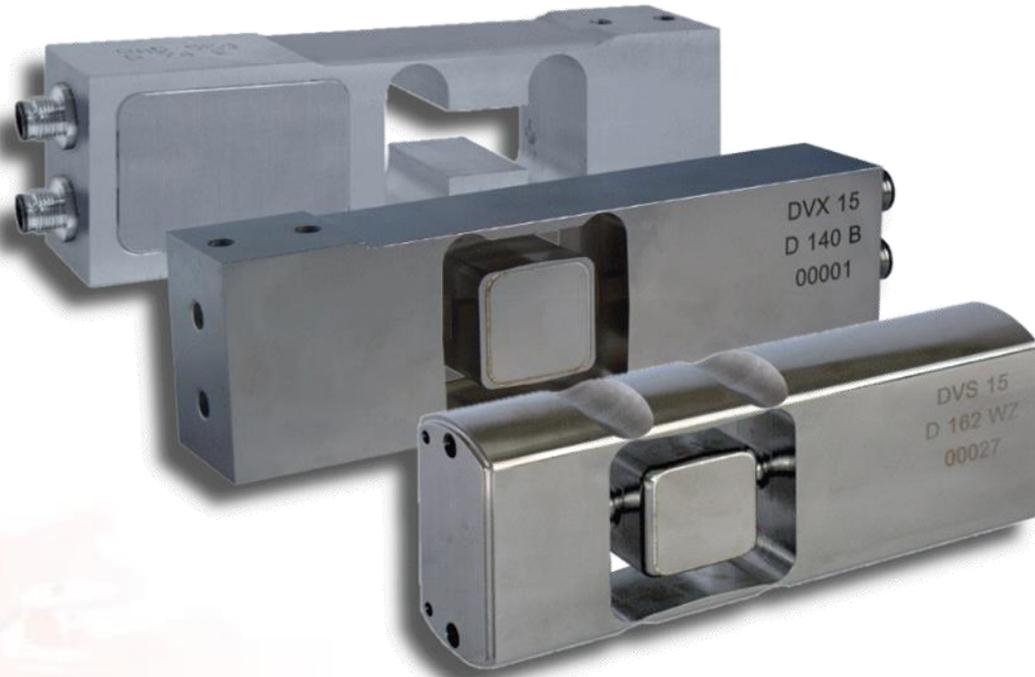




weighing & sensing for industry

DIGITAL LOAD CELLS FOR PACKAGING MACHINE MANUFACTURERS



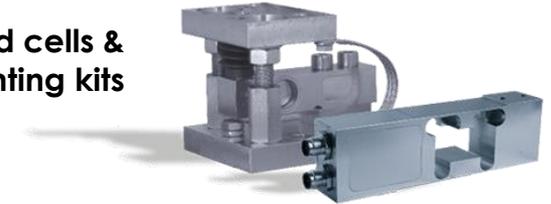
Company profile

Weighing solutions for automated processes...

► Presentation

- High performance load cells and mounting kits
- Weighing controllers with integrated dosing & checkweighing functions
- Schneider Electric Technological partner
- Distributors in more 45 countries

Load cells & mounting kits



► Areas of expertise

- Conveyors, tanks, vessels and silos weighing
- Dynamic checkweighing
- Dosing and filling

Weighing controllers

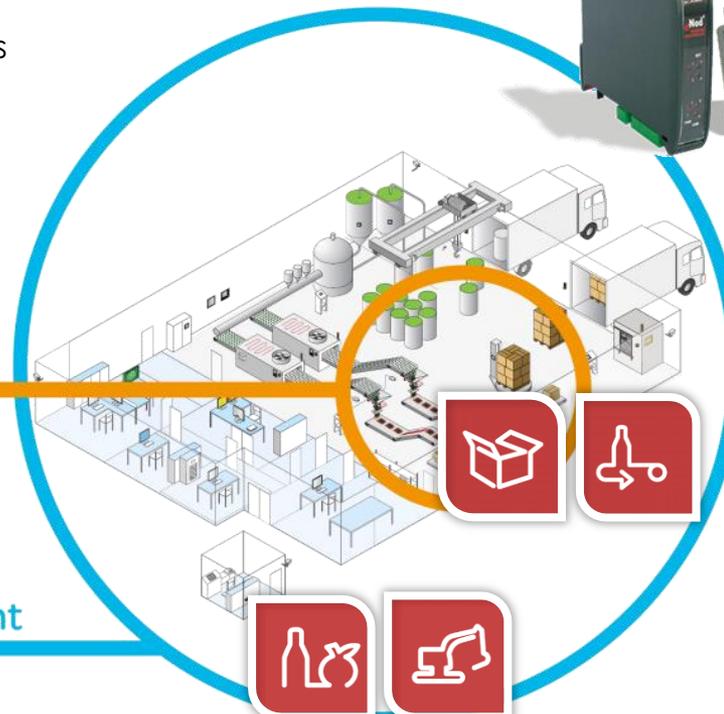


► Targeted markets

- Packing
 - Packaging
-
- Food & Beverage
 - Mines, Metals, Minerals

Machine

Plant



Collaborative Automation
by
Schneider Electric

Use of digital load cells

Especially designed for packaging machine manufacturers ...

