```
(NOTE: 4) (EPC 4)

```
WEIGHT2 CALIBRATION
TARE:            NO
REF WEIGHT:  5000GR
TAKE REF WEIGHT:  NO

     5000GR
```
(NOTE: 3) (EPC 4)

```
WEIGHT1 CALIBRATION
TARE:            NO
REF WEIGHT:  5000GR
TAKE REF WEIGHT:  NO

     5000GR
```
(NOTE: 2) (EPC 4)

6.3 EDITING A PARAMETER AND CHANGING A PAGE

1. Sample display:

```
SHUTTER   PARAMETERS
STROKE TIME:   100SEC
STEP      :     0.1%
```

2. Push [⬅/▶▤] button. The parameter is selected.

```
SHUTTER   PARAMETERS
STROKE TIME:   100SEC
STEP      :     0.1%
```

3. Push [▼/P◀] or [▲/▶N] buttons to edit parameter.
Parameter has changed.

```
SHUTTER   PARAMETERS
STROKE TIME:    90SEC
STEP      :     0.1%
```

4.a. Push [⬅/▶▤] button to save the parameter and go to the next parameter.

```
SHUTTER   PARAMETERS
STROKE TIME:    90SEC
STEP      :     0.1%
```

4.b. Push [PRG ESC●] button to cancel.

```
SHUTTER   PARAMETERS
STROKE TIME:   100SEC
STEP      :     0.1%
```

Changing a page

There are two ways to pass to another page;

1. Use [▼/P◀] or [▲/▶N] button if any parameter is not selected.

2. Use [⬅/▶▤] button if the last parameter of the page is selected.

6.4 SCREENS PARAMETERS AND FUNCTIONS

6.4.1 TECHNICIAN PASSWORD

```
      TECHNICIAN

      PASSWORD

      0000
```

TECHNICIAN PASSWORD: Password value (Range: 0 - 9999).

This page is used to access to technician parameters pages.

6.4.2 HEATER1

6.4.2.1 HEATING1 PARAMETERS

SENSOR: Sensor type set value
(Range: ROOM1, ROOM2, ROOM1&2 / Factory Setting: ROOM1).
CONTROL: Control mode set value
(Range: NONE, ON/OFF, PROPORTION / Factory Setting: ON/OFF).
SET POINT: Set point type set value
(Range: RELATIVE, ABSOLUTE / Factory Setting: RELATIVE).
HYST: Hysteresis set value
(Range: 0.0 °C - 9.9 °C / Factory Setting: 0.2 °C).
PERIOD: Period set value
(Range: 0 SEC - 999 SEC / Factory Setting: 0 SEC).
OFFSET: Offset set value
(Range: 0.0 °C - 9.9 °C / Factory Setting: 0.0 °C).
PROP RAMP: Proportional ramp set value
(Range: 0 SEC - 999 SEC / Factory Setting: 0 SEC).

```
HEATING1   PARAMETERS
SENSOR    :      ROOM1
CONTROL   :PROPORTION
SET POINT:   RELATIVE
HYST      :     1.0°C
PERIOD    :     40SEC
OFFSET    :     0.0°C
PROP RAMP:      50SEC
```

6.4.2.2 HEATER1 FUNCTION

HEATER 1 output can be control within HEATING1 PARAMETERS PAGE;
HEATING1 PARAMETERS PAGE CONTROL parameter is used to select control mode.
If the **HEATING1 PARAMETERS PAGE** CONTROL parameter is PROPORTION then control mode is PROPORTIONAL, if the parameter is ON/OFF then control mode is ON/OFF, if the parameter is NONE then process output will be zero.
HEATING1 PARAMETERS PAGE SET POINT and **HEATING2 PARAMETERS PAGE** SET POINT parameters are the same.

1. ON- OFF CONTROL MODE
HEATER 1 output will be switched on as soon as the Temperature(**NOTE1**) becomes lower than
the settemp(**NOTE2**) minus **HEATING1 PARAMETERS PAGE** HYST. HEATER 1 output will be switched off as soon as Temperature(**NOTE1**) is equal to or higher than settemp(**NOTE2**).
HEATING1 PARAMETERS PAGE PERIOD parameter is used to prevent unnecessary switched on and off.
HEATER 1 output will remain on or off minimum **HEATING1 PARAMETERS PAGE** PERIOD parameter value.

NOTE1:
If **HEATING1 PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **HEATING1 PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **HEATING1 PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If **HEATING1 PARAMETERS PAGE** SET POINT is RELATIVE and if curve is enabled;
Settemp= HOUSE TEMP from curve + **SET VALUES PAGE** TEMP.HEAT +
HEATING1 PARAMETERS PAGE OFFSET,
If **HEATING1 PARAMETERS PAGE** SET POINT is RELATIVE and if curve is disabled;
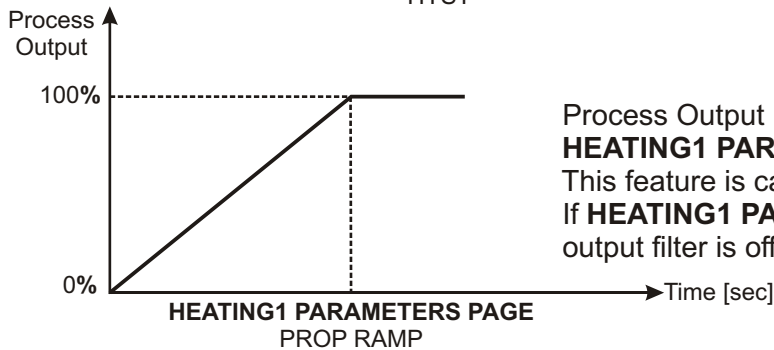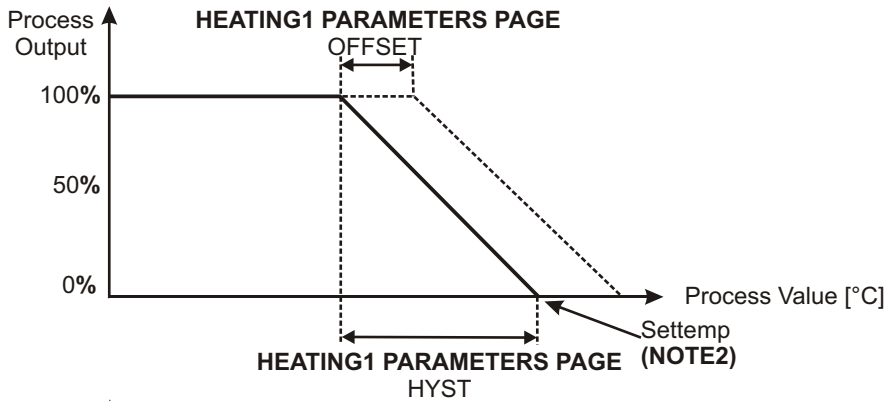Settemp= **SET VALUES PAGE** TEMP.HOUSE + **SET VALUES PAGE** TEMP.HEAT +
HEATING1 PARAMETERS PAGE OFFSET,
If **HEATING1 PARAMETERS PAGE** SET POINT is ABSOLUTE;
Settemp= **SET VALUES PAGE** TEMP.HEAT + **HEATING1 PARAMETERS PAGE** OFFSET.

2. PROPORTIONAL CONTROL MODE

If the Temperature(**NOTE1**) is lower than settemp(**NOTE2**) minus **HEATING1 PARAMETERS PAGE** HYST control will be continuously on. If the Temperature(**NOTE1**) is higher than the settemp(**NOTE2**) then, control will be continuously off. If the measured temperature(**NOTE1**) is between settemp(**NOTE2**) and settemp(**NOTE2**) minus **HEATING1 PARAMETERS PAGE** HYST then, control output will be on for a portion of the **HEATING1 PARAMETERS PAGE** PERIOD.

Process Output rises from 0% to 100% in **HEATING1 PARAMETERS PAGE** PROP RAMP period.
This feature is called output filter.
If **HEATING1 PARAMETERS PAGE** PROP RAMP is zero then output filter is off.

NOTE1:
If **HEATING1 PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **HEATING1 PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **HEATING1 PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If **HEATING1 PARAMETERS PAGE** SET POINT is RELATIVE and if curve is enabled;
Settemp= HOUSE TEMP from curve + **SET VALUES PAGE** TEMP.HEAT +
HEATING1 PARAMETERS PAGE OFFSET,
If **HEATING1 PARAMETERS PAGE** SET POINT is RELATIVE and if curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE + **SET VALUES PAGE** TEMP.HEAT +
HEATING1 PARAMETERS PAGE OFFSET,
If **HEATING1 PARAMETERS PAGE** SET POINT is ABSOLUTE;
Settemp= **SET VALUES PAGE** TEMP.HEAT + **HEATING1 PARAMETERS PAGE** OFFSET.

6.4.3 HEATER2

6.4.3.1 HEATING2 PARAMETERS

SENSOR: Sensor type set value
(Range: ROOM1, ROOM2, ROOM1&2 / Factory Setting: ROOM2).
CONTROL: Control mode set value
(Range: NONE, ON/OFF, PROPORTION / Factory Setting: ON/OFF).
SET POINT: Set point type set value
(Range: RELATIVE, ABSOLUTE / Factory Setting: RELATIVE).
HYST: Hysteresis set value
(Range: 0.0 °C - 9.9 °C / Factory Setting: 0.2 °C).
PERIOD: Period set value
(Range: 0 SEC - 999 SEC / Factory Setting: 0 SEC).
OFFSET: Offset set value
(Range: 0.0 °C - 9.9 °C / Factory Setting: 0.0 °C).
PROP RAMP: Proportional ramp set value
(Range: 0 SEC - 999 SEC / Factory Setting: 0 SEC).

