

Gravimetric system with LCD control panel manual

Warning:

Before activating, please read the manual, and check whether the data inputted in 02 field in programming mode is correct. Value entered in this field depends on place and method of mounting the screw rotation sensor.

Gravimetric system's work modes description

The current work mode is stated on the LCD control panel as STATUS. There are three work modes of gravimetric system:

1. STATUS: STOP

This state occurs after turning on the system and at idle / no screw or nip rolls rotation /. While this work mode is on, it is not possible to change it into PRACA AUTO state.

As screw is stopped, weigh hopper will be not automatically supplied with material. Pressing any button on the keypad will start the process of filling the hopper. Material supply will continue until the hopper will be full or passing 30 seconds from start of the filling. Starting just the extruder's screw will cause automatic hopper filling but is treated as STOP.

2. STATUS: PRACA MANUAL

System automatically enters this mode just after extruder start /the screw and nip rolls are working/. Working in MANUAL mode provides material supply by main and additional flows in amount defined on the controller. **System DOES NOT CONTROL MASS FLOW**. However, it allows manual setting of screw and nip rolls rotational speed. This mode is used for starting up the extruder (installing the film on the rolls, setting film wideness etc.). After stopping the nip rolls or the screw, system will enter STOP mode automatically, after 8 seconds.

3. STATUS: PRACA AUTO

This mode is proper for automatic substance control. It is possible for the system to enter PRACA AUTO mode only from PRACA MANUAL mode. To go into PRACA MANUAL state, press the ENTER button while the ">" cursor points at PRACA MANUAL in the data edition mode. (Example: Pressing the ENTER button twice changes MANUAL mode into AUTO mode, and vice-versa).

After entering the PRACA AUTO mode, and before beginning of automatic control, device calibration takes place. Calibration determines some crucial control parameters. While this occurs, it is not possible to change any parameters. One shouldn't disturb calibration by changing rotation speed of nip rolls or screw. During the calibration process, STAN PROCESU field will state CZEKAJ... .

After calibration, main control process begins. Corrections occur in the initial phase, for every 2 running meters of film. At this point, STAN PROCESU field will state REGULACJA WSTĘPNA. Afterwards, REGULACJA DOKŁADNA will take place, where system controls the mass flow every 10 running meters.

During PRACA AUTO mode, it is possible to change parameters. While inputting new data, system halts mass flow control. After editing the data, exit editing mode, and the system will calculate new parameters and correct extruder's work immediately.

It is possible to change PRACA AUTO mode to PRACA MANUAL at any time. 8 seconds after stopping the nip rolls and screw, system will automatically turn into STOP mode.

If the extruder has been stopped in PRACA AUTO mode, without earlier entering PRACA MANUAL mode, there may be some errors indicated. In that case, no repairs or servicing should be made.

Keypad description and control panel functions

Left function button (shift) – used for cancellation. ESC

Right function button (clear) – used for acceptance. ENTER

LCD panel works in one of three modes:

1. Main menu – the most important process information is displayed. The “>” cursor, used for choosing value for editing, is not visible. Entering this mode takes place automatically after 30 seconds at idle or pressing the ESC button.
2. Main menu, choosing field to edit mode – the “>” cursor points at chosen value, which can be edited by pressing the ENTER button. Choosing the field (cursor movement) is done by 8 and 2 keys (up and down). Moving the cursor is not possible while data is inputted or the “_” cursor is visible. Entering this mode is possible at all time, by pressing any key on the keypad. To exit this mode press ESC button. Additionally system will automatically exit after 30 seconds at idle. After exiting, mass flow control will be resumed automatically.
3. Main menu, data edition – the “>” cursor points the field to be edited. Once the ENTER button is pressed, the “_” cursor will appear. In this mode it is possible to edit chosen data. One should input new value, consisting of all shown digits. Cursor moves automatically after any of 0-9 buttons is pressed or confirmation with ENTER button. Once all required digits are inputted the “_” cursor turns off. To cancel edition, press ESC button (data will remain unchanged) or confirm partially changed data with ENTER button.

Error codes

01, 02, 03, 04 – system error. Contact technical support.

This error automatically switches the system into MANUAL mode.

05, 06, 07, 08 – control parameter error.