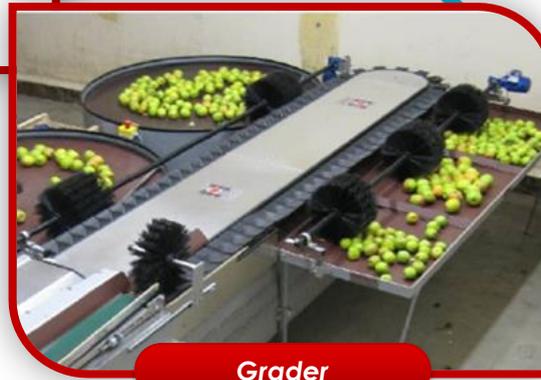
- ▶ Checkweighers
- ▶ Grading / sorting machines
- ▶ Multihead weighers
- ▶ Filling, Bagging machines



Checkweigher



Rotary filler

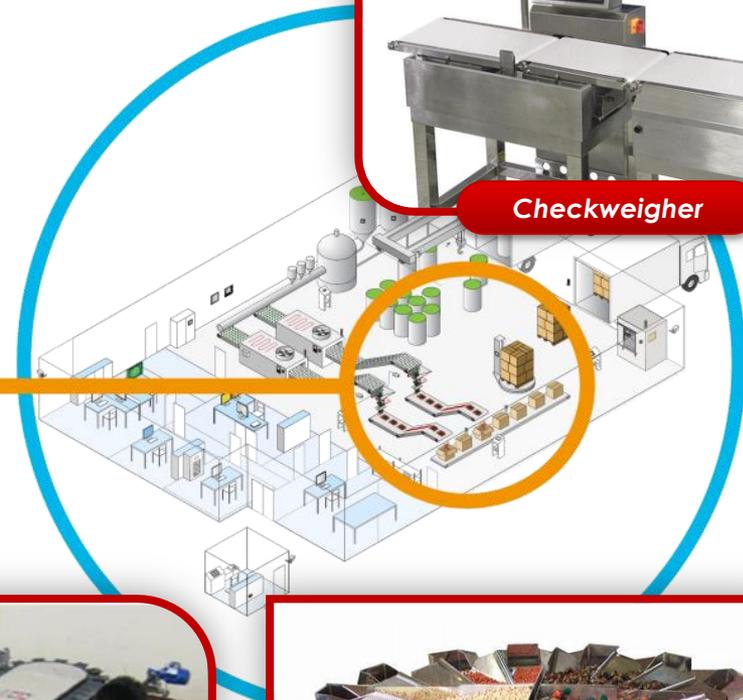


Grader



Multihead weigher

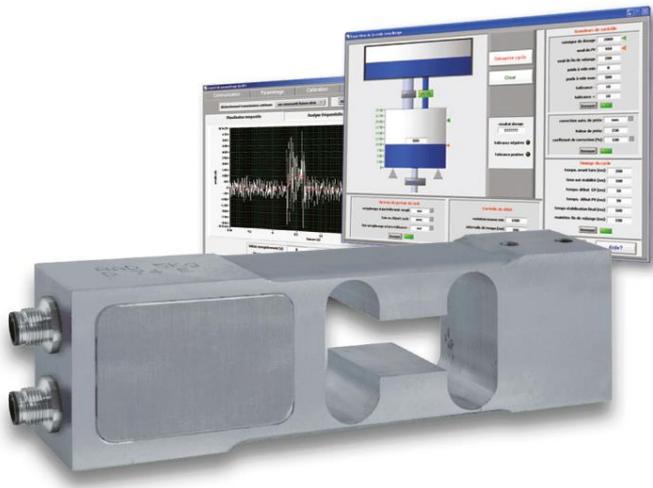
Machine



Range of digital load cells

AAD, High precision digital load cell...