```
HEATING2  PARAMETERS
SENSOR    :      ROOM1
CONTROL   :PROPORTION
SET POINT:   RELATIVE
HYST      :     1.0°C
PERIOD    :    40SEC
OFFSET    :     0.0°C
PROP RAMP:     50SEC
```

6.4.3.2 HEATER2 FUNCTION

HEATER 2 output can be control within HEATING2 PARAMETERS PAGE;
HEATING2 PARAMETERS PAGE CONTROL parameter is used to select control mode.
If the **HEATING2 PARAMETERS PAGE** CONTROL parameter is PROPORTION then control mode is PROPORTIONAL, if the parameter is ON/OFF then control mode is ON/OFF, if the parameter is NONE then process output will be zero.
HEATING1 PARAMETERS PAGE SET POINT and **HEATING2 PARAMETERS PAGE** SET POINT parameters are the same.

1. ON- OFF CONTROL MODE
HEATER 2 output will be switched on as soon as the Temperature(**NOTE1**) becomes lower than
the settemp(**NOTE2**) minus **HEATING2 PARAMETERS PAGE** HYST. HEATER 2 output will be switched off as soon as Temperature(**NOTE1**) is equal to or higher than settemp(**NOTE2**).
HEATING2 PARAMETERS PAGE PERIOD parameter is used to prevent unnecessary switched on and off.
HEATER 2 output will remain on or off minimum **HEATING2 PARAMETERS PAGE** PERIOD parameter value.

NOTE1:
If **HEATING2 PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **HEATING2 PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **HEATING2 PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If **HEATING2 PARAMETERS PAGE** SET POINT is RELATIVE and if curve is enabled;
Settemp= HOUSE TEMP from curve + **SET VALUES PAGE** TEMP.HEAT +
HEATING2 PARAMETERS PAGE OFFSET,
If **HEATING2 PARAMETERS PAGE** SET POINT is RELATIVE and if curve is disabled;
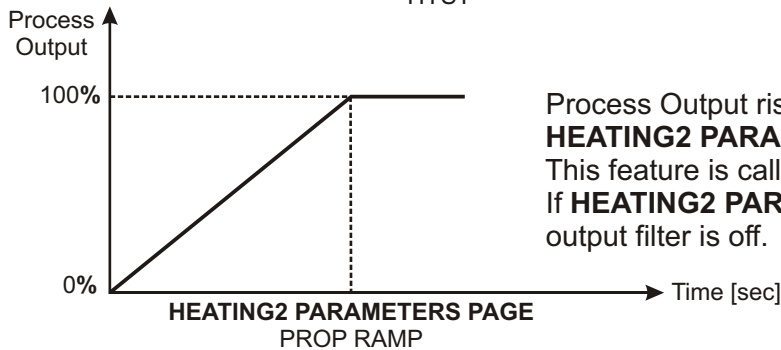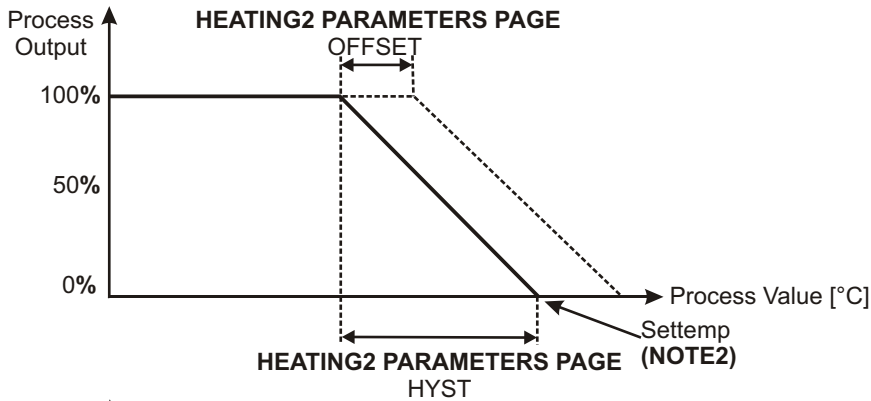Settemp= **SET VALUES PAGE** TEMP.HOUSE + **SET VALUES PAGE** TEMP.HEAT +
HEATING2 PARAMETERS PAGE OFFSET,
If **HEATING2 PARAMETERS PAGE** SET POINT is ABSOLUTE;
Settemp= **SET VALUES PAGE** TEMP.HEAT + **HEATING2 PARAMETERS PAGE** OFFSET.

2. PROPORTIONAL CONTROL MODE

If the Temperature(**NOTE1**) is lower than settemp(**NOTE2**) minus **HEATING2 PARAMETERS PAGE** HYST control will be continuously on. If the Temperature(**NOTE1**) is higher than the settemp(**NOTE2**) then, control will be continuously off. If the measured temperature(**NOTE1**) is between settemp(**NOTE2**) and settemp(**NOTE2**) minus **HEATING2 PARAMETERS PAGE** HYST then, control output will be on for a portion of the **HEATING2 PARAMETERS PAGE** PERIOD.

Process Output rises from 0% to 100% in **HEATING2 PARAMETERS PAGE** PROP RAMP period. This feature is called output filter. If **HEATING2 PARAMETERS PAGE** PROP RAMP is zero then output filter is off.

NOTE1:
If **HEATING2 PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **HEATING2 PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **HEATING2 PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If **HEATING2 PARAMETERS PAGE** SET POINT is RELATIVE and if curve is enabled;
Settemp= HOUSE TEMP from curve + **SET VALUES PAGE** TEMP.HEAT +
HEATING2 PARAMETERS PAGE OFFSET,
If **HEATING2 PARAMETERS PAGE** SET POINT is RELATIVE and if curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE + **SET VALUES PAGE** TEMP.HEAT +
HEATING2 PARAMETERS PAGE OFFSET,
If **HEATING2 PARAMETERS PAGE** SET POINT is ABSOLUTE;
Settemp= **SET VALUES PAGE** TEMP.HEAT + **HEATING2 PARAMETERS PAGE** OFFSET.

6.4.4 COOLING

6.4.4.1 COOLING PARAMETERS

SENSOR: Sensor type set value
(Range: ROOM1, ROOM2, ROOM1&2 / Factory Setting: ROOM1&2).
CONTROL: Control mode set value
(Range: NONE, ON/OFF, PROPORTION / Factory Setting: ON/OFF).
SET POINT: Set point type set value
(Range: RELATIVE, ABSOLUTE / Factory Setting: RELATIVE).
HYST: Hysteresis set value
(Range: 0.0 °C - 9.9 °C / Factory Setting: 0.3 °C).
PERIOD: Period set value
(Range: 0 SEC - 999 SEC / Factory Setting: 0 SEC).
OFFSET: Offset set value
(Range: 0.0 °C - 9.9 °C / Factory Setting: 0.0 °C).
PROP RAMP: Proportional ramp set value
(Range: 0 SEC - 999 SEC / Factory Setting: 0 SEC).

```
COOLING   PARAMETERS
SENSOR    :      ROOM1
CONTROL   :PROPORTION
SET POINT:   RELATIVE
HYST      :      1.0°C
PERIOD    :     40SEC
OFFSET    :      0.0°C
PROP RAMP:      50SEC
```

6.4.4.2 COOLING FUNCTION

COOLING output can be control within COOLING PARAMETERS PAGE;

COOLING PARAMETERS PAGE CONTROL parameter is used to select control mode.
If the **COOLING PARAMETERS PAGE** CONTROL parameter is PROPORTION then control mode is PROPORTIONAL, if the parameter is ON/OFF then control mode is ON/OFF, if the parameter is NONE then process output will be zero.

1. ON- OFF CONTROL MODE
COOLING output will be switched on as soon as the Temperature(**NOTE1**) becomes higher than the settemp(**NOTE2**) plus **COOLING PARAMETERS PAGE** HYST. COOLING output will be switched off as soon as Temperature(**NOTE1**) is equal to or lower than settemp(**NOTE2**). **COOLING PARAMETERS PAGE** PERIOD parameter is used to prevent unnecessary switched on and off. COOLING output will remain on or off minimum **COOLING PARAMETERS PAGE** PERIOD parameter value.

NOTE1:
If **COOLING PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **COOLING PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **COOLING PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If **COOLING PARAMETERS PAGE** SET POINT is RELATIVE and if curve is enabled;
Settemp= HOUSE TEMP from curve + **SET VALUES PAGE** TEMP.COOL +
COOLING PARAMETERS PAGE OFFSET,
If **COOLING PARAMETERS PAGE** SET POINT is RELATIVE and if curve is disabled;
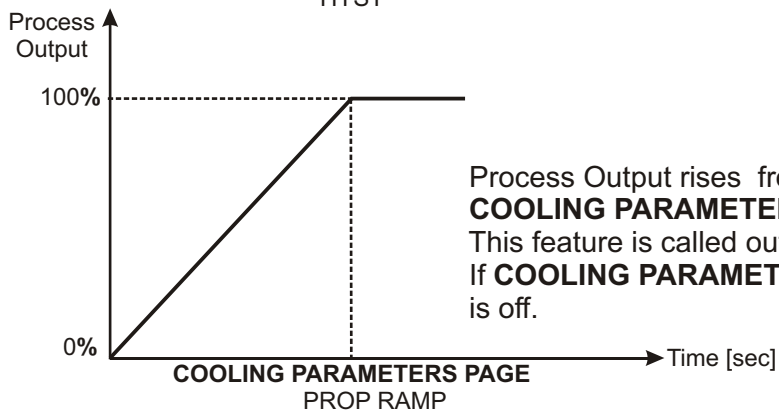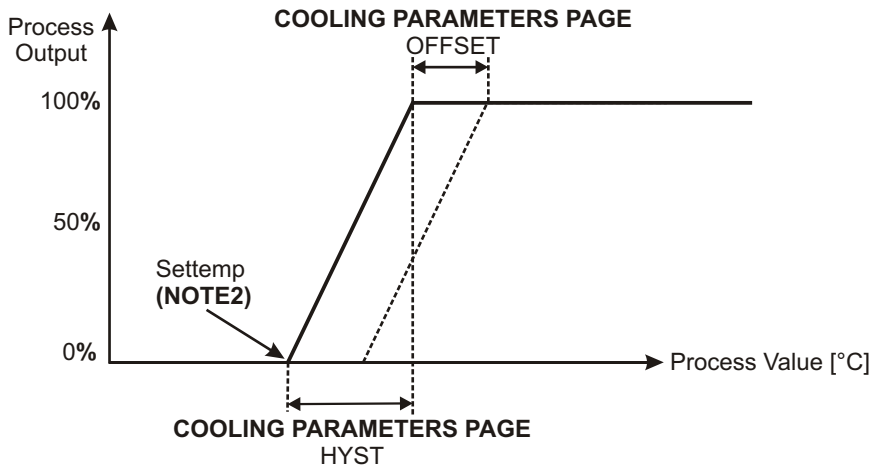Settemp= **SET VALUES PAGE** TEMP.HOUSE + **SET VALUES PAGE** TEMP.COOL +
COOLING PARAMETERS PAGE OFFSET,
If **COOLING PARAMETERS PAGE** SET POINT is ABSOLUTE;
Settemp= **SET VALUES PAGE** TEMP.COOL + **COOLING PARAMETERS PAGE** OFFSET.

2. PROPORTIONAL CONTROL MODE

If the Temperature(**NOTE1**) is higher than settemp(**NOTE2**) plus **COOLING PARAMETERS PAGE** HYST control will be continuously on. If the Temperature(**NOTE1**) is lower than the settemp(**NOTE2**) then, control will be continuously off. If the measured temperature(**NOTE1**) is between settemp(**NOTE2**) and settemp(**NOTE2**) plus **COOLING PARAMETERS PAGE** HYST then, control output will be on for a portion of the **COOLING PARAMETERS PAGE** PERIOD.

Process Output rises from 0% to 100% in
COOLING PARAMETERS PAGE PROP RAMP period.
This feature is called output filter.
If **COOLING PARAMETERS PAGE** PROP RAMP is zero then output filter is off.

NOTE1:
If **COOLING PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **COOLING PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **COOLING PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If **COOLING PARAMETERS PAGE** SET POINT is RELATIVE and if curve is enabled;
Settemp= HOUSE TEMP from curve + **SET VALUES PAGE** TEMP.COOL +
COOLING PARAMETERS PAGE OFFSET,
If **COOLING PARAMETERS PAGE** SET POINT is RELATIVE and if curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE + **SET VALUES PAGE** TEMP.COOL +
COOLING PARAMETERS PAGE OFFSET,
If **COOLING PARAMETERS PAGE** SET POINT is ABSOLUTE;
Settemp= **SET VALUES PAGE** TEMP.COOL + **COOLING PARAMETERS PAGE** OFFSET.

6.4.5 HUMIDITY

6.4.5.1 HUMIDITY PARAMETERS

CONTROL: Control mode set value
(Range: NONE, ON/OFF, PROPORTION
/ Factory Setting: PROPORTION)
HYST: Hysteresis set value
(Range: 0% - 99% / Factory Setting: 5%)
PERIOD: Period set value
(Range: 0 SEC - 999 SEC / Factory Setting: 0 SEC)
OFFSET: Offset set value
(Range: 0% - 99% / Factory Setting: 0%)
PROP RAMP: Proportional ramp set value
(Range: 0 SEC - 999 SEC / Factory Setting: 0 SEC)

```
HUMIDITY  PARAMETERS
CONTROL  :PROPORTION
HYST     :       10%
PERIOD   :     40SEC
OFFSET   :        0%
PROP RAMP:     50SEC
```

6.4.5.2 HUMIDITY FUNCTION

HUMIDITY output can be control within HUMIDITY PARAMETERS PAGE;
HUMIDITY PARAMETERS PAGE CONTROL parameter is used to select control mode.
If the **HUMIDITY PARAMETERS PAGE** CONTROL parameter is PROPORTION then control mode is
PROPORTIONAL, if the parameter is ON/OFF then control mode is ON/OFF, if the parameter is NONE
then process output will be zero.

1. ON- OFF CONTROL MODE
HUMIDITY output will be switched on as soon as the humidity becomes lower than the Set humidity(**NOTE1**)
minus **HUMIDITY PARAMETERS PAGE** HYST. HUMIDITY output will be switched off as soon as humidity is
equal to or higher than Set humidity(**NOTE1**). **HUMIDITY PARAMETERS PAGE** PERIOD parameter is used
to prevent unnecessary switched on and off. HUMIDITY output will remain on or off minimum **HUMIDITY
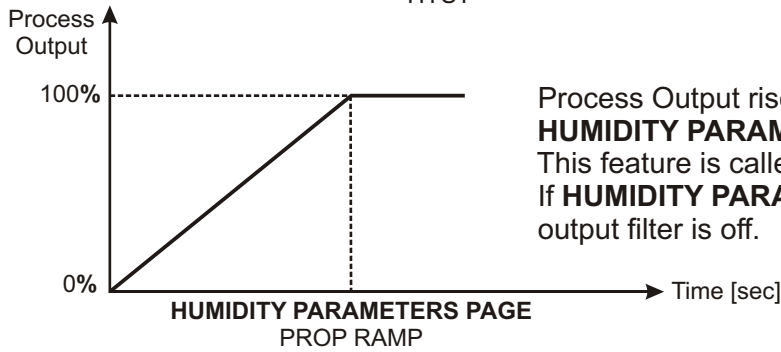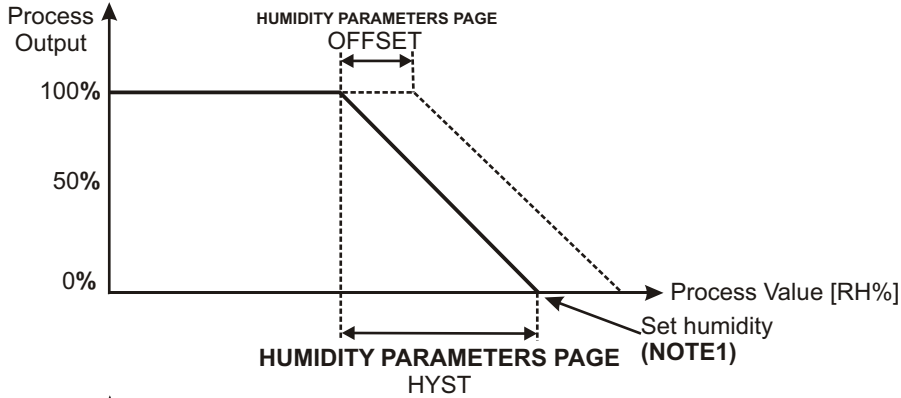PARAMETERS PAGE** PERIOD parameter value.
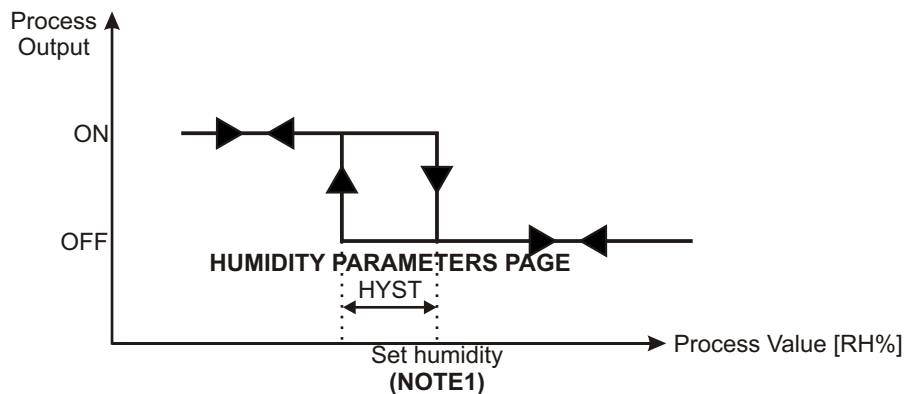
NOTE1:
if curve is enabled;Set humidity = HUMIDITY from curve + **HUMIDITY PARAMETERS PAGE** OFFSET;
if curve is disabled;Set humidity = **SET VALUES PAGE** HUMIDITY +
HUMIDITY PARAMETERS PAGE OFFSET;

2. PROPORTIONAL CONTROL MODE

If the humidity is lower than Set humidity(**NOTE1**) minus **HUMIDITY PARAMETERS PAGE** HYST control will be continuously on. If the humidity is higher than the Set humidity(**NOTE1**) then, control will be continuously off. If the measured humidity is between Set humidity(**NOTE1**) and Set humidity(**NOTE1**) minus **HUMIDITY PARAMETERS PAGE** HYST then, control output will be on for a portion of the **HUMIDITY PARAMETERS PAGE** PERIOD.

Process Output rises from 0% to 100% in
HUMIDITY PARAMETERS PAGE PROP RAMP period.
This feature is called output Filter.
If **HUMIDITY PARAMETERS PAGE** PROP RAMP is zero then output filter is off.

NOTE1:
if curve is enabled;Set humidity = HUMIDITY from curve + **HUMIDITY PARAMETERS PAGE** OFFSET;
if curve is disabled;Set humidity = **SET VALUES PAGE** HUMIDITY +
HUMIDITY PARAMETERS PAGE OFFSET;

6.4.6 VENTILATION

6.4.6.1 VENTILATION PARAMETERS