The potentiometer (or key) used for screw rotational speed control is jammed, disconnected or corrupted. Error automatically switches mode to MANUAL.

09, 10 – weighing scale is damaged or weigh hopper is blocked. Weighing error.

Check, whether material level in hopper does not exceeds hopper's upper rim. Possible damage of main material mechanical feeder (hole in the feeder) or invalid mass flow control configuration in programming mode – no. 04. Operator's intervention required!

11 + one long and two short sound signals

Maximum speed of screw has been reached, mass flow control is impossible. 6 attempts has been made to increase the speed.

Short sound signal repeated every 5 seconds

Material quantity in the hopper is below critical minimum (lack of material)

One short signal (1 second)

Nip rolls maximum speed reached.

Two short signals (1s/1s)

Manual rolls settings change by the operator, or unstable rolls work.

Three short signals (1s/1s/1s)

Manual screw settings change by the operator, or unstable drive work.

Notice:

1. Disconnecting, damaging or jamming any of screw or nip rolls rotational speed sensors disables PRACA AUTO mode. System treats such state as extruder's halt, and will be stated as STOP on the LCD panel.
2. During STOP mode, while the screw is not working and does not receive material, the main feeder stops filling up the weigh hopper after 30 seconds. To force supplying for the next 30 seconds press any key on the keypad.
3. One shouldn't manually change the rotational speed of the screw in AUTO mode. Changing the speed for over 5% will be seen by the system as unstable work, and stated with sound signal (3 short signals).
4. Acceleration or deceleration the extruder's work is done STRICKTLY by changing rotational speed of nip rolls. If speed change is higher than predefined value in configuration, system will indicate it with sound signal (2 short signals). After each nip rolls speed change, automatic screw rotational speed correction will be done.
5. There are few factors that has influence on correct system work:
 - Material quality /grain size should not exceed 5x5mm/
 - Stable screw and nip rolls rotational speed /swaying will be detected by system and indicated as error/
 - Excessive vibrations made by damaged respirator can lead to wrong substance readings
 - Interfering in hopper position during AUTO mode work will cause errors in weigh scale readings and wrong screw speed correction

Programming mode

Please, read the programming manual before changing any data.

Entering the programming mode is not possible while PRACA AUTO mode is on.

To enter programming mode hold any key in MANUAL or STOP mode for longer than 5 seconds.

In this mode cursor is moved by pressing ESC button. The cursor moves always downwards on each field. To edit a field it is not necessary to confirm it. After pointing the cursor on desired position it is possible to input new value. Always input required amount of digits. Saving new parameter into memory occurs automatically after entering proper amount of digits for edited field and returning the cursor to its first position.

Functions from 13 to 15 has to be confirmed with ENTER.

02 – sensitivity of screw work stability control system. Value in percent.

03 – sensitivity of nip rolls work stability control system. Value in percent.

For both cases value describes maximum allowable speed instability (default value – 0005%).

Value range: 1-20% . It is possible to disable instability control in 09 program.

04 – maximum material level in weigh hopper. Range: 0 – 255kg (default value – 010.0 kg)

05 – minimum material level in weigh hopper. If the level of material is below given value, error will be indicated.

Range: 0 – 255kg (default value – 006.0kg)

06 – weight offset given in grams. Range: -25.5 to +25.5g (default value – 0g)

07 – substance calibration given in percent (default value – 100%)

08 – screw sensor's impulses made for 1 full turn (default – 10)

09 – Letters **|A|B|C|D|E|F|G|H|** describe digits on the display. 0 - on; 1 - off

A – weight offset value for 06 program (1 – negative value; 0 – positive value)

B – screw parameters reading from memory switch (Warning!!! Contact customer service)

C – maximum screw speed sound notification switch (on by default)

D – manual mode warning sound notification switch (on by default)

E – nip rolls stability control

F – screw stability control

G – initial regulation of first meters of film (on by default)

H – dividing by 2 calculated reaction level for weight error during substance control (on by default to prevent regulation system from inducing or to high oscillations)

10 – servicing settings

11 – servicing settings

12 – servicing settings

13 – restore default settings

14 – servicing weight calibration

15 – exit programming mode

Customer service: Sitkowski Adam adamsitkowski@op.pl