► Capacities 5, 15, 30 et 75kg



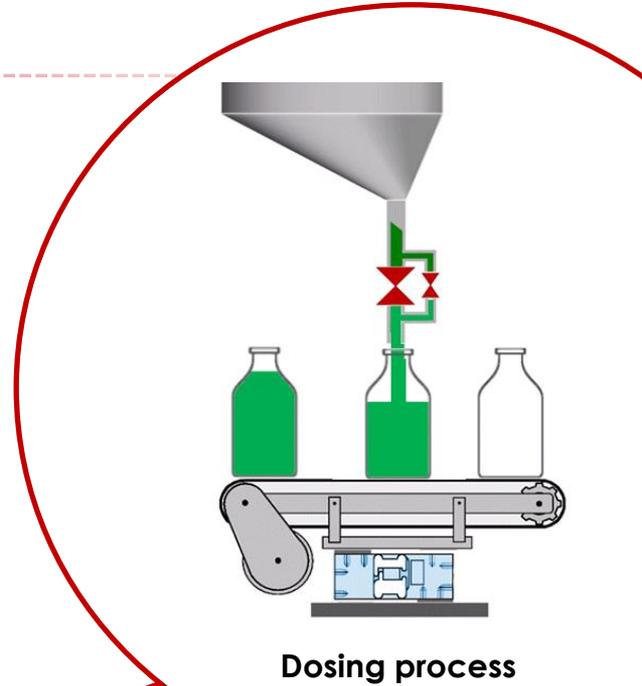
- Aluminum construction, IP65 protection level
- Max. resolution 500 000d, Factory calibration
- Digital filtering
- Built-in applications for Checkweighing or dosing
- Digital I/O for local control
- eNodView software



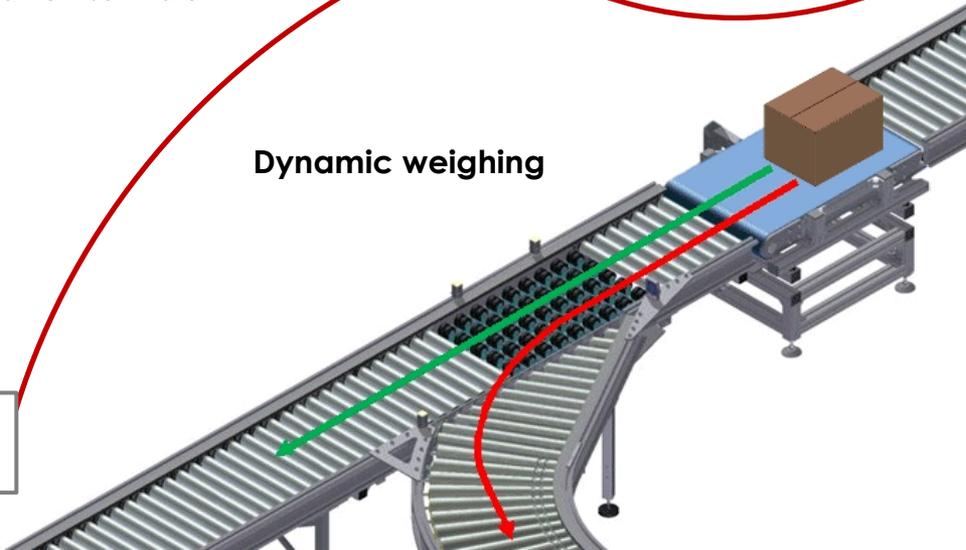
► Certified OIML R76 (3000d), OIML R51, OIML R61

Communication

CANopen



Dynamic weighing



Range of digital load cells

DVX, Digital load cell for harsh environments...

► Capacities 15, 30 et 75kg



- Stainless steel construction, IP68 /IP69K protection level
- Max. resolution 500 000d, Factory calibration
- Digital filtering
- Built-in applications for Checkweighing or dosing
- Digital I/O for local control
- eNodView software