```
VENTIL.  PARAMETERS
SHIFTING     :      ON
SHIFT&PRP PER:   10MIN
DLY BTWN FANS:    5SEC
PRPRTN RAMP  :   50SEC
SENSOR       :   ROOM1
```

SHIFTING: Shift enabled or disabled (Range: OFF - ON / Factory Setting: ON).
SHIFT&PRP PER: Common set period value for proportion and shifting
(Range: 1 MIN - 100 MIN / Factory Setting: 2 MIN).
DLY BTWN FANS: Delay between fans set value (Range: 0 SEC - 100 SEC / Factory Setting: 5 SEC).
PRPRTN RAMP: Proportion ramp set value (Range: 0 SEC - 999 SEC / Factory Setting: 0 SEC).
SENSOR: Sensor selection set value
(Range: ROOM1, ROOM2, ROOM1&2 / Factory Setting: ROOM1&2).

6.4.6.2 SET VENTILATION <°C>

```
SET VENTILATION<°C>
VENT1: 0.5 VENT5: 2.5
VENT2: 1.0 VENT6: 3.0
VENT3: 1.5 VENT7: 3.5
VENT4: 2.0 VENT8: 4.0
```

VENT1: Ventilation stage 1 set value (Range: 0.0 °C - 50.0 °C / Factory Setting: 0.5 °C).
VENT2: Ventilation stage 2 set value (Range: 0.0 °C - 50.0 °C / Factory Setting: 1.0 °C).
VENT3: Ventilation stage 3 set value (Range: 0.0 °C - 50.0 °C / Factory Setting: 1.5 °C).
VENT4: Ventilation stage 4 set value (Range: 0.0 °C - 50.0 °C / Factory Setting: 2.0 °C).
VENT5: Ventilation stage 5 set value (Range: 0.0 °C - 50.0 °C / Factory Setting: 2.5 °C).
VENT6: Ventilation stage 6 set value (Range: 0.0 °C - 50.0 °C / Factory Setting: 3.0 °C).
VENT7: Ventilation stage 7 set value (Range: 0.0 °C - 50.0 °C / Factory Setting: 3.5 °C).
VENT8: Ventilation stage 8 set value (Range: 0.0 °C - 50.0 °C / Factory Setting: 4.0 °C).

There are two different control outputs.
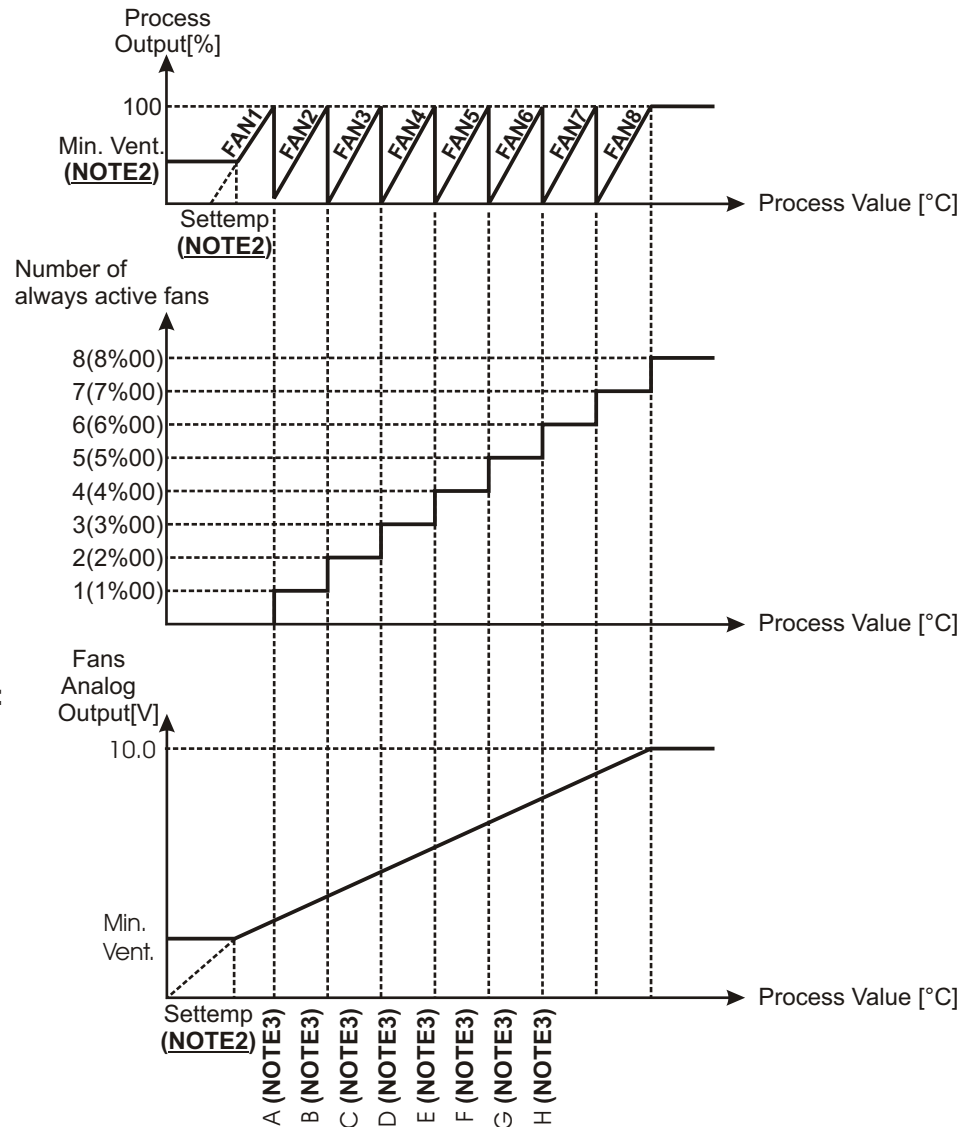**1. Fan linear ventilation control:**
There are eight fan stages to control fresh air level.
If calculated ventilation value is less than Min. Vent then output will be equal to Min. Vent value.
If calculated ventilation value is higher than Max. Vent then output will be equal to Max. Vent value.
Ventilation notation: x%y
x: active fan number,   y: output(%)

1. Fan Analog ventilation control:
Fan analog ventilation control
simultaneously works
with fan linear ventilation control.

NOTE1:
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1; Temperature = ROOM1 sensor's temp.
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM2;Temperature = ROOM2 sensor's temp.
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If curve is enabled;
Settemp= HOUSE TEMP from curve, Min.Vent= MIN. VENT from curve, Max.Vent=MAX. VENT from curve.
If curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE, Min.Vent= **SET VALUES PAGE** VENT. MIN,
Max.Vent= **SET VALUES PAGE** VENT. MAX.
NOTE3:
A = Settemp**(NOTE2)**+ **SET VENTILATION PAGE** VENTILATION1.
B = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION2.
C = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION3.
D = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION4.
E = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION5.
F = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION6.
G = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION7.
H = Settemp**(NOTE2)** + **SET VENTILATION PAGE** VENTILATION8.

6.4.6.4 TECHNICIAN VENTILATION PARAMETERS

1. Shifting fans:
When **VENTIL. PARAMETERS PAGE** SHIFT&PRP PER parameter is expired, working fan number is shifted right once.
For example; 6. and 7. Fans are on and 8. Fan operates proportional in Figure1

```
VENTIL.  PARAMETERS
SHIFTING    :      ON
SHIFT&PRP PER:    2MIN
DLY BTWN FANS:   5SEC
PRPRTN RAMP  :  50SEC
SENSOR       :  ROOM1
```

Figure1

When **VENTIL. PARAMETERS PAGE** SHIFTING&PRP PER parameter is expired, 7. And 8. Fans are on and 1. Fan operates proportional in Figure2

Figure2

If **VENTIL. PARAMETERS PAGE** SHIFTING parameter is OFF then shifting feature is disabled.

2. Delay between fans
Two fans can not be switched on at the same time. Second fan switched on after **VENTIL. PARAMETERS PAGE** DLY BTWN FANS time is over.

3. Output Filter
Process Output rises from 0% to 100% in **VENTIL. PARAMETERS PAGE** PRPRTN RAMP period.
This feature is called Output Filter.
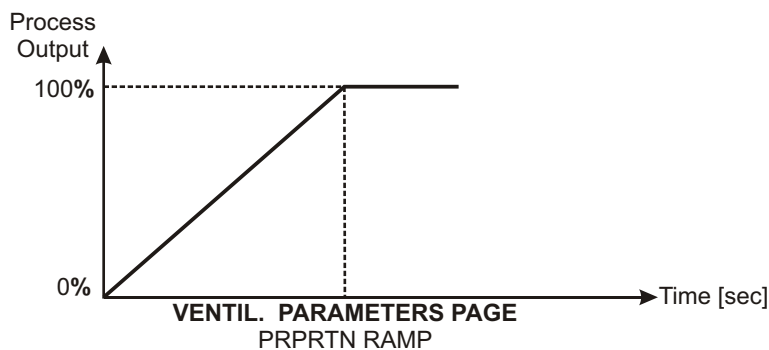
4. Sensor Selection
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2

6.4.7 SHUTTER

6.4.7.1 SHUTTER PARAMETERS

```
SHUTTER   PARAMETERS
STROKE TIME:    100SEC
STEP       :      0.1%
```
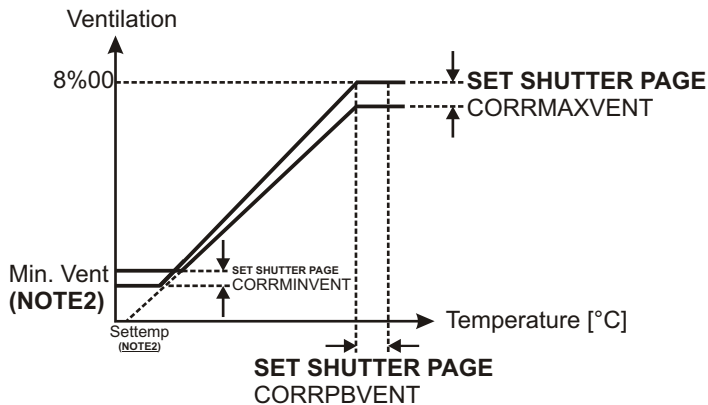
STROKE TIME: Stroke time set value (Range: 5 SEC- 600 SEC / Factory Setting: 100 SEC)
STEP: Stroke time step set value (Range: 0.1% - 5.0% / Factory Setting: 0.1%)

1. Shutter analog output:
Shutter value is related with **SET SHUTTER PAGE** CORRMINVENT, **SET SHUTTER PAGE** CORRMAXVENT, **SET SHUTTER PAGE** CORRPBVENT and ventilation outputs. Shutter analog output (SHUTTER) is between 0Vdc- 10Vdc.

2. Shutter motorized control
Default control mode is AUTO.

Push [MAN/AUTO] button to switch between AUTO and MANUAL control modes.

Manual Control: Control the shutter by using [▲] [▼] buttons.

