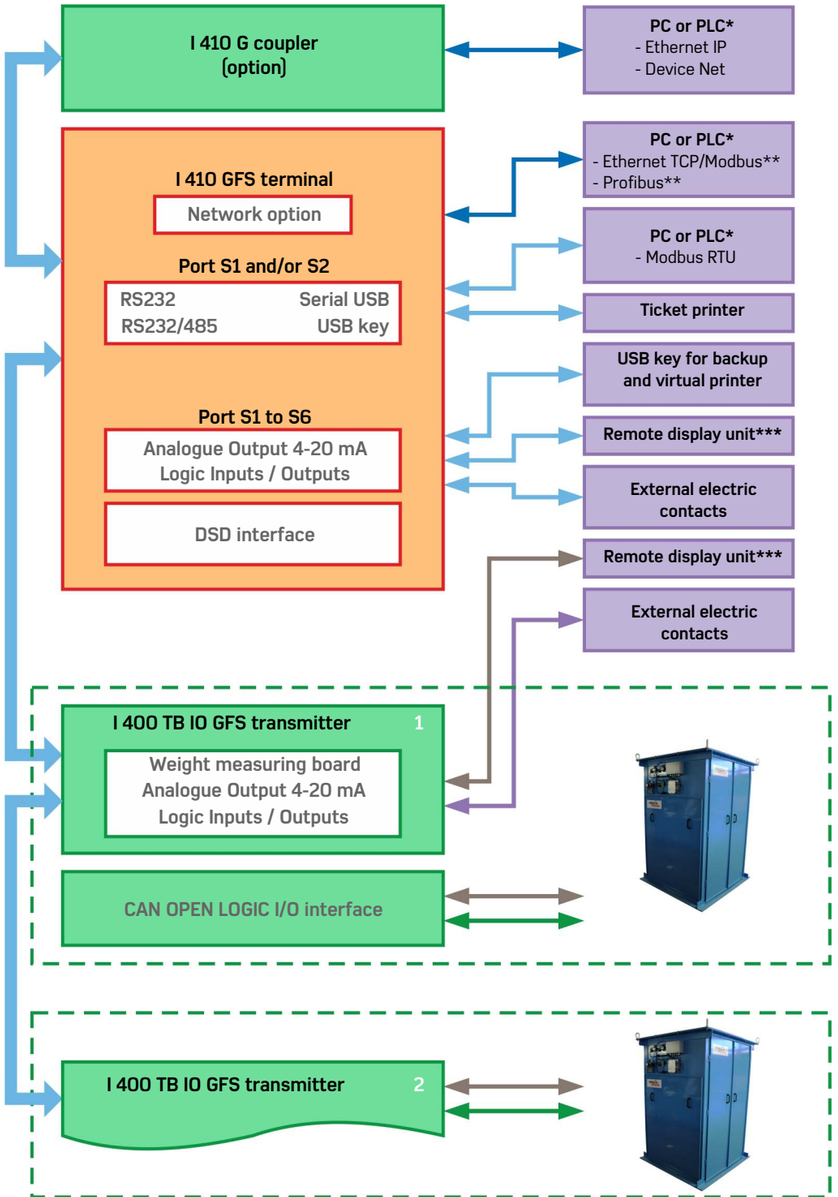
I 410 GFS system



* *The I 410 BS-external system link is implemented by one of the three interfaces (free choice).*
** *Ethernet TCP/Modbus and PROFIBUS-DP : available either by network card of the indicator, of by the I 410 G-BS coupler (options).*
*** *Information exchanged : see Analog outputs 4-20 mA.*

Your specialist

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PRECIA MOLEN™ WORLDWIDE WEIGHING

I 400 GFS
Bagging software

PRECIA MOLEN™ WORLDWIDE WEIGHING

Application

The I 410 GFS software is the measuring and slaving device developed by PRECIA MOLEN for controlling the single or dual weigh hopper gravimetric filling scale.

Our I 410 electronic system equipped with I 410 GSF software can replace any type of existing built-in indicator in the semi-automatic or automatic bagging lines.

In fact, this software allows measuring the weight and controlling one to two net or gross weighers-weighing bagging scales.

It is intended for packaging granular or dry flowable products in these types of packages:

- Open-mouth bags,
- Valve bags,
- Can or barrel type rigid containers.

It meets the basic requirements of this application domain:

Features

Weighing function

- Measuring the weight of single or dual weighers,
- Programming automatic periodic zero-setting,
- Measurement filtering parameter adapted to this application,

Preselection function

- Inputting dose value by keyboard or via the communication protocol,
- Pre-programming the dosing formula,
- Preselecting the batches (number of bags).

Traceability function

- Storing the batches produced,
- Batch total weight (kg) totaliser,
- Totaliser per data sheet for:
  - Totalled weight (kg),
  - Number of bags produced.

Dosing cycle function

- Controlling three filling speeds,
- Managing the cycles of filling setting, reset and normal cycle,
- Controlling the weighing discharge with configurable triggering empty threshold
- Automatic afterflow correction rate,
- Automatic or remote dose correction,
- In particular, this function allows connecting the I 410 GFS to a CKW type checkweigher installed in the bagging line, see FTC 08-09-00-0 FT,
- Controlling the synchronisation for dual weigher line,
- Managing the alarms,
- Checking leak,
- Managing *n* pre-programmed formulas
- Managing the tolerances,
- Controlling the bag inflating device,
- Managing removal with or without bag clamp.

Printing function

- Company name on ticket header.
- Manual or automatic printing at programmable time interval,
- Automatic end of batch ticket printing.

USB key

- Configurable virtual printing to USB key.
- Backup / restore measurement parameters and weigher parameters.