► Validated for use in rotary filling machine

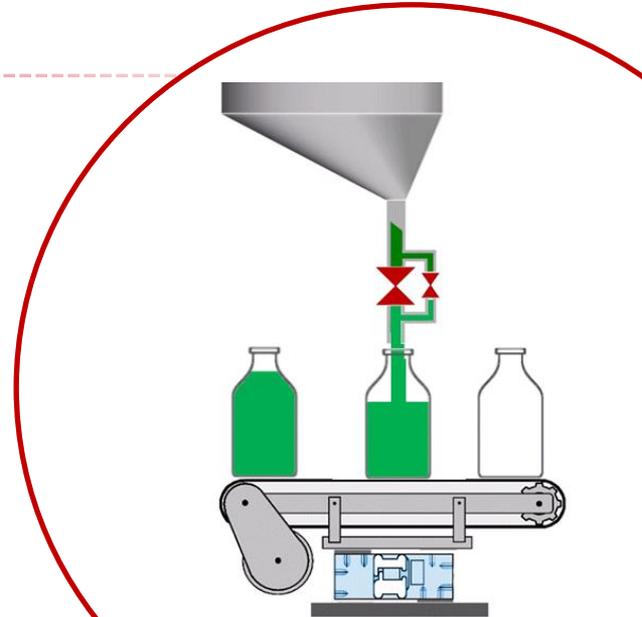


► OIML Certified

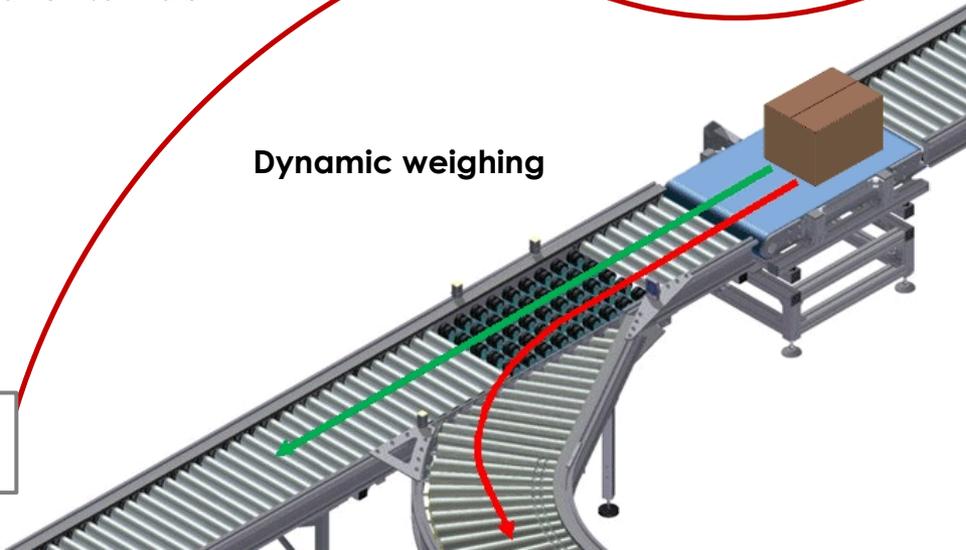
Communication

CANopen

Modbus



Dosing process



Dynamic weighing

Range of digital load cells

DVS, hygienic load cell for filling machines...

► Capacities 15, 30 et 75kg



- Stainless steel construction, IP68 /IP69K protection level
- Max. resolution 500 000d, Factory calibration
- Digital filtering optimized for rotary filling machines
- Built-in applications for Checkweighing or dosing
- Digital I/O for local control
- eNodView software

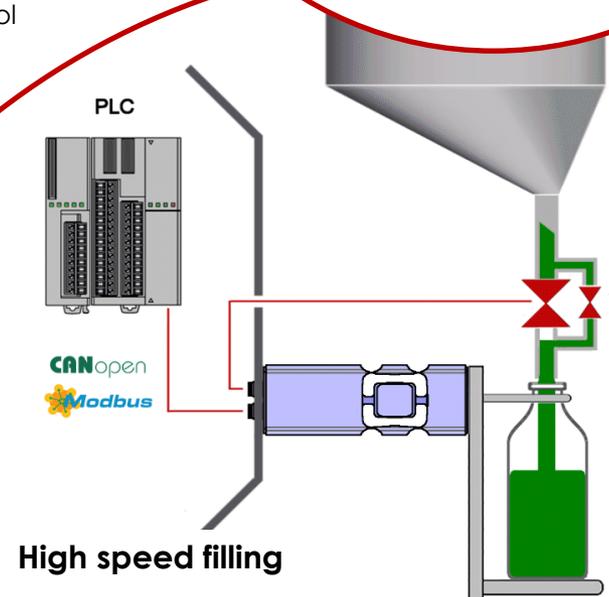
► Hygienic design, EHEDG certified

► OIML certified

Communication



Multihead rotary fillers



DVS digital hygienic load cell

Developed in collaboration with a manufacturer of rotary fillers for food & beverage products



- ▶ **Hygienic design EHEDG certified**, ensuring the effectiveness of the cleaning process in place (CIP).
- ▶ **Rugged load cell**, IP68 / IP69K protection level for the qualified use in wet and aggressive environment.
- ▶ **Compact design** for easy integration into multi-head filling machines.
- ▶ **Validated CANOpen connectivity** by Schneider Electric.