```
SHUTTER  PARAMETERS
STROKE TIME:  100SEC
STEP     :    1.0%
```

Auto Control: Control the shutter by using SHUTTER PARAMETERS PAGE parameters.
SHUTTER PARAMETERS PAGE STROKE TIME:
It can be adjusted from 5 to 600. The unit is "second". It defines after how many seconds shutter is completely opened. For determining the parameter correctly, close the shutter manually. Be sure that shutter is closed completely, then open it manually without stopping and measure that how many seconds have passed for opening it completely. Parameter must be entered "measured value + 5% of measured value" and as second.

SHUTTER PARAMETERS PAGE STEP:
It can be adjusted from 0.1 to 5.0. The unit is "%". It is % of **SHUTTER PARAMETERS PAGE** STROKE TIME parameter. Minimum movement steps of shutter while opening or closing are determined as % ratio. If shutter oscillates while controlling, INCREASE the parameter value.

NOTE1:
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1;
Temperature = ROOM1 sensor's temperature,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM2;
Temperature = ROOM2 sensor's temperature,
If **VENTIL. PARAMETERS PAGE** SENSOR parameter is ROOM1&2;
Temperature =(ROOM1 sensor's temperature + ROOM2 sensor's temperature) / 2.
NOTE2:
If curve is enabled;
Settemp= HOUSE TEMP from curve, Min.Vent= MIN. VENT from curve, Max.Vent=MAX. VENT from curve.
If curve is disabled;
Settemp= **SET VALUES PAGE** TEMP.HOUSE, Min.Vent= **SET VALUES PAGE** VENT. MIN,
Max.Vent= **SET VALUES PAGE** VENT. MAX.

```
TEMPERATURE SETTINGS
ROOM1 OFFSET:     0.0°C
ROOM2 OFFSET:     0.0°C
OUT. OFFSET :     0.0°C
HUM. OFFSET :       0%
SENS MINMAX : ROOM1&2
SENS OPENING: ROOM1&2
```

ROOM1 OFFSET: Room1 Temperature Offset set value
(Range: -10.0 °C - 10.0 °C / Factory Setting: 0.0 °C).
ROOM2 OFFSET: Room2 Temperature Offset set value
(Range: -10.0 °C - 10.0 °C / Factory Setting: 0.0 °C).
OUTSIDE OFFSET: Outside Temperature Offset set value
(Range: -10.0 °C - 10.0 °C / Factory Setting: 0.0 °C).
HUMIDITY OFFSET: Humidity Offset set value
(Range: -20% - 20% / Factory Setting: 0%).

SENS MINMAX: Sensor selection for MAX & MIN VALUES 1 PAGE
(Range: ROOM1 - ROOM2- ROOM1&2 / Factory Setting: ROOM1&2).

MAX & MIN VALUES 1 PAGE shows the saved minimum and maximum temperature values of
last 24 hours that was token from
ROOM1 or ROOM2 or (ROOM1 + ROOM2)/2
The selection depends on **TEMPERATURE SETTINGS PAGE** SENS MINMAX parameter.

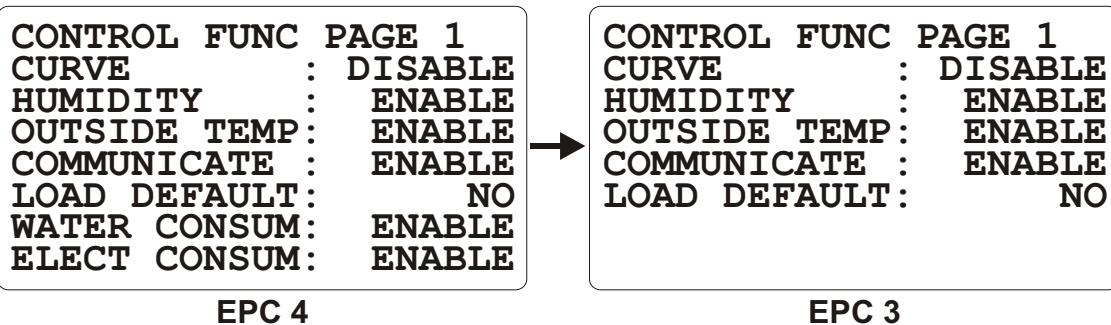**SENS OPENING:** Sensor selection for **PROCESS VALUES PAGE** HOUSE parameter
(Range: ROOM1 - ROOM2- ROOM1&2 / Factory Setting: ROOM1&2).

PROCESS VALUES PAGE HOUSE parameter shows temperature value from
ROOM1 or ROOM2 or (ROOM1 + ROOM2)/2
The selection depends on **TEMPERATURE SETTINGS PAGE** SENS OPENING parameter.

6.4.9 CONTROL FUNC PAGE 1

```
CONTROL FUNC PAGE 1          CONTROL FUNC PAGE 1
CURVE      : DISABLE         CURVE      : DISABLE
HUMIDITY   :  ENABLE         HUMIDITY   :  ENABLE
OUTSIDE TEMP: ENABLE         OUTSIDE TEMP: ENABLE
COMMUNICATE :  ENABLE        COMMUNICATE :  ENABLE
LOAD DEFAULT:     NO         LOAD DEFAULT:     NO
WATER CONSUM: ENABLE
ELECT CONSUM: ENABLE
```
             EPC 4   **EPC 3**

CURVE: Curve working activation parameter
(Range: DISABLE, ENABLE / Factory Setting: DISABLE).
HUMIDITY: Humidity input activation parameter
(Range: DISABLE, ENABLE / Factory Setting: ENABLE).
OUTSIDE TEMP: Outside sensor activation parameter
(Range: DISABLE, ENABLE / Factory Setting: ENABLE).
COMMUNICATE: Modbus communication activation parameter
(Range: DISABLE, ENABLE / Factory Setting: ENABLE).
LOAD DEFAULT: Factory default loading selection parameter
(Range: NO, YES / Factory Setting: YES).

To load factory default parameters;
Change **CONTROL FUNC PAGE 1 PAGE** LOAD DEFAULT parameter to YES and
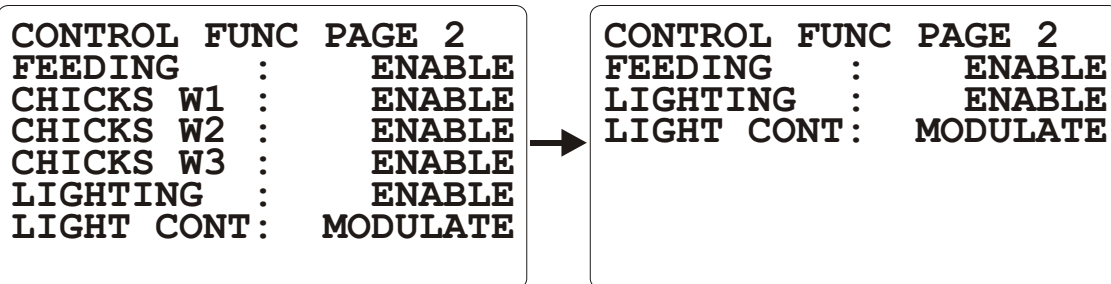change page to the other page,
EPC will change parameters to factory defaults and
EPC will change **CONTROL FUNC PAGE 1 PAGE** LOAD DEFAULT parameter to NO.

WATER CONSUM: Water consumption pages & features activation parameter
(Range: DISABLE, ENABLE / Factory Setting: ENABLE). (EPC 4 FEATURE)
ELECT CONSUM: Electricity consumption pages & features activation parameter
(Range: DISABLE, ENABLE / Factory Setting: ENABLE). (EPC 4 FEATURE)

6.4.10 CONTROL FUNC PAGE 2

```
CONTROL FUNC PAGE 2          CONTROL FUNC PAGE 2
FEEDING    :   ENABLE        FEEDING    :   ENABLE
CHICKS W1 :   ENABLE         LIGHTING   :   ENABLE
CHICKS W2 :   ENABLE         LIGHT CONT:  MODULATE
CHICKS W3 :   ENABLE
LIGHTING   :   ENABLE
LIGHT CONT:  MODULATE
```
             EPC 4   **EPC 3**

FEEDING: Feeding pages & features activation parameter
(Range: DISABLE, ENABLE / Factory Setting: DISABLE).
CHICKS W1: Weigh1 pages & features activation parameter
(Range: DISABLE, ENABLE / Factory Setting: DISABLE). (EPC 4 FEATURE)
CHICKS W2: Weigh2 pages & features activation parameter
(Range: DISABLE, ENABLE / Factory Setting: DISABLE). (EPC 4 FEATURE)
CHICKS W3: Weigh3 pages & features activation parameter
(Range: DISABLE, ENABLE / Factory Setting: DISABLE). (EPC 4 FEATURE)
LIGHTING: Lighting pages & features activation parameter
(Range: DISABLE, ENABLE / Factory Setting: DISABLE).
LIGHT CONT: Lighting working mode selection parameter
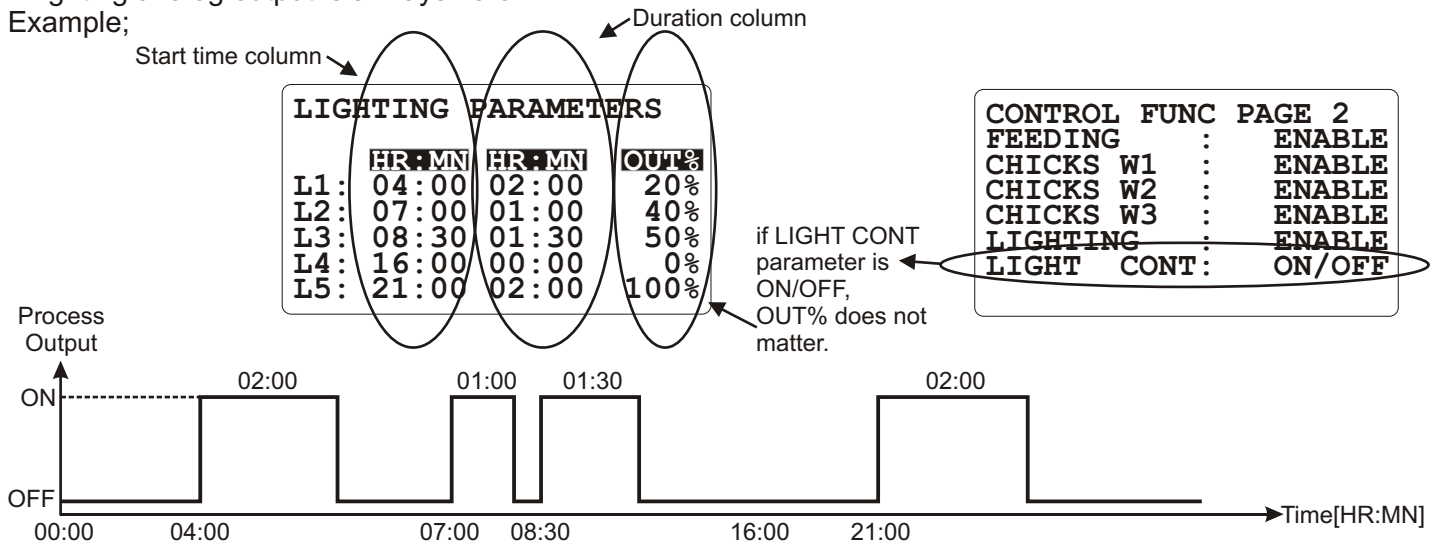(Range: ON/OFF, MODULATE / Factory Setting: MODULATE).

6.4.11 LIGHTING FUNCTION (EPC 3&4)

6.4.11.1 LIGHTING (ON/OFF MODE) FUNCTION

If **SCONTROL FUNC PAGE 2 PAGE** LIGHT CONT parameter is equal to ON/OFF then working princile is explained below;
- First of all EPC has to capture START TIME to run a step.
- Lighting relay output will be on between START TIME and START TIME plus DURATION TIME.
  Otherwise lighting relay output will be off.
- OUT% column is not in used.
- Lighting analog output is allways zero
Example;

Working without curve:
Next page parameters are used :

```
LIGHTING PARAMETERS

        HR:MN  HR:MN   OUT%
L1:  04:00  02:00     20%
L2:  07:00  01:00     40%
L3:  08:30  01:30     50%
L4:  16:00  00:00      0%
L5:  21:00  02:00    100%
```

Working with curve:

