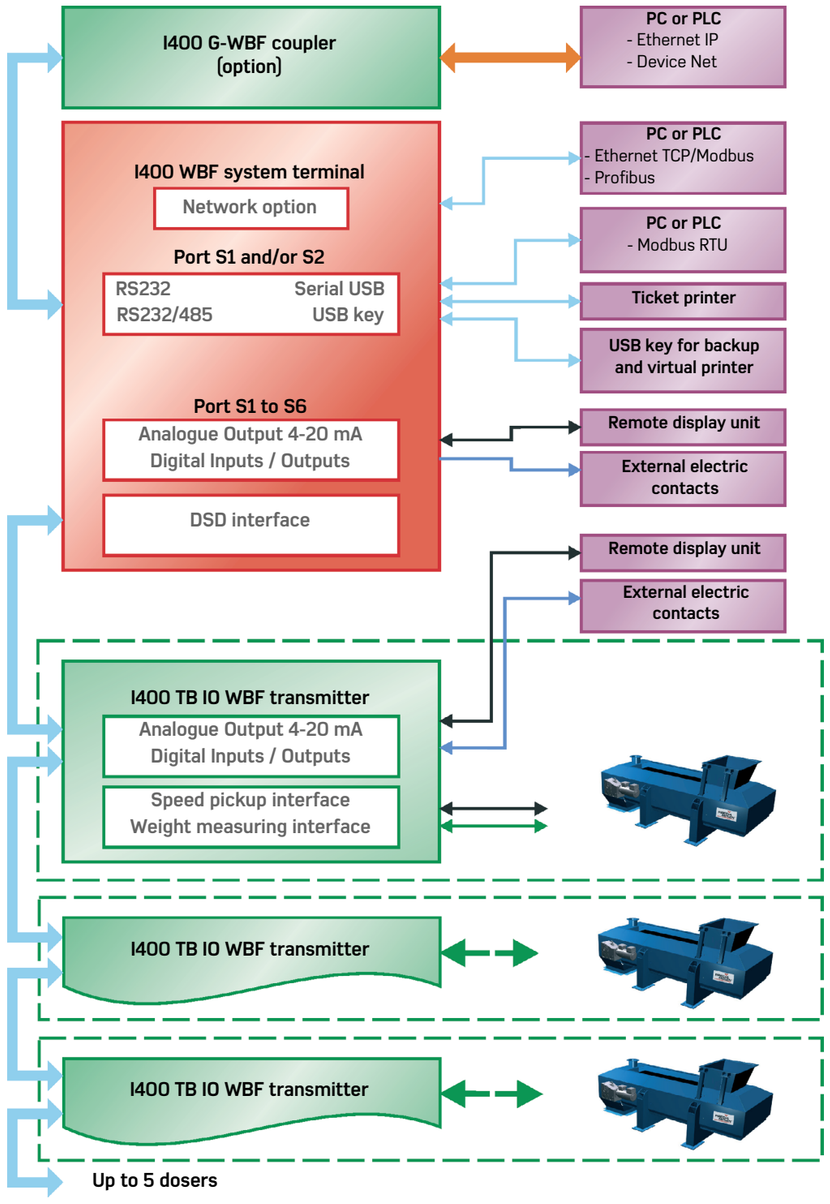
I400 WBF system



Options and accessories

Rack mounting terminal	Accessory modules
Stainless steel housing terminal	External coupler and communication interfaces
Remote display unit	Power box
Printer	Local control box with display unit

Your specialist

Illustrations are not binding. Precia-Molen reserves the right to modify at any time, the characteristics of the equipment described in this brochure.

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PRECIA MOLEN™ WORLDWIDE WEIGHING

I400 WBF
Software for continuous dosing

Application

The I400 WBF software is the measuring and control device developed by PRECIA MOLEN for the continuous weigh belt feeders.

The system equipped with I400 WBF software can also replace any electronics of an existing installation operating with electronic strain gauge load cells.