Hema

Pneumatic Scale Angelus

Customer benefits

- **Performance**
 - Higher filling rates
 - Shorter cleaning cycles and machine downtime
- **Image**
 - EHEDG Recognition
 - Positive environmental impact
- **Safety**
 - High reliability
 - Proven solution
 - Food safety compliance
- **Saving**
 - Optimized water and cleaning products consumption
 - Useless load cell protection
 - Simplified wiring
 - Optimal use of volume

Filling machines

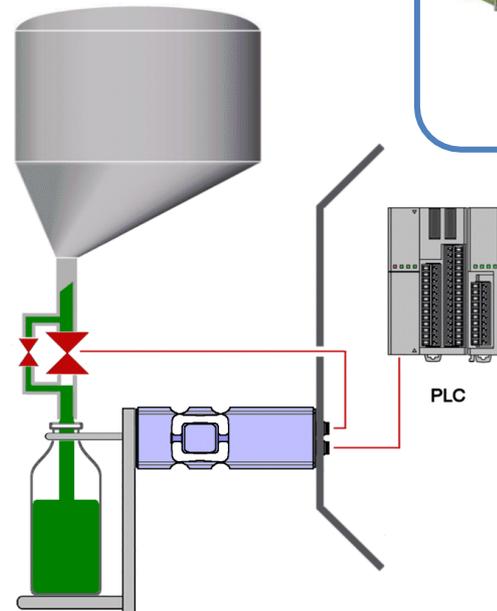
Multi-head Rotary bottling machine

► **DVS load cell: Digital and Hygienic**

- DVS-D load cell takes in charge the filling process
- High resistance to lateral forces
- Hygienic design certified EHEDG for a use without additional protection in food & beverage industry



1 to 90 DVS load cells



- DVS-D allows to reach a very high filling rate and accuracy.