```
LIGHTING PARAMETERS
CURVE STEP X
        HR:MN  HR:MN   OUT%
L1:  00:00  00:00      0%
L2:  00:00  00:00      0%
L3:  00:00  00:00      0%
L4:  00:00  00:00      0%
L5:  00:00  00:00      0%
```

 - **SET VALUES PAGE** DAY < **CURVE STEP2** DAY, LIGHTING PARAMETERS PAGE step1 parameters are used,
 - **CURVE STEP2** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP3** DAY, LIGHTING PARAMETERS PAGE step2 parameters are used,
 - **CURVE STEP3** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP4** DAY, LIGHTING PARAMETERS PAGE step3 parameters are used,
 - **CURVE STEP4** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP5** DAY, LIGHTING PARAMETERS PAGE step4 parameters are used,
 - **CURVE STEP5** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP6** DAY, LIGHTING PARAMETERS PAGE step5 parameters are used,
 - **CURVE STEP6** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP7** DAY, LIGHTING PARAMETERS PAGE step6 parameters are used,
 - **CURVE STEP7** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP8** DAY, LIGHTING PARAMETERS PAGE step7 parameters are used,
 - **CURVE STEP8** DAY<=**SET VALUES EPS PAGE** DAY < **CURVE STEP9** DAY, LIGHTING PARAMETERS PAGE step8 parameters are used,
 - **CURVE STEP9** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP10** DAY, LIGHTING PARAMETERS PAGE step9 parameters are used,
 - **CURVE STEP10** DAY<=**SET VALUES PAGE** DAY, LIGHTING PARAMETERS PAGE step10 parameters are used.

If **CONTROL FUNC PAGE 2 PAGE** LIGHT CONT parameter is equal to MODULATE then working princinle is explained below;
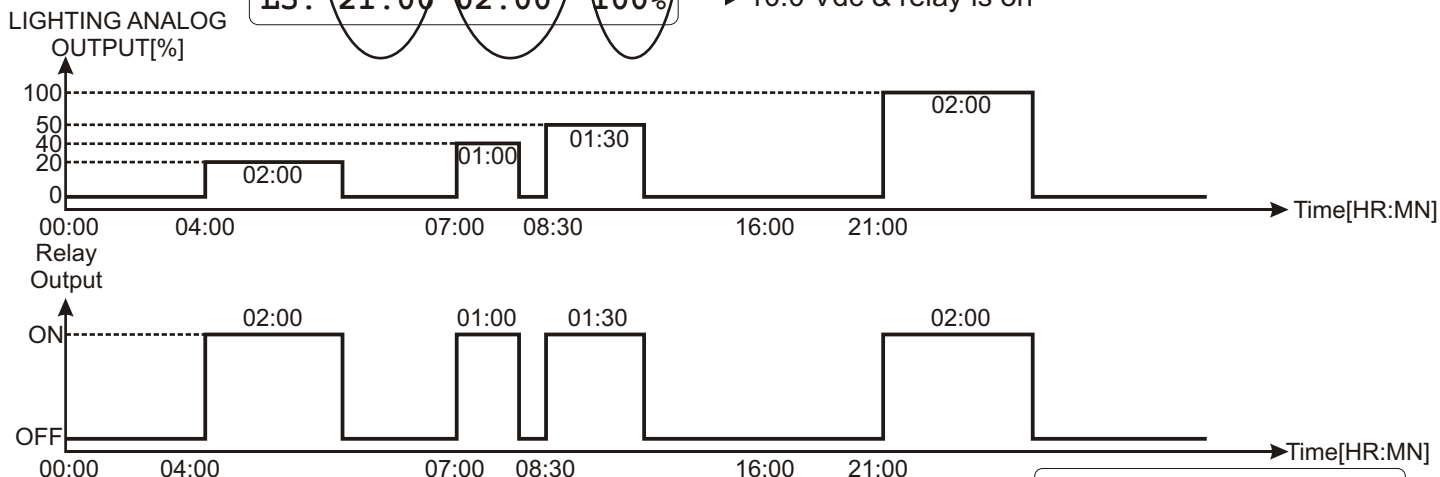- First of all EPC has to capture START TIME to run a step.
- If OUT% is 0 then relay output is OFF otherwise relay output is ON
See the example;

```
CONTROL FUNC PAGE 2
FEEDING     :    ENABLE
CHICKS W1   :    ENABLE
CHICKS W2   :    ENABLE
CHICKS W3   :    ENABLE
LIGHTING    :    ENABLE
LIGHT   CONT: MODULATE
```

Duration column

Start time column

```
LIGHTING  PARAMETERS

       HR:MN HR:MN  OUT%
L1:  04:00 02:00    20%   → 2.0 Vdc & relay is on
L2:  07:00 01:00    40%   → 4.0 Vdc & relay is on
L3:  08:30 01:30    50%   → 5.0 Vdc & relay is on
L4:  16:00 00:00     0%   → 0.0 Vdc & relay is off
L5:  21:00 02:00   100%   → 10.0 Vdc & relay is on
```


LIGHTING ANALOG OUTPUT[%]

Relay Output

Working without curve:

Next page parameters are used :

```
LIGHTING  PARAMETERS

       HR:MN HR:MN  OUT%
L1:  04:00 02:00    20%
L2:  07:00 01:00    40%
L3:  08:30 01:30    50%
L4:  16:00 00:00     0%
L5:  21:00 02:00   100%
```

Working with curve:

```
LIGHTING  PARAMETERS
CURVE STEP X
       HR:MN HR:MN  OUT%
L1:  00:00 00:00     0%
L2:  00:00 00:00     0%
L3:  00:00 00:00     0%
L4:  00:00 00:00     0%
L5:  00:00 00:00     0%
```

 - **SET VALUES PAGE** DAY < **CURVE STEP2** DAY, LIGHTING PARAMETERS PAGE step1 parameters are used,
 - **CURVE STEP2** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP3** DAY, LIGHTING PARAMETERS PAGE step2 parameters are used,
 - **CURVE STEP3** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP4** DAY, LIGHTING PARAMETERS PAGE step3 parameters are used,
 - **CURVE STEP4** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP5** DAY, LIGHTING PARAMETERS PAGE step4 parameters are used,
 - **CURVE STEP5** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP6** DAY, LIGHTING PARAMETERS PAGE step5 parameters are used,
 - **CURVE STEP6** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP7** DAY, LIGHTING PARAMETERS PAGE step6 parameters are used,
 - **CURVE STEP7** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP8** DAY, LIGHTING PARAMETERS PAGE step7 parameters are used,
 - **CURVE STEP8** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP9** DAY, LIGHTING PARAMETERS PAGE step8 parameters are used,
 - **CURVE STEP9** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP10** DAY, LIGHTING PARAMETERS PAGE step9 parameters are used,
 - **CURVE STEP10** DAY<=**SET VALUES PAGE** DAY, LIGHTING PARAMETERS PAGE step10 parameters are used.

6.4.12 FEEDING (EPC 3&4)

6.4.12.1 FEED UNIT PARAMETERS

```
FEED UNIT PARAMETERS

UNIT          :      TIME
FEED PER MIN:      6.0KG
TARE          :        NO
REF WEIGHT    :     250KG
TAKE REF WEIGHT:     NO
FEED OFFSET :        0KG
```

UNIT: WEIGHT or TIME mode is used for feeding control depend on this parameter selection
(Range: WEIGHT- TIME / Factory Setting: WEIGHT).
FEED PER MIN: Feed consumption per minute (using when UNIT parameter is selected TIME)
(Range: 0.0 KG - 100.0 KG / Factory Setting: 1.0 KG).
TARE: Tare function
(Range: NO - YES / Factory Setting: NO).
REF WEIGHT: Reference weight parameter for make weight adjustment
(Range: 0 KG - 30000 KG / Factory Setting: 250 KG).
TAKE REF WEIGHT: Reading Weigh is equal to REF WEIGHT
(Range: NO - YES / Factory Setting: NO).
FEED OFFSET: Feeding amount step values are reduced as feed offset value
(Range: -100 KG - 100 KG / Factory Setting: 0 KG).

6.4.12.2 FEEDING WEIGH ADJUSTMENT (EPC 3&4)

1. Feeding adjustment steps:
FEEDING UNIT PARAMETERS page's have three parameters are used to make feeding adjustment.
1. Take tare (TARE parameter),
2. Enter reference weight (REF WEIGHT parameter),
3. Take reference weight (TAKE REF WEIGHT parameter).

Example;

Access to FEED UNIT PARAMETERS page.

```
FEED UNIT PARAMETERS

UNIT         :   WEIGHT
FEED PER MIN :    1.0KG
TARE         :       NO
REF WEIGHT   :    250KG
TAKE REF WEIGHT:    NO
FEED OFFSET  :      0KG
```

Push three times [button] button to access to TARE parameter

```
FEED UNIT PARAMETERS

UNIT         :   WEIGHT
FEED PER MIN :    1.0KG
TARE         :      NO
REF WEIGHT   :    250KG
TAKE REF WEIGHT:    NO
FEED OFFSET  :      0KG
```

While the silo is empty push [button] button to switch parameter's value to YES.

```
FEED UNIT PARAMETERS

UNIT         :   WEIGHT
FEED PER MIN :    1.0KG
TARE         :     YES
REF WEIGHT   :    250KG
TAKE REF WEIGHT:    NO
FEED OFFSET  :      0KG
```

Almost 3 seconds later read weight is saved as tare weight and parameter's value will switch back to NO. Now push [button] button and access to next parameter. Using [button] button enter 500 kg and push [button] button.

```
FEED UNIT PARAMETERS

UNIT         :   WEIGHT
FEED PER MIN :    1.0KG
TARE         :      NO
REF WEIGHT   :    500KG
TAKE REF WEIGHT:    NO
FEED OFFSET  :      0KG
```

Put 500 kg feed into silo (because of reference weight is 500 kg for this example).

```
FEED UNIT PARAMETERS

UNIT         :   WEIGHT
FEED PER MIN :    1.0KG
TARE         :      NO
REF WEIGHT   :    500KG
TAKE REF WEIGHT:    NO
FEED OFFSET  :      0KG
```

Wait for a little time for feed weigh reading stabilisation and push [button] button to switch parameter to YES.

```
FEED UNIT PARAMETERS

UNIT         :   WEIGHT
FEED PER MIN :    1.0KG
TARE         :      NO
REF WEIGHT   :    500KG
TAKE REF WEIGHT:   YES
FEED OFFSET  :      0KG
```

Almost 3 seconds later feed weigh is saved as reference weight and parameter's value switches back to NO.

```
FEED UNIT PARAMETERS

UNIT         :   WEIGHT
FEED PER MIN :    1.0KG
TARE         :      NO
REF WEIGHT   :    500KG
TAKE REF WEIGHT:    NO
FEED OFFSET  :      0KG
```

FEEDING PARAMETERS PAGES have two different screens. These screens depend on
CONTROL FUNC PAGE 1 PAGE CURVE parameter.

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
      Start Time    Feed Amount
```

```
FEEDING PARAMETERS

        HR:MN        FEED<KG>
F1:  00:00              0
F2:  00:00              0
F3:  00:00              0
F4:  00:00              0
F5:  00:00              0
      Start Time    Feed Amount
```

At the same time only one of these pages is used by EPC. In addition this, both pages has the same feature.
If **CONTROL FUNC PAGE 1 PAGE** CURVE parameter is OFF all time the same parameters values which are
in the FEEDING PARAMETERS are used. Otherwise the values are calculated by EPC depend on
FEEDING PARAMETERS CURVE STEP pages.

MONITORING FEEDING DATA
Feeding data can be monitored via FEEDING CONSUMPTION page.

```
FEEDING CONSUMPTION
10.08.07      13:44:45
TARE       :       NO
RESET CONSUM:      NO
REQUIREDFEED:     0KG
EXIST FEED  :   151KG
TOTAL CONSUM: 20450KG
DAY NUMBER  :       1
```

This page is explained at user section.

FEEDING SYSTEM
There could be two different feeding system.