Its software allows measuring and controlling a continuous product flow on doser type:

- Weighbeltfeeder belt, with mechanicla lever and pivot points or, fully electronic.
- Screwfeeder screw.

It meets all the requirements of this application domain:

Weighing function

- Weight and speed measurement,
- Automatic or manual zero request,
- Instant flow rate calculation,
- Average flow rate with adjustable time-constant,
- Partial or global totalizer,
- Minimum/maximum threshold management;

Load pre-selection function

- Empty belt or loaded belt weighfeeder start up,
- A product quantity loading pre-selection manual entry or via the communication protocol,
- Data backup in a DSD (Data Storage Device).

Dosing function

- Flow rate control according to a set-point coming from the PLC or tabulated on the terminal keyboard,
- Simple regulation mode and dual regulation mode,
- Multi-channel dosing : up to 5 weighfeeders per controller,
- Mixture control. This function allows composing and producing a recipe with variable ingredients proportion,
- Doser interlock control,
- Alarm management,
- Gravimetric or volumetric mode,
- Auto / Manual and restricted mode management.

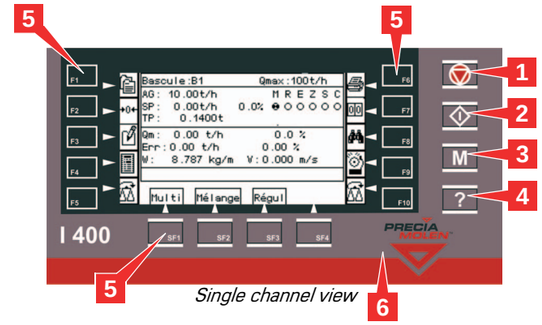
Printing function

- Company name on ticket header.
- Manual or automatic printing at programmable time interval,
- Automatic printing when reaching the weight set-point.

USB key

- Configurable virtual printing to USB key.
- Backup / restore metrological parameters and feeder adjustment.

Display

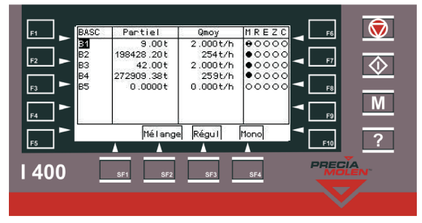


Single channel view

1. Stop of cycle.
2. Start of cycle.
3. Access to metrological data display.
4. Choice of access 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 5 feeders can be supervised via the I400 terminal graphic display.

The F5 and F10 function keys allow selecting the data to be displayed in each column.



Multi-channel view

Example of a multi-channel display containing 5 dosers used for producing a mixture according to a recipe entered by keyboard or sent by a computer communication.

Communication

Serial link

A PLC or a supervision system can be connected to the I400

WBF indicator by using the protocol:

- Modbus RTU through RS232 or RS485 serial link.

Field bus

The same systems can be connected to the native CAN OPEN interface used by PRECIAMOLEN via one of the following protocols:

- Ethernet TCP/Modbus
- PROFIBUS-DP
- EtherNet/IP via external PRECIA MOLEN coupler
- DeviceNET

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Communication protocol

Output* / dosing channel data

Data	access
Average flow rate	L
Alarm status	L
Status	L
General appearance	L
Regulator setting	L
Partial total	L

L: Reading
** PLC input*

Input* / dosing channel data

Data	access
General appearance**	R/W
Recipe code**	R/W
Pre-selection**	R/W
Proportion**	R/W
Command**	R/W

R/W: Read/Write
** PLC output*
*** common outputs for all channels*

Status description

Local mode	Weigher On
Manual mode	Extractor ON
Slave mode	Command
Control in progress	HS command
Volumetric mode in progress :	Material coeff. b0
Pre-selection in progress	Material coeff. b1
Vibrator in operation	Unit
Zero in progress	Active recipe
Zero OK	Backup mode

Command

Command	Action performed
0	Command acknowledgement
1	Doser in operation
2	Doser stopped
3	Pre-selection start up
4	Pre-selection stopped
5	Switching to Manual mode
6	Switching to Local mode
7	Switching to Slave mode
8	Fault acknowledgement
9	Erasing the current recipe
10	Partial total reset

