I 410 SBS System

I 410 G COUPLER (option)

Field bus → **PC or Controller ***
• EtherNet/IP
• DeviceNet

CAN Open Bus

I 410 BS INDICATOR

Network option

→ **PC or Controller ***
• Ethernet TCP/Modbus **
• PROFIBUS-DP **

Port S1 and/or S2
● RS 232   ● Serial USB
● RS 485/422   ○ USB memory

→ **PC or Controller ***
• Modbus RTU

Port S1 to S6
● Analog Output 4-20 mA
● TOR Inputs/outputs

→ **Ticket printer**

→ **USB memory stick**

→ **Display ****

→ **External electric contacts**

DSD Option

Speed pickup sensor or roller

Speed Pickup Interface

Measuring interface ← Analog signal

Continuous weighing infrastructure

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* 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

Application

The single-channel software I 410 SBS (single-belt scale) has been has been designed to measure variable-capacity flows of all bulk products without any capacity limit. It integrates a weight and conveyor belt speed acquisition measuring board.
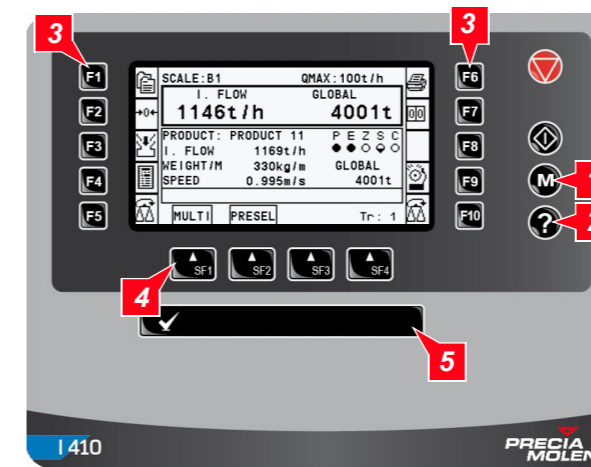
Metrological approval

Our weighing infrastructures associated with the I 410 SBS system are certified for commercial transactions, class 0.5 / 1 or 2, in fixed or variable belt speed.

▼ Test certificate of LNE - 14568 rev. 2 of 07/04/2009 type.

Operator interface

Main screen

1. Access to weight display (displays weighing data).
2. Choice of intervention levels.
3. 10 F1 to F10 multifunction keys defined in the application and represented by an icon on screen.
4. 4 multifunction keys SF1 to SF4 defined in the application and represented by an icon on screen.
5. Validation bar.

Loading screen with preselection

Information displayed

1. Stop of cycle.
2. Start of cycle.
3. Loading weight requested.
4. Current loading totalisation.
5. Number of the active extractor.
6. Scale status pictograms.
7. Additional information: flow rate, weight per meter, speed, global total.

Configuration - I 410 SBS

The I 410 SBS system manages 4 levels of intervention. Each level offers or not access to certain functions of use or setting/configuration of the indicator. See the installation manual of the I 410 BS terminal (04-43-00 MI).

Hardware configuration

The implementation of the I 410 SBS software requires at least one I 410 BS indicator.

The I 410 SBS indicator can be connected to any type of continuous weighing infrastructure. It enables to connect:
• The strain gage sensors of the continuous weighing infrastructure.
• A conveyor belt speed detector.

Functions

Weighing

- Weight and speed measurement.
- Instant flowrate.
- Average flowrate with adjustable time constant.
- Global totalling with reset protected by code (in use out of legal metrology).
- Partial totalling.
- Minimum and maximum flow monitoring, checked with "On/Off" outputs (TOR).
- Launch request from zero, manual or automatic.

Load preselection

- Control of 1 to 8 weigher conveyor feed extractors.
- Automatic calculation of the belt tail with early stop of the extractors.
- Conveyor belt started empty or loaded.
- On-Off command of extractors and weigher conveyor.
- Data saved in the DSD module.

Ticket printing

- Company letter head on ticket header.
- Manual or automatic printing at programmable time intervals.
- Auomatic printing of the lot end loading ticket, when reaching the set point.

USB memory stick

- Virtual printing configurable to USB memory stick.
- Backup / restore measurement parameters and scale parameters.

Monitoring program

- Monitoring a production batch.
- Display the batch start date/time.
- Batch totalling.
- Average batch flow.
- Batch peak flow.
- Display of the running time conveyor empty and loaded, as well as production stop time.
- Display of history of last five metrological zeroes performed.

Description of input-output

Input allocation

Functions
Load request (with preselection)
Load hold (with preselection)
Load abort (with preselection)
Weigher belt running
Extractor running
Zero reset of global totalling
Zero reset of partial totalling
Zero reset of batch
Selection from 2 extractors (1 input)
Selection from 4 extractors (2 inputs)
Selection from 8 extractors (3 inputs)
Selection from 2 material ratios (1 input)
Selection from 4 material ratios (2 inputs)
Printing
Batch RESET and date/time update
Belt centring failure

Analog outputs 4-20 mA

This information can be sent to a computer system or a display.

Functions
Instant flowrate
Average flowrate
Conveyor belt speed
Weight per metre
Partial totalling
Global totalling
Load totalling
Zero deviation

Output allocation

Functions
Zero in progress
Zero made and valid
Weigher belt running
Extractor running
Value monitored > Max threshold
Value monitored < Min threshold
Calibration in progress
Calibration made
Value of the active material ratio (bit 0)
Value of the active material ratio (bit 1)
Flow out of limits (Legal metrology only.)
Zero reset pulse of a remote meter
Mode bit 0
Mode bit 1
Unit (Either t and t/h, or kg and kg/h)
Weight acquisition default
Parameter default
Belt sliding fault
Segmented zero fault
Zero out of limits
Weight above maximum scale range
Loading in progress
Extractor control (loading)
Weigher belt control (loading)
Individual control of each extractor
Partial totaller pulse
Global totaller pulse
Belt centring failure

According to options :
• On/ Off inputs-outputs available in the terminal and transmitter.
• 1 analog output per transmitter or analog module on terminal.

Communication

Serial link

A controller or a supervision system can be connected to the I 410 BS indicator using the protocol :

- Modbus RTU over RS 232 or RS 485 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

Printing

- Ticket

```
***** PRECIA MOLEN *****
     WORLDWIDE WEIGHING
   BP 106 - 07001 PRIVAS CEDEX
   Le 19/04/14 A 17:20

   Partial   37.40 t
   Global      327 t
```

- Batch summary

```
   SBS   21/08/14  13:43
   Batch start on 21/08/14 at 13:43
   Batch tonnage      0.09 t

   Batch flow        31.4 t/h
   Loading time       0:00 h
   Empty time         0:00 h
   Stop time          0:00 h
   Peak flow         32.4 t/h
   Overflow time      0:00 h
   Underflow time     0:00 h

   Last zeros performed:
   01/06/14     17:12      +0.08%
   02/06/14     16:11      +0.12%
   03/06/14     16:14      -0.24%
   05/06/14     16:02      +0.02%
   12/06/14     16:58      -0.16%
```

Commands and set points received

Zero request
Partial totalling reset
Global totalisation RESET
Selection of product ratio
Choice of extractor
DSD request
Global zero
Product code writing
Loading : preselection value
Start, stop or hold load

Informations transmitted

DSD number
Total loaded or Total DSD
Partial total
Instant flow
Average flow
Weight per metre
Belt speed
Batch data
Product code