- The system with loadcell
- The system without load cell

```
FEED UNIT PARAMETERS

UNIT        :   WEIGHT
FEED PER MIN:    1.0KG
TARE        :       NO
REF WEIGHT  :    250KG
TAKE REF WEIGHT:   NO
FEED OFFSET :     0KG
```

Depend on system selection EPC uses two different calculation method, to decide what method will use,
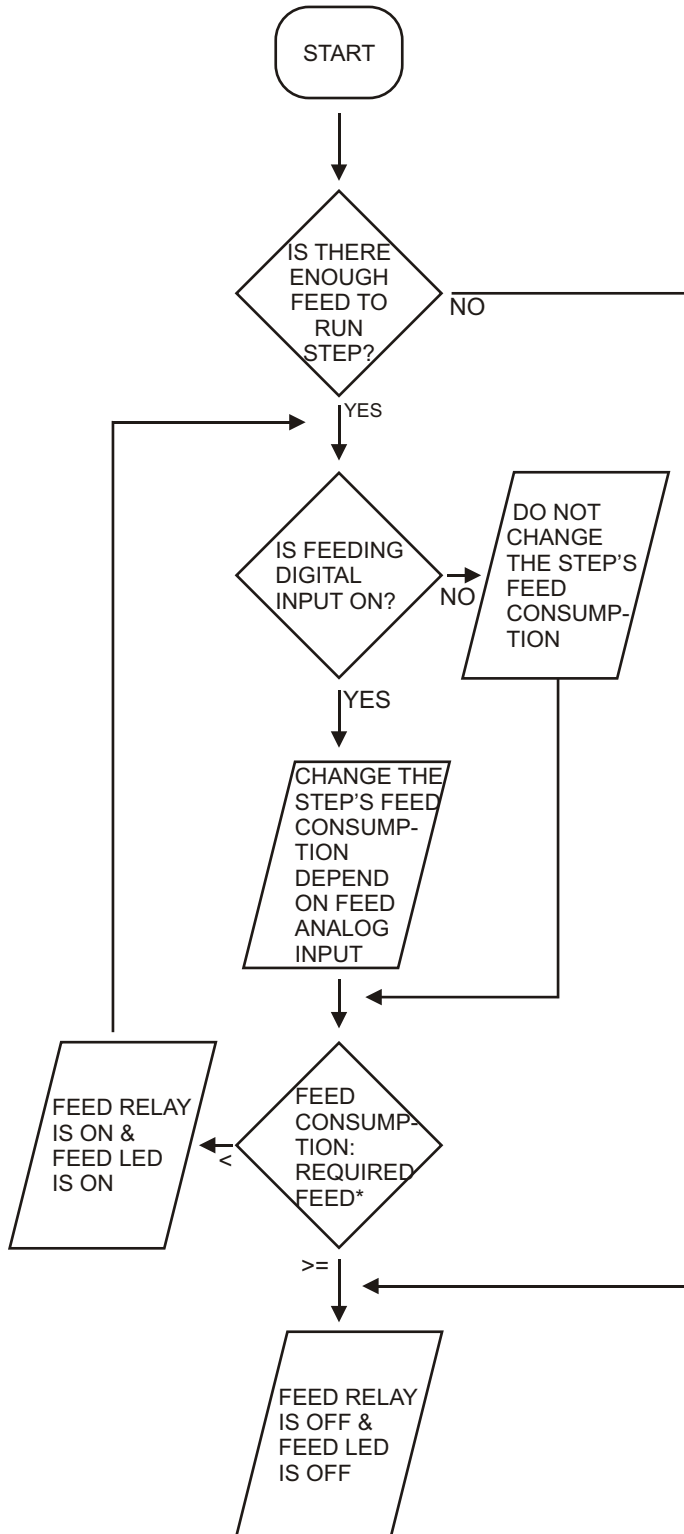**FEED UNIT PARAMETERS PAGE** UNIT parameter is used.

If there is a loadcell in the system, EPC uses FEEDING ANALOG input but if there is no loadcell in the system
then EPC uses time and **FEED UNIT PARAMETERS PAGE** FEED PER MIN parameter to calculate for
feeding consumption. Both system are more explained with examples in next pages.
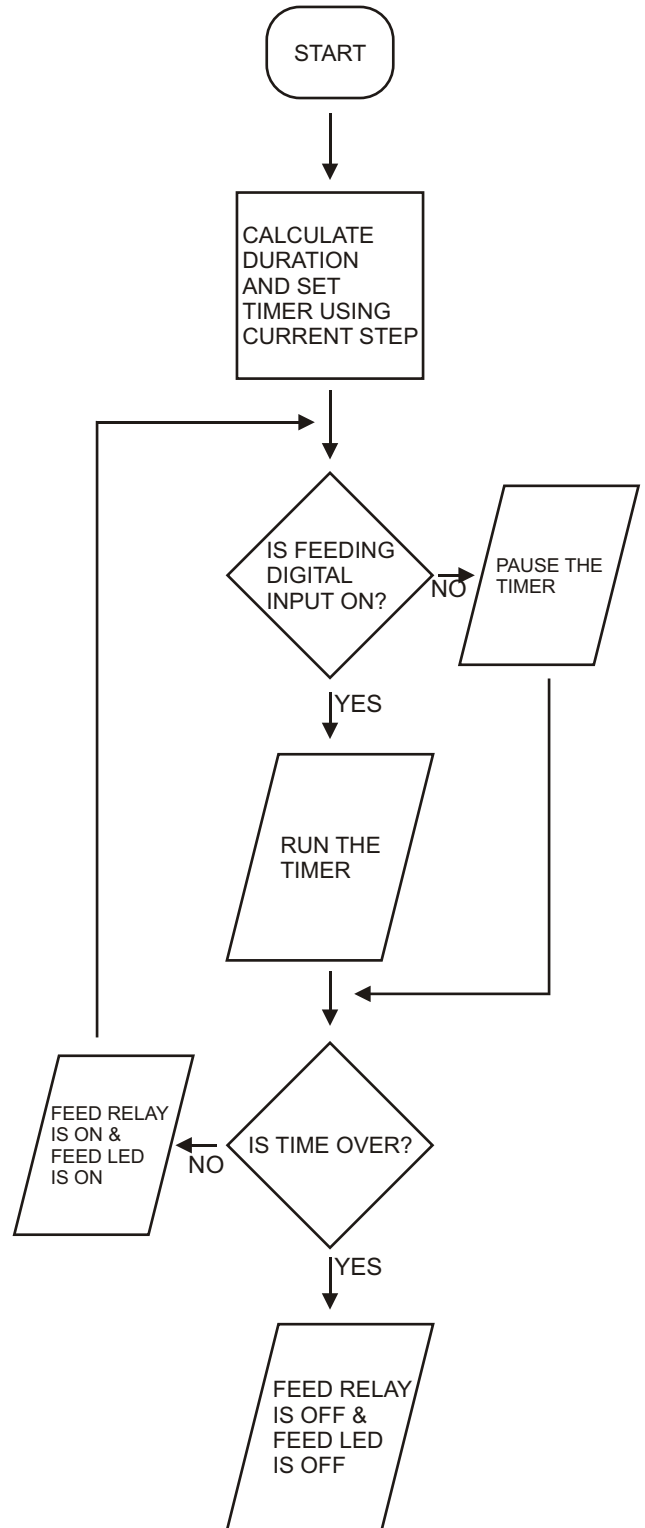
STARTING OF THE NEW STEP
EPC captures time and compares it and step times continuously. If there is an equality between time and any
step's time then that step will run.

With Loadcell

START

IS THERE ENOUGH FEED TO RUN STEP?

NO

YES

IS FEEDING DIGITAL INPUT ON?

NO

DO NOT CHANGE THE STEP'S FEED CONSUMP- TION

YES

CHANGE THE STEP'S FEED CONSUMP- TION DEPEND ON FEED ANALOG INPUT

FEED CONSUMP- TION: REQUIRED FEED*

FEED RELAY IS ON & FEED LED IS ON

<

>=

FEED RELAY IS OFF & FEED LED IS OFF

Without Loadcell

START

CALCULATE DURATION AND SET TIMER USING CURRENT STEP

IS FEEDING DIGITAL INPUT ON?

NO

PAUSE THE TIMER

YES

RUN THE TIMER

IS TIME OVER?

FEED RELAY IS ON & FEED LED IS ON

NO

YES

FEED RELAY IS OFF & FEED LED IS OFF

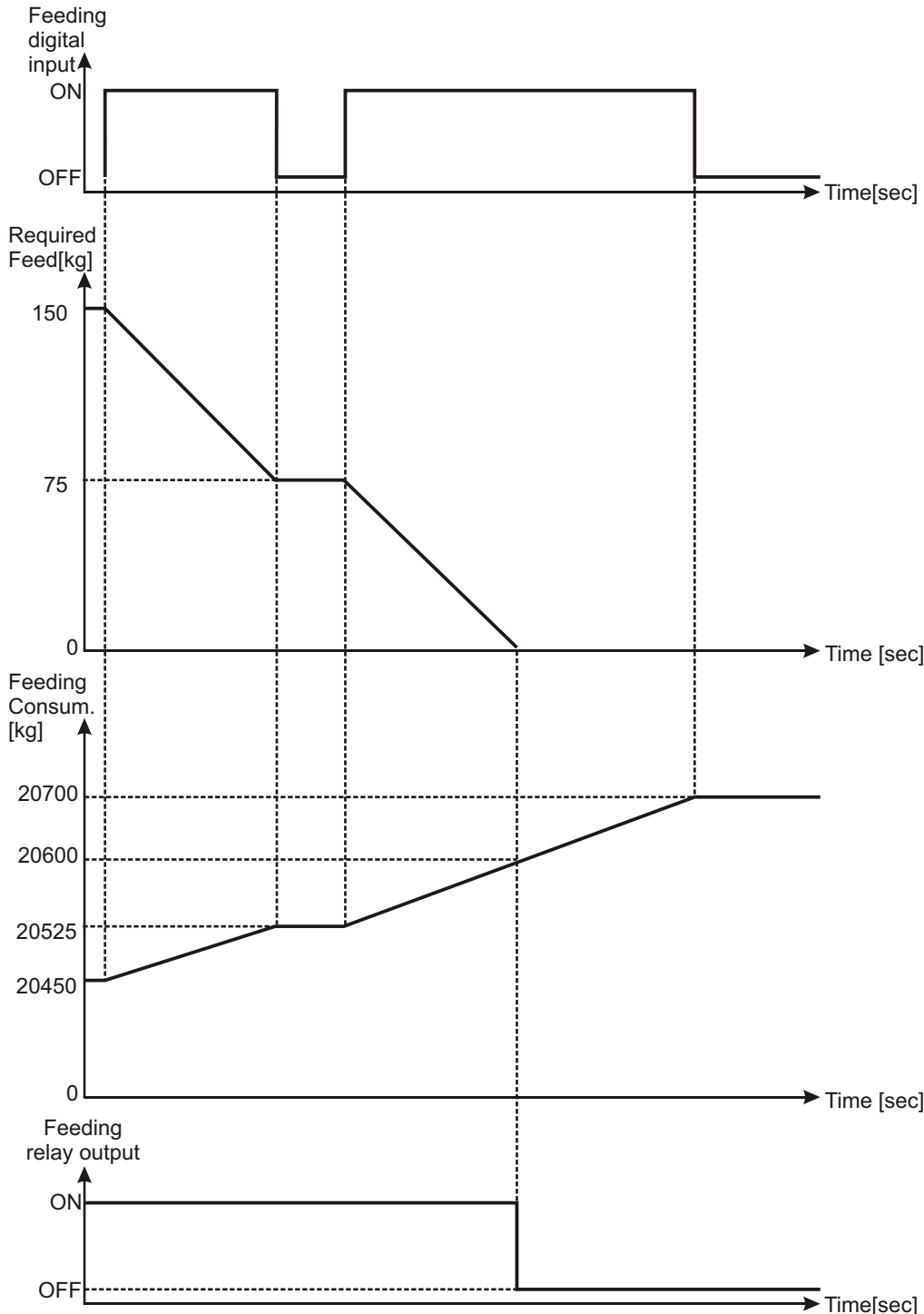## 6.4.12.5 FEEDING (WITH LOADCELL) GRAPHICS (EPC 3&4)

If there is loadcell in the system then **FEED UNIT PAREMETERS PAGE** UNIT parameter must set to WEIGHT.
For example;

```
FEEDING PARAMETERS

       HR:MN      FEED<KG>
F1:  06:00           150
F2:  10:00           200
F3:  12:00           100
F4:  19:00           100
F5:  22:00           200
     Start Time    Feed Amount
```

```
FEED UNIT PARAMETERS

UNIT          :    WEIGHT
FEED PER MIN:      5.0KG
TARE          :       NO
REF WEIGHT    :    250KG
TAKE REF WEIGHT:      NO
FEED OFFSET  :      0KG
```


FEEDING CONSUMPTION PAGE TOTAL CONSUMP changes as long as feeding digital input is ON (independent from any step and any time)

If there is no way to weigh feed then **FEED UNIT PAREMETERS PAGE** UNIT parameter must set to TIME. In this case EPC calculates the step working time by using **FEED UNIT PAREMETERS PAGE** FEED PER MIN parameter and current step's "FEED <KG> " column.