Operator interface

Single weigher view

1. Stop cycle.
2. Start of the cycle.
3. Access to metrological data display screen.
4. Choice of intervening levels.
5. Multifunction keys F1 to F10 and SF1 to SF4 defined in the application and represented by an icon on screen.
6. Validation bar.

Up to 2 weighers can be supervised by this screen.

The F5 and F10 function keys are used to select the information displayed in each column.

Dual weigher view

Example of a screen view displaying two weighers used to produce a batch for a number of bags entered by the keyboard or send by a computer communication.

Metrological certification

- In accordance with OIML recommendation R 61/2004 OIML and directive 2004/22/CE:
  - Proof of module compatibility according to the criteria outlined in WELMEC 2 guide.
  - Examinations and tests:
    The operational accuracy classes X (x) (x = 0.2 ou x = 0.5 or x = 1 or x = 2) are determined according to the test results.
- Type examination certificate number LNE - 20794 rev. 0 of 02/28/2011.

04-41-85-1 FT - 10/2014

Description of inputs / outputs

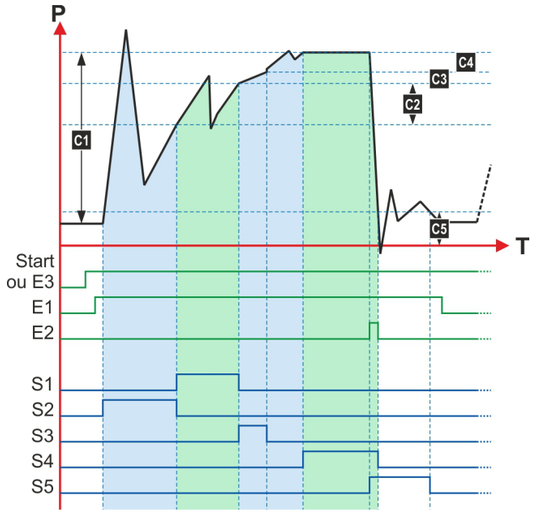
Logic output allocations

Description
Start
Stop
High speed
Low speed
Very low speed
Discharge
Dose ready
Outside tolerance +
Outside tolerance -
Empty scale
Filling in progress
Active emergency stop
Alarm
Low product level
Bag clip
Pause empty
Pause full
Total impulse number of bags
Total impulse estimated weight
Cycle in progress
Totalisation reset impulse
Abort set point

Logic input allocations

Description
Discharge gate closed
Feed gate closed
Increase dose
Decrease dose
Filling authorisation
Discharge authorisation
Emergency stop
On
Off
Air pressure
Low product level
By-pass low product level
Bag present
Bag locked
Pause empty
Pause full

Dosing principle



- Set points:
  - C1: Target weight,
  - C2: Slowing down,
  - C3: Completion,
  - C4: Afterflow,
  - C5: Empty detection threshold.
- Output contact configured in the application:
  - S1: Low speed (LS)
  - S2: High speed (HS),
  - S3: Very low speed (VLS)
  - S4: Dose ready,
  - S5: Discharge,
- Output contact configured in the application:
  - E1: Output authorisation,
  - E2: Dose removal authorisation
  - E3: Start dosing unit (according to configuration)
  - E4: Removal cycle validation.

Communication

Serial link

A PLC or a supervision system can be connected to the I 410 GFS indicator by using the protocol:

- Modbus RTU over RS232 or RS485 serial link.

Field bus

The same systems can be connected to the native CAN OPEN interface used by PRECIA MOLEN through one of the following protocols:

- Ethernet TCP/Modbus,
- PROFIBUS-DP,
- EtherNet/IP,
- DeviceNet.

Communication protocol

Output** / dosing channel data

Data	access R	access W
Nbr of Bags	●	×
Estimated weight	●	×
Rate	●	×
Average weight	●	×
Status	●	×
Set point	●	×
Free (user-defined)	●	×
Gross weight	●	×
Net weight	●	×
Standard difference	●	×

R: Reading

Input** / dosing channel data

Data	access
No. operation	R/W
Product code	R/W
Nbr of batches	R/W
Nbr of doses per batches	R/W
Command	R/W

R: Read - W: Write

Description of Operation Status variables

Addresses	Variables 1	Variables 0	Comments
b0	YES	NO	Operation in progress
b1	YES	NO	Pause empty (pause if Net)
b2	YES	NO	Pause full
b3	YES	NO	Pause error
b4	YES	NO	Bag present
b5	YES	NO	Bag clamped
b6	YES	NO	Control bag clamp
b7			NU
b8			NU
b9			NU
b10			NU
b11	YES	NO	Command
b12	YES	NO	HS command
b13			NU
b14			NU
b15			NU
b16	YES	NO	Air pressure error
b17	YES	NO	Material error
b18	YES	NO	Emergency stop.

Description of Channel Status variables

Addresses	Variables R	Variables W	Comments
b0			Number of decimal point for weight
b1			
b2			
b3	YES	NO	Stable weight
b4	YES	NO	Valid weight
b5	YES	NO	Weight out of range +
b6	YES	NO	Weight out of range -
b7	YES	NO	Weighing error
b8	YES	NO	CAN open network fault
b9	YES	NO	Presence error
b10	YES	NO	Filling too long error
b11	YES	NO	Feed gate error
b12	YES	NO	Discharge gate error
b13	YES	NO	Outside tolerance error +
b14	YES	NO	Outside tolerance error -
b15			NU
b16	YES	NO	High speed filling
b17	YES	NO	Low speed filling
b18	YES	NO	Very low speed filling
b19	YES	NO	Discharge
b20	YES	NO	Setting cycle in progress
b21	YES	NO	Dose ready

Command

Action performed
Command acknowledgement
Start
Stop
Pause empty
Pause full
Emergency stop.
Error acknowledgement
Abort set point

** PLC input.*
*** PLC output.*