Alarm description

Addresses	Variables	Comments
b0	1: YES / 0: NO	Transmitter fault
b1	1: YES / 0: NO	Regulator fault
b2	1: YES / 0: NO	Loaded total reset fault
b3	1: YES / 0: NO	Batch reset fault
b4	1: YES / 0: NO	Belt On fault
b5	1: YES / 0: NO	Belt position fault
b6	1: YES / 0: NO	Decentred belt fault
b7	1: YES / 0: NO	Material fault
b8	1: YES / 0: NO	Average flow rate fault
b9	1: YES / 0: NO	Max. load fault
b10	1: YES / 0: NO	Max. threshold fault
b11	1: YES / 0: NO	Min. threshold fault
b12	1: YES / 0: NO	instantaneous flow rate fault
b13	1: YES / 0: NO	Speed fault
b14	1: YES / 0: NO	Min. load fault
b15	1: YES / 0: NO	Converter fault
b16	1: YES / 0: NO	Parameter fault
b17	1: YES / 0: NO	Sliding fault
b18	1: YES / 0: NO	Segmented tare fault
b19	1: YES / 0: NO	Zero fault
b30	1: YES / 0: NO	Grouped alarms
b31	1: YES / 0: NO	Emergency stop state

Monitoring program

- Monitoring a production batch.
- Display the batch start date/time.
- Batch totalling.

Description of inputs / outputs

Digital output assignments per dosing channel

Function	Description
1	Zero in progress (BS)
2	Zero OK (BS)
3	Scale On (BS)
4	Extractor On (BS)
5	Maximum load fault (BS)
6	Minimum load fault (BS)
7	Zero fault (BS)
8	Batch reset fault (BS)
9	Belt fault (BS)
11	Flow rate fault (BS)
12	Weigher On (BS)
13	Extractor On (BS)
24	Transmitter fault (BS)
25	Converter fault (BS)
26	Parameter fault (BS)
27	Belt sliding fault (BS)
28	Segmented tare fault (BS)
29	Zero out-of-range (BS)
30	Local operation (WBF)
31	Manual operation (WBF)
32	Slave operation (WBF)
33	Maximum load fault (WBF)
34	Minimum load fault (WBF)
35	Belt acceleration (WBF)
36	Belt deceleration (WBF)
37	Extractor acceleration (WBF)
38	Extractor deceleration (WBF)
39	Vibrator (WBF)
40	Speed fault (WBF)
41	Average flow rate fault (WBF)
42	Control in progress (WBF)
43	Volumetric operation (WBF)
44	Material fault (WBF)
45	Belt centring fault (WBF)
46	Belt position fault (WBF)
47	Regulator fault (WBF)
48	Emergency stop
49	Doser ready

Digital input assignments per dosing channel

Function	Description	Detail		
101	Forcing operation in volumetric fault			
		b1	*b0*	
102 103	Operating mode selection b0 Operating mode selection b1	0	0	Slave
		0	1	Manual
		1	0	Local
		1	1	Local
104	Material coefficient selection b0			
105	Material coefficient selection b1			
106	Fault acknowledgement			
107	Proportion increment			
108	Proportion decrement			
109	Doser selection			
110	Belt centring fault			
111	Belt position fault			
112	Product presence			
113	Start			
114	Stop			
115	Batch reset			
116	Regulator fault			
117	Backup mode			

Common digital input assignments to all channels

Description
Global line set-point
Global line set-point
Pre-selection start
Pre-selection stop
Emergency stop.
Print request

4-20 mA analog input or output assignments per dosing channel

Outputs		Inputs	
Function	Description	Function	Description
151	Belt regulator	201	Proportion
152	Extractor regulator	202	Maximum flow rate
153	Average flow rate		
154	Instant flow rate		
155	Speed		

Assignment for a common 4-20 mA analog input for all channels

Description
Global line set-point

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