For example;

```
FEEDING PARAMETERS

       HR:MN      FEED<KG>
F1:  06:00           150
F2:  10:00           200
F3:  12:00           100
F4:  19:00           100
F5:  22:00           200
    Start Time    Feed Amount
```

```
FEED UNIT PARAMETERS
UNIT        :      TIME
FEED PER MIN:    5.0KG
TARE        :        NO
REF WEIGHT  :    250KG
TAKE REF WEIGHT:    NO
FEED OFFSET :      0KG
```

EPC calculates each step's working time below;
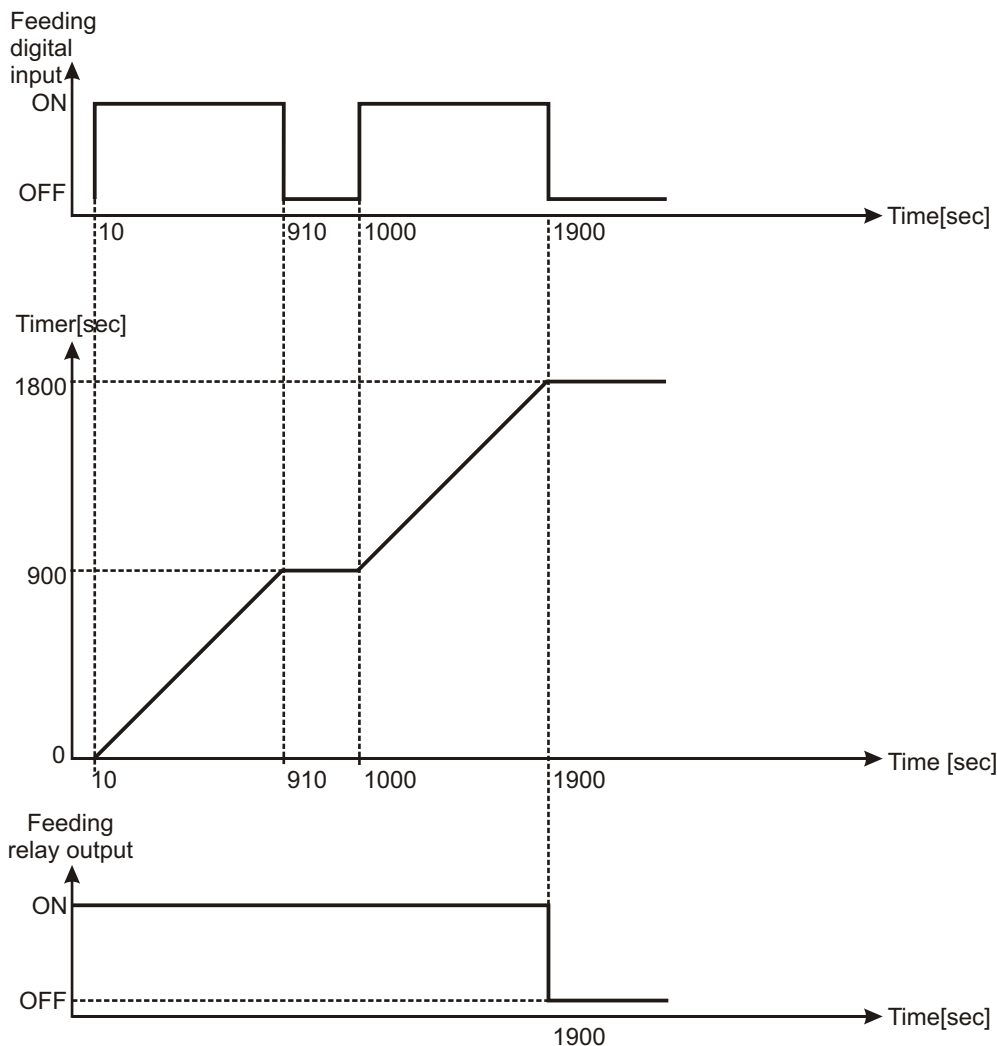For F1 step: 30min (150/5)
For F2 step: 40min (200/5)
For F3 step: 20min (100/5)
For F4 step: 20min (100/5)
For F5 step: 40min (200/5)

For example if step F1 would work then its graphics could be below(minutes is converted to seconds);

FEEDING CONSUMPTION PAGE TOTAL CONSUMP changes as long as feeding digital input is ON (independent from any step and any time)

Example 1;

FEED UNIT PARAMETERS PAGE UNIT parameter: WEIGHT
FEEDING CONSUMPTION PAGE TOTAL CONSUMPTION
parameter: 6500 kg
Consumption feed in last step: 1500 kg
After F1 step finished, new value of
FEEDING CONSUMPTION PAGE TOTAL CONSUMPTION
parameter is;
6500 + 1500= 8000 kg

```
FEEDING PARAMETERS

        HR:MN       FEED<KG>
F1:   06:00          1500
F2:   10:00          6000
F3:   12:00          6000
F4:   19:00          6000
F5:   22:00          9000
      Start Time    Feed Amount
```

Example 2;

FEED UNIT PARAMETERS PAGE UNIT parameter: TIME
FEED UNIT PARAMETERS PAGE FOOD PER MIN
parameter: 50.0 kg
Duration: 1500/50.0 = 30min
FEEDING CONSUMPTION PAGE TOTAL CONSUMPTION
parameter: 6500 kg
After F1 step finished, new value of
FEEDING CONSUMPTION PAGE TOTAL CONSUMPTION
parameter is;
6500+1500 = 8000 kg

```
FEED UNIT PARAMETERS

UNIT          :      TIME
FEED PER MIN:     50.0KG
TARE          :       NO
REF WEIGHT    :     250KG
TAKE REF WEIGHT:     NO
FEED OFFSET :       0KG
```

Working without curve:

These paramaters are used;

```
FEEDING PARAMETERS

        HR:MN       FEED<KG>
F1:   00:00              0
F2:   00:00              0
F3:   00:00              0
F4:   00:00              0
F5:   00:00              0
```

Working with curve:

These paramaters are used;

```
FEEDING PARAMETERS
CURVE STEP X
        HR:MN       FEED<KG>
F1:   00:00              0
F2:   00:00              0
F3:   00:00              0
F4:   00:00              0
F5:   00:00              0
```

 - **SET VALUES PAGE** DAY < **CURVE STEP2** DAY, FEEDING PARAMETERS PAGE step1 parameters are used,
 - **CURVE STEP2** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP3** DAY, FEEDING PARAMETERS PAGE step2 parameters are used,
 - **CURVE STEP3** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP4** DAY, FEEDING PARAMETERS PAGE step3 parameters are used,
 - **CURVE STEP4** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP5** DAY, FEEDING PARAMETERS PAGE step4 parameters are used,
 - **CURVE STEP5** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP6** DAY, FEEDING PARAMETERS PAGE step5 parameters are used,
 - **CURVE STEP6** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP7** DAY, FEEDING PARAMETERS PAGE step6 parameters are used,
 - **CURVE STEP7** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP8** DAY, FEEDING PARAMETERS PAGE step7 parameters are used,
 - **CURVE STEP8** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP9** DAY, FEEDING PARAMETERS PAGE step8 parameters are used,
 - **CURVE STEP9** DAY<=**SET VALUES PAGE** DAY < **CURVE STEP10** DAY, FEEDING PARAMETERS PAGE step9 parameters are used,
 - **CURVE STEP10** DAY<=**SET VALUES PAGE** DAY, FEEDING PARAMETERS PAGE step10 parameters are used.

6.4.13 WEIGHT (EPC 4)

6.4.13.1 WEIGHT1 ADJUSTMENT (EPC 4)

```
WEIGHT1 CALIBRATION
TARE:               NO
REF WEIGHT:     5000GR
TAKE REF WEIGHT:    NO
      5000GR
```
← LOAD

TARE: Tare adjustment parameter (Range: NO- YES / Factory Setting: NO).
REF WEIGHT: Reference weight value is used to make weight calibration
(Range: 0 KG- 5000 KG / Factory Setting: 5000 KG).
TAKE REF WEIGHT: Reference Weigh adjustment parameter
(Range: NO- YES / Factory Setting: NO).
LOAD: Active feed weigh reading (Range: -5000 KG - 5000 KG).

6.4.13.2 WEIGHT2 ADJUSTMENT (EPC 4)

```
WEIGHT2 CALIBRATION
TARE:               NO
REF WEIGHT:     5000GR
TAKE REF WEIGHT:    NO
      5000GR
```
← LOAD

TARE: Tare adjustment parameter (Range: NO- YES / Factory Setting: NO).
REF WEIGHT: Reference weight value is used to make weight calibration
(Range: 0 KG- 5000 KG / Factory Setting: 5000 KG).
TAKE REF WEIGHT: Reference Weigh adjustment parameter
(Range: NO- YES / Factory Setting: NO).
LOAD: Active feed weigh reading (Range: -5000 KG - 5000 KG).

6.4.13.3 WEIGHT3 ADJUSTMENT (EPC 4)

```
WEIGHT3 CALIBRATION
TARE:               NO
REF WEIGHT:     5000GR
TAKE REF WEIGHT:    NO
      5000GR
```
← LOAD

TARE: Tare adjustment parameter (Range: NO- YES / Factory Setting: NO).
REF WEIGHT: Reference weight value is used to make weight calibration
(Range: 0 KG- 5000 KG / Factory Setting: 5000 KG).
TAKE REF WEIGHT: Reference Weigh adjustment parameter
(Range: NO- YES / Factory Setting: NO).
LOAD: Active feed weigh reading (Range: -5000 KG - 5000 KG).

6.4.13.4 AVERAGE WEIGH1 (EPC 4)

```
AVERAGE WEIGH1
INITIAL WEIGH:    100GR
MINIMUM LIMIT:      30%
MAXIMUM LIMIT:      15%
```

INITIAL WEIGH: Curve start average weigh (Range: 0 GR- 5000 GR / Factory Setting: 100 GR).
MINIMUM LIMIT: Minimum limit for recordable weigh
(Range: 0 %- 50% / Factory Setting: 30%).
MAXIMUM LIMIT: Maximum limit for recordable weigh
(Range: 0 %- 50% / Factory Setting: 15%).

6.4.13.5 AVERAGE WEIGH2 (EPC 4)

```
AVERAGE WEIGH2
INITIAL WEIGH:    100GR
MINIMUM LIMIT:      30%
MAXIMUM LIMIT:      15%
```

INITIAL WEIGH: Curve start average weigh (Range: 0 GR- 5000 GR / Factory Setting: 100 GR).
MINIMUM LIMIT: Minimum limit for recordable weigh
(Range: 0 %- 50% / Factory Setting: 30%).
MAXIMUM LIMIT: Maximum limit for recordable weigh
(Range: 0 %- 50% / Factory Setting: 15%).

6.4.13.6 AVERAGE WEIGH3 (EPC 4)

```
AVERAGE WEIGH3
INITIAL WEIGH:    100GR
MINIMUM LIMIT:      30%
MAXIMUM LIMIT:      15%
```

INITIAL WEIGH: Curve start average weigh (Range: 0 GR- 5000 GR / Factory Setting: 100 GR).
MINIMUM LIMIT: Minimum limit for recordable weigh
(Range: 0 %- 50% / Factory Setting: 30%).
MAXIMUM LIMIT: Maximum limit for recordable weigh
(Range: 0 %- 50% / Factory Setting: 15%).

6.4.13.7 WEIGHING PARAMETERS (EPC 4)

```
WEIGHING PARAMETERS
SS TIME      :   1.0SEC
SS LIMIT VAL:    15GR
AW MIN SMPL :     100
AW SMPL PER :     2HR
```

SS TIME: Steady state time for recordable weigh
(Range: 0.3 SEC - 5.0 SEC / Factory Setting: 1.0 SEC).
SS LIMIT VAL: Steady state limit value for recordable weigh
(Range: 1 GR - 1000 GR / Factory Setting: 15 GR).
AW MIN SMPL: Minimum sample for average weigh
(Range: 1 - 1000 / Factory Setting: 100).
AW SMPL PER: Average weigh sampling period
(Range: 1 HR - 24 HR / Factory Setting: 2 HR).

6.4.13.8 WEIGHING ADJUSTMENT (EPC 4)

1. Weighing adjustment steps:

To make weighing adjustment, WEIGHTX CALIBRATION pages are used.
- WEIGHT1 CALIBRATION page is used to make WEIGHT1 0-10V input adjustment.
- WEIGHT2 CALIBRATION page is used to make WEIGHT2 0-10V input adjustment
- WEIGHT3 CALIBRATION page is used to make WEIGHT3 0-10V input adjustment

The explanation below is for WEIGHT1 CALIBRATION page but actually it is common explanation. So given example is valid for each of three pages.

```
WEIGHT1 CALIBRATION
TARE:               NO
REF WEIGHT:     1000GR
TAKE REF WEIGHT:    NO

        0GR
```

Adjustment steps

1. Take tare (TARE parameter)
2. Enter reference weight (REF WEIGHT parameter)
3. Take reference weight (TAKE REF WEIGHT parameter)

Access to WEIGHT1 CALIBRATION page

Push [↵] button to select TARE parameter

```
WEIGHT1 CALIBRATION
TARE:               NO
REF WEIGHT:     1000GR
TAKE REF WEIGHT:    NO

        0GR
```

While the perch is empty push [▲] button to switch parameter's value to YES.

```
WEIGHT1 CALIBRATION
TARE:              YES
REF WEIGHT:     1000GR
TAKE REF WEIGHT:    NO

        0GR
```

Almost 3 seconds later read weight is saved as tare weight and parameter's value will switch back to NO. Now push [↵] button and access to next parameter. Using [▲] button enter 5000 gr and push [↵] button.