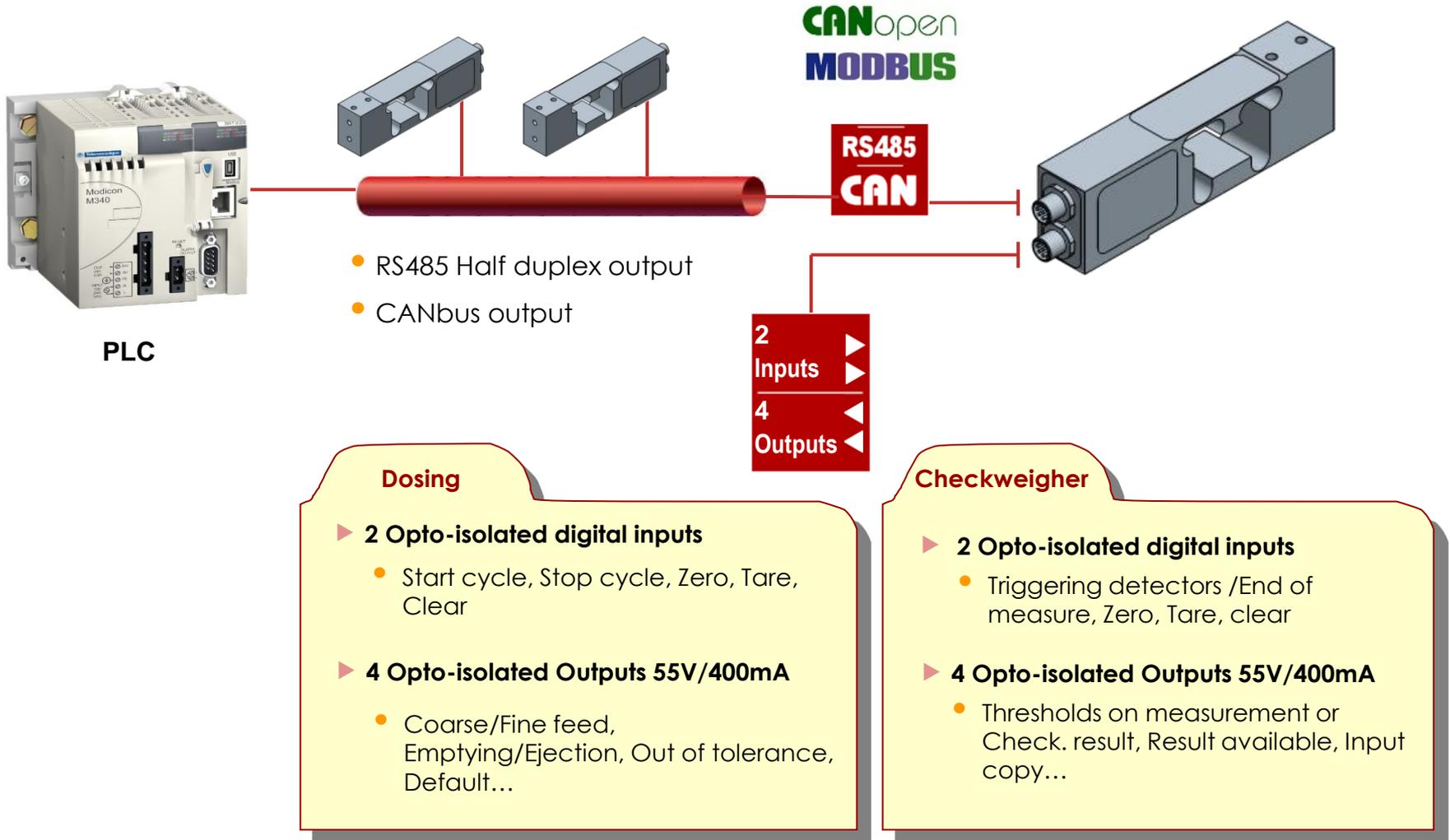
Hema

Pneumatic Scale Angelus



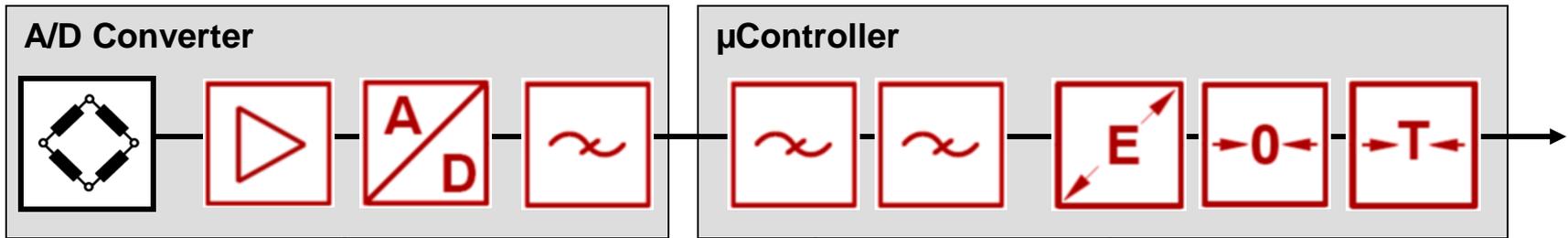
Interfaces

Connectivity with most PLC on the market



Signal processing

Measurement rate and filtering optimized for dynamic weighing



- Res. 24 bits
- Conv. rate. 6 to 1600Hz

Post-Filtering

- Low-pass
- Notch filter

- Factory calibration **500 000d at max. capacity**
- User scaling
- Gravity correction

Embedded applications

2 firmware versions dedicated to weighing applications

- ▶ To release the PLC of all the weighing tasks

Dosing version



Dosing by filling or unloading
Fine and coarse feed management
Automatic in-flight correction

Checkweigher version



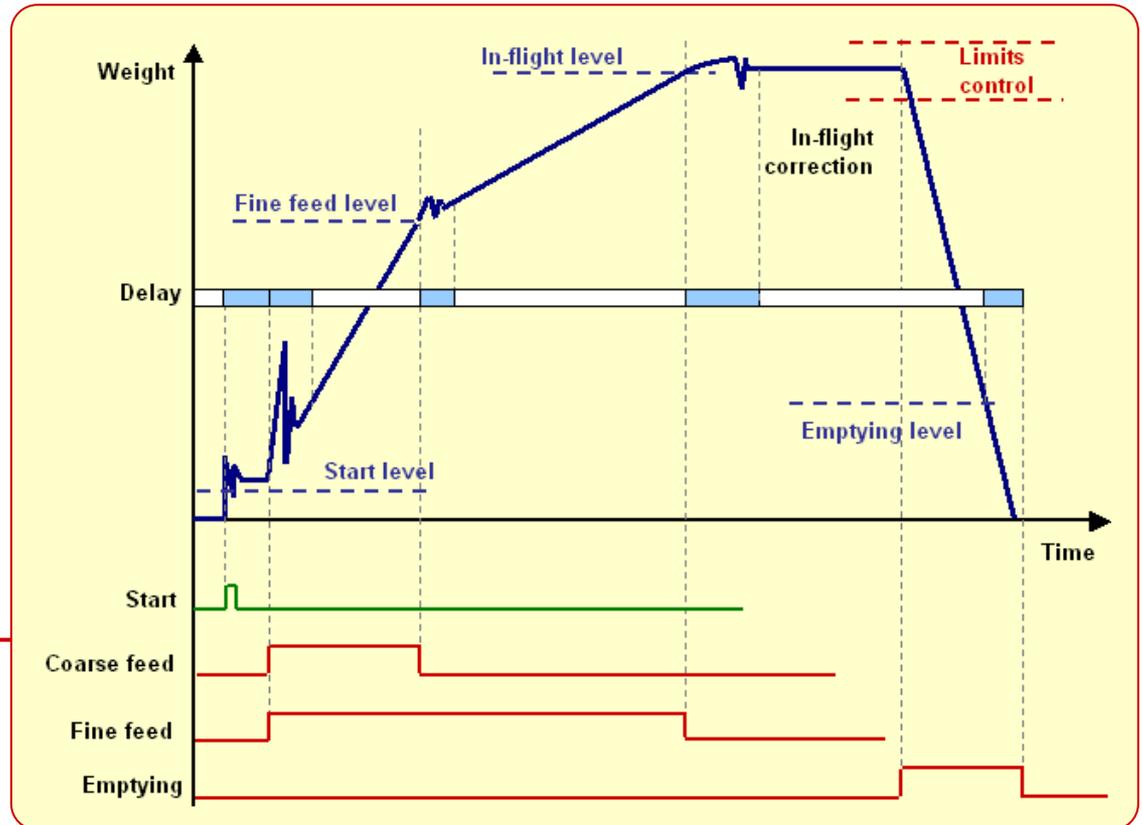
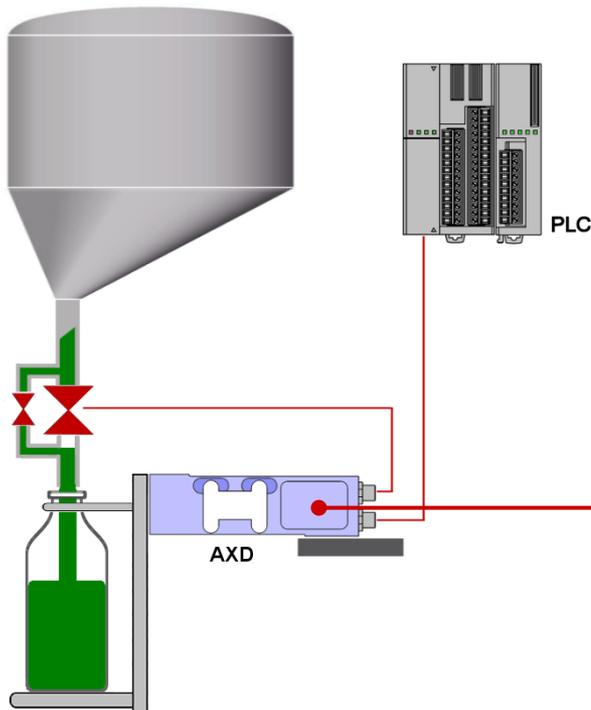
Management of checkweighing cycle
Triggering by weigh level or by detectors
Automatic weight calculation in dynamic

Embedded applications

Dosing



- ▶ The digital load cell manages all the dosing process with parameters coming from the PLC
- ▶ Optimized for liquid filling and rotary fillers



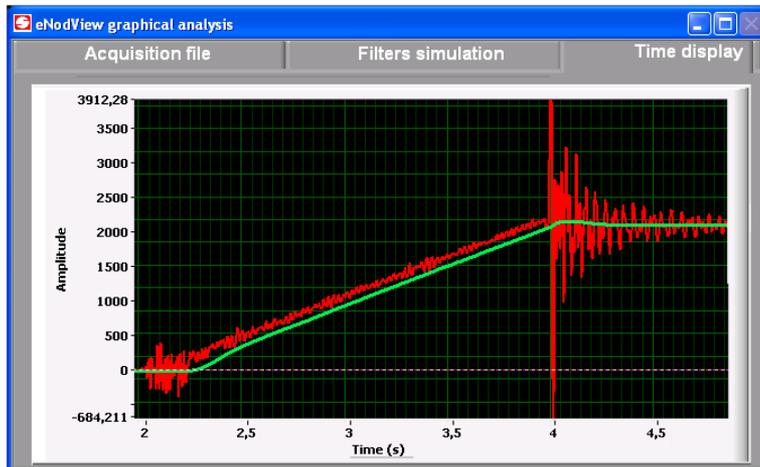
Embedded applications

Dosing



- ▶ Dynamic dosing mode
- ▶ Dosing by filling or by unloading
- ▶ Management of 2 feed and several sequences: CF, CF-FF, FF-CF-FF

▶ Filtering simulation tool



Embedded applications

Dosing



Implementation help with eNodView

► Adjustment of dosing parameters



Filling mode parameters

Cycle control variables	
target weight	4000
fine feed level	1000
emptying end level	200
min. empty weight	100
max. empty weight	500
low tolerance (-)	0
high tolerance (+)	10

Send

Inflight weight management	
automatic correction	yes
min. value	100
inflight level	102
max. value	400
correction coefficient(%)	30
<input checked="" type="checkbox"/> correction x3 if out of tol.	90

Send

Cycle timings	
start delay (ms)	200
motion time out (ms)	100
HF neutralization time (ms)	50
CF neutralization time (ms)	50
FF neutralisation time (ms)	50
final stabilization time (ms)	500
emptying holding time (ms)	2000
end of cycle waiting time (ms)	100

Send

HF OFF CF OFF FF OFF

5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0

N 468
B 468

Emptying OFF

Cycle in progress

Waiting for receptacle

Cycle management options	
automatic starting	no
automatic taring at start	yes
emptying phase	at end
emptying mode	automatic
dynamic dosing	no

Feed mode: 0 - coarse feed then fine feed

use FF if out of tolerance? no

relaunch cycle if suspend? no

Send

Flow rate control	
minimal weight variation	1000
time interval (ms)	0

Send

dynamic zero acq. time (ms) 100

Send

Dosing start cycle

Dosing clear results

dosing result	???????	out of low tolerance	<input type="checkbox"/>
dosing cycle time (ms)	0	out of high tolerance	<input type="checkbox"/>
dosing standard deviation	0	Dynamic zero	<input type="checkbox"/>
		dosing number of cycles	0

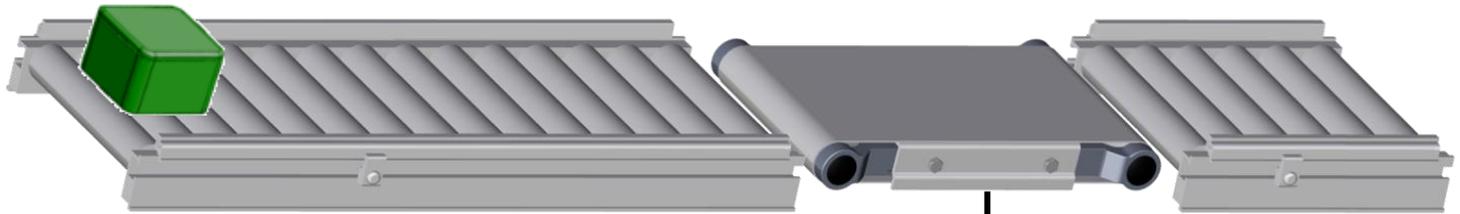
Previous Help ?

Embedded applications

Checkweigher

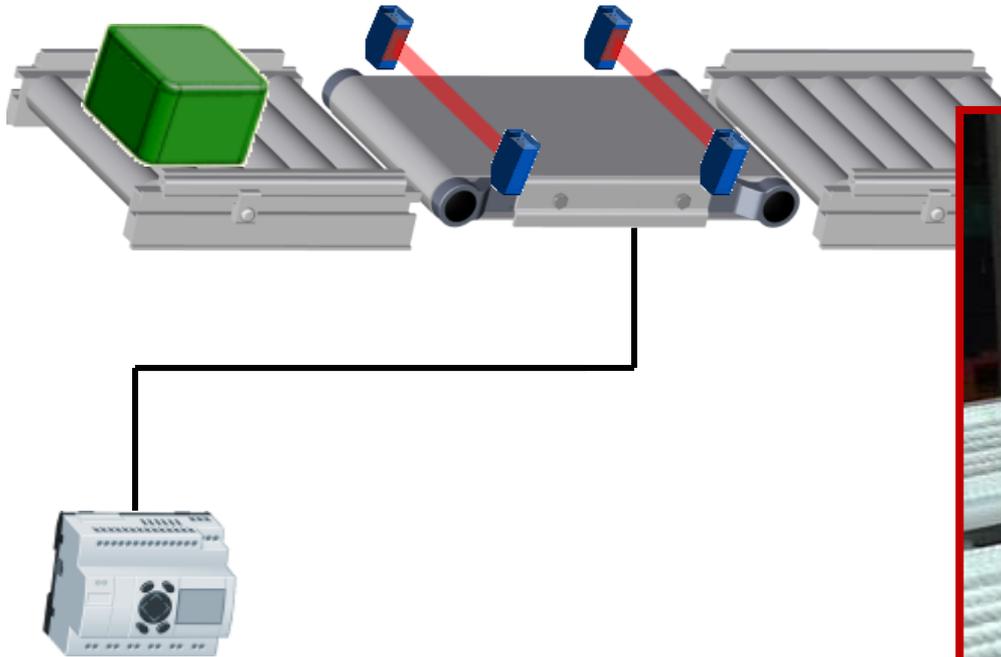


- ▶ The load cell manages the dynamic weighing cycle
- ▶ High speed measurement and weight calculation
- ▶ Triggering by weight level



Embedded applications

Checkweigher



- ▶ Triggering with 1 or 2 detectors
- ▶ Powerful digital filtering for high speed checkweighing