Thus, access to next parameter.

```
WEIGHT1 CALIBRATION
TARE:               NO
REF WEIGHT:     5000GR
TAKE REF WEIGHT:    NO

        0GR
```

Put 5000 gr weigh into the perch (because of reference weight is 5000 gr for this example).

```
WEIGHT1 CALIBRATION
TARE:               NO
REF WEIGHT:     5000GR
TAKE REF WEIGHT:    NO

        0GR
```

Wait for a little time and push [▲] button to switch parameter to YES.

```
WEIGHT1 CALIBRATION
TARE:               NO
REF WEIGHT:     5000GR
TAKE REF WEIGHT:   YES

        0GR
```

Almost 3 seconds later 5000 gr weigh is saved as reference weight and parameter's value switches back to NO.

```
WEIGHT1 CALIBRATION
TARE:               NO
REF WEIGHT:     5000GR
TAKE REF WEIGHT:    NO

      5000GR
```

6.4.13.9 WEIGHING (EPC 4)

1. Weighing steps:
EPC can weigh the chickens via 3 channels and saves some data to give information to user.
User can monitor chickens status day by day via these data.
Flowing of the operation is quite simple and explained below;

```
WEIGHING PARAMETERS
SS TIME     :   1.0SEC
SS LIMIT VAL:    15GR
AW MIN SMPL :     100
AW SMPL PER :     2HR
```

2. Is curve mode on?
If curve mode is enabled, weighing works. Otherwise weighing functions are disabled.
When curve mode is switched to ON, EPC uses equality below only once.
DAY AVERAGE WEIGH = **AVERAGE WEIGH PAGE** INITIAL WEIGH
DAY AVERAGE WEIGH MINIMUM LIMIT =
DAY AVERAGE WEIGH * (1 - **AVERAGE WEIGH PAGE** MINIMUM LIMIT)
DAY AVERAGE WEIGH MAXIMUM LIMIT =
DAY AVERAGE WEIGH* (1 + **AVERAGE WEIGH PAGE** MAXIMUM LIMIT)

for example;
DAY AVERAGE WEIGH = 100gr
DAY AVERAGE WEIGH MINIMUM LIMIT = 100 * (1 -0.3)
DAY AVERAGE WEIGH MINIMUM LIMIT = 70gr
DAY AVERAGE WEIGH MAXIMUM LIMIT = 100* (1 +0.15)
DAY AVERAGE WEIGH MAXIMUM LIMIT = 115gr

```
AVERAGE  WEIGH1
 INITIAL WEIGH:  100GR
MINIMUM LIMIT:     30%
MAXIMUM LIMIT:     15%
```

It means that EPC only save the weights between 70gr- 115gr.
EPC recalculate DAY AVERAGE WEIGH same as below;

$$DAY\ AVERAGE\ WEIGH = \sum_{Record\ No=1}^{Record\ No=Number\ Of\ Record} \frac{WEIGHT[Record\ No]}{Number\ Of\ Record}$$

DAY AVERAGE WEIGH MAXIMUM LIMIT and DAY AVERAGE WEIGH MINIMUM LIMIT are also recalculated at each new DAY AVERAGE WEIGH calculation.

2. Is data stable?
EPC uses only stable data for calculation and logs.
If data changing smaller than **WEIGHING PARAMETERS PAGE** SS LIMIT VAL parameter during **WEIGHING PARAMETERS PAGE** SS TIME parameter, EPC accepts the data stable.

3.**How is EPC aware of chicken movement?**
EPC takes sequential two weights and calculates their different;

Different = Old Weight - Last Weight

If different is between TARGET WEIGH MINIMUM LIMIT and TARGET WEIGH MAXIMUM LIMIT this weight is accepted valid chicken weight and it is recorded to the nonvolatile memory.

4. Saved Data Struct
Today and yesterday data are stored in nonvolatile memory and each field has max. 9999 records.
Each weighing channel has own today and yesterday fields.
At the other hand, below data is saved for maximum 1005 days (curve can be maximum 1005 days).

- Average weigh,
- Feed consumption,
- Water consumption,
- Electricity consumption,
- Outside sensor minimum value,
- Outside sensor maximum value.

6.4.14 WATER AND ELECTRICITY CONSUMPTION (EPC 4)

6.4.14.1 WATER AND ELECTRICITY CONSUMPTION PER PULSE (EPC 4)

```
WATER AND ELECTRICITY
CONSUMPTION PER PULSE
ELECTRICITY: 1000WH/P
WATER      : 0.10LT/P
```

ELECTRICITY: Electricity consumption per pulse
(Range: 0 WH/Pulse - 9999 WH/Pulse / Factory Setting: 1000 WH/Pulse).
WATER: Water consumption per pulse
(Range: 0.00 LT/Pulse - 99.99 LT/Pulse / Factory Setting: 0.10 LT/Pulse).

6.4.14.2 ELECTRICITY CONSUMPTION (EPC 4)

```
WATER AND ELECTRICITY
CONSUMPTION PER PULSE
ELECTRICITY: 1000WH/P
WATER      : 0.10LT/P
```

```
ELECTRICITY ENERGY
CONSUMPTION
03.07.06     02:11:27
RESET CONSUM:      NO
DAILY CONSUM:   15KWH
TOTAL CONSUM: 5018KWH
DAY NUMBER  :      12
```

EPC has an electricity consumption input which is called "ELECTRICITY" digital input.

Consumption increases as many **WATER AND ELECTRICITY CONSUMPTION PER PULSE PAGE** ELECTRICITY as each pulse
Example:

ELECTRICITY ENERGY CONSUMPTION PAGE DAILY CONSUM : 0 KWH
ELECTRICITY ENERGY CONSUMPTION PAGE TOTAL CONSUM : 23000 KWH
WATER AND ELECTRICITY CONSUMPTION PER PULSE PAGE ELECTRICITY : 2000 WH/Pulse

Pulses = 2500,
2500*2000 = 5000000 WH,
5000000/1000 = 5000 KWH.

ELECTRICITY ENERGY CONSUMPTION PAGE DAILY CONSUM : 5000 KWH
ELECTRICITY ENERGY CONSUMPTION PAGE TOTAL CONSUM : 23000 + 5000 = 28000 KWH

TO RESET DAILY CONSUM AND TOTAL CONSUM PARAMETERS

To switch curve from NO to YES will reset **ELECTRICITY ENERGY CONSUMPTION PAGE** DAILY CONSUM and **ELECTRICITY ENERGY CONSUMPTION PAGE** TOTAL CONSUM parameters.

To switch **ELECTRICITY ENERGY CONSUMPTION PAGE** RESET CONSUM from NO to YES and

pushing [button icon] button will reset **ELECTRICITY ENERGY CONSUMPTION PAGE** DAILY CONSUM and

ELECTRICITY ENERGY CONSUMPTION PAGE TOTAL CONSUM parameters.
ELECTRICITY ENERGY CONSUMPTION PAGE DAILY CONSUM parameter value is added to
ELECTRICITY ENERGY CONSUMPTION PAGE TOTAL CONSUM parameter and cleared at each new day.

6.4.14.3 WATER CONSUMPTION (EPC 4)

```
WATER AND ELECTRICITY
CONSUMPTION PER PULSE
ELECTRICITY: 1000WH/P
WATER     :  0.10LT/P
```

```
WATER CONSUMPTION

03.07.06      02:11:27
RESET CONSUM:       NO
DAILY CONSUM:   1800LT
TOTAL CONSUM: 14000LT
DAY NUMBER  :       12
```

EPC has a water consumption input which is called "WATER CONSUMP." digital input.

Consumption increases as many **WATER AND ELECTRICITY CONSUMPTION PER PULSE PAGE** WATER as each pulse

Example:
WATER CONSUMPTION PAGE DAILY CONSUM : 300 LT
WATER CONSUMPTION PAGE TOTAL CONSUM : 14000 LT
WATER AND ELECTRICITY CONSUMPTION PER PULSE PAGE WATER : 5 LT/Pulse

Pulses = 300
300*5 = 1500 LT

WATER CONSUMPTION PAGE DAILY CONSUM : 300 + 1500 = 1800 LT
WATER CONSUMPTION PAGE TOTAL CONSUM : 14000 + 1500 = 15500 LT

TO RESET DAILY CONSUM AND TOTAL CONSUM PARAMETERS

To switch curve from NO to YES will reset **WATER CONSUMPTION PAGE** DAILY CONSUM and
WATER CONSUMPTION PAGE TOTAL CONSUM parameters.
To switch **WATER CONSUMPTION PAGE** RESET CONSUM from NO to YES and pushing

button will reset **WATER CONSUMPTION PAGE** DAILY CONSUM and **WATER CONSUMPTION**

PAGE TOTAL CONSUM parameters.
WATER CONSUMPTION PAGE DAILY CONSUM parameter value is added to
WATER CONSUMPTION PAGE TOTAL CONSUM parameter and cleared at each new day.

6.4.15 MODBUS

```
MODBUS
BAUD RATE :        3
STOP BIT  :        0
PARITY BIT:        0
SLAVE ID  :        1
```

BAUD RATE: Communication Baud Rate
(Range: 0- 4(0: 1200- 1: 2400- 2: 4800- 3: 9600- 4: 19200 baud rate) / Factory Setting: 3).

STOP BIT: Communication Stop Bit Selection
(Range: 0- 1(0: 1 stop bit- 1: 2 stop bits) / Factory Setting: 0).

PARITY BIT: Communication Parity Selection
(Range: 0- 2(0: None parity- 1: Odd parity- 2: Even parity) / Factory Setting: 0).

SLAVE ID: Communication Slave Adress Selection
(Range: 1- 247 / Factory Setting: 1).

6.4.16 EDIT PASSWORDS

```
      EDIT PASSWORDS

TECHNICIAN:   0000


USER      :   0000
```

TECHNICIAN: Technician password set value
(Range: 0- 9999 / Factory Setting: 0).
USER: User password set value
(Range: 0- 9999 / Factory Setting: 0).

6.4.17 ENTER CAL PASSWORD

```
      ENTER CAL

      PASSWORD

        0000
```

PASSWORD PARAMETER: Factory Adjustment field password query

IMPORTANT: UNAUTHORIZED ACCESSING TO ADJUSTMENT PAGES MAY EFFECT EPC'S WORKING EFFORT.

EMKO HAS NO RESPONSIBILITY, IF CUSTOMER ACCESSES TO ANALOG ADJUSTMENT PAGES

7. SPECIFICATIONS

Device Type	: Poultry Controller
Housing& Mounting	: 144mmx204mmx37mm (including connectors) plastic housing for panel mounting
Panel Cut-Out	: 138mmx186mm
Protection	: NEMA4X (IP65 at front panel, IP20 at rear side)
Weight	: Approximately 0.7 kg
Environmental Ratings	: Standard, indoor at an altitude of less than 2000 meters with non-condensing humidity.
Operating/Storage Temperature	: 0 $^{\circ}$C to +50 $^{\circ}$C / -25 $^{\circ}$C to +70 $^{\circ}$C
Operating/Storage Humidity	: 90 % max. (None condensing)
Installation Overvoltage Category	: II appliances, portable equipment
Pollution Degree	: II, normal office or workplace, none conductive pollution
Mode of Operation	: Continuous
EMC	: BS EN 61000-6-4, EMC Generic Emission Standard for industrial equipment BS EN 61000-6-2, EMC Generic Immunity Standard for industrial equipment
Electrical Safety	: EN-61010-1, safety requirements for electrical equipment for measurement, control and laboratory use
Supply Voltage(⎓)	: 24 V⎓ ± %15 (max. 350 mA)
Analogue Input Types **(Room1, Room2, Outside Temp.)**	: PT 100 (IEC751) (ITS90) Accuracy: % 0.25 of full scale
Analogue Input Types **(Feeding, Weight1, Weight2, Weight3)**	: 0 -10 V⎓ Accuracy: % 0.25 of full scale
Dry Contact Inputs	: Alarm1 (NO), Negative Press (NO), Feeding (NO), Electricity (NO), Water Consumption (NO)
Fan Outputs Type	: Relay output on Resistive Load 6A@250V∼
Heater 1 Output Type	: Relay output on Resistive Load 6A@250V∼
Heater 2 Output Type	: Relay output on Resistive Load 6A@250V∼
Cooling Output Type	: Relay output on Resistive Load 6A@250V∼
Alarm 1 Output Type	: Relay output on Resistive Load 6A@250V∼
Shutter Open Output Type	: Relay output on Resistive Load 6A@250V∼
Shutter Close Output Type	: Relay output on Resistive Load 6A@250V∼
Humidity Output Type	: Relay output on Resistive Load 6A@250V∼
Feeding Output Type	: Relay output on Resistive Load 6A@250V∼
Lighting Output Type	: Relay output on Resistive Load 6A@250V∼
Analogue Outputs	: 0 - 10 V⎓ Accuracy: % 1 of full scale
Communication Interface	: RS-232 serial communication
Led Display	: Fan 1, Fan 2, Fan 3, Fan 4, Fan 5, Fan 6, Fan 7, Fan 8, Heater 1, Heater 2, Colling, Alarm, Feeding, Lighting, Humidity, Program, Influence, Date setup Curve setup, Shutter Open, Shutter Close
Status Indicators	: Shutter Man/Auto selection
Approvals	: GOST-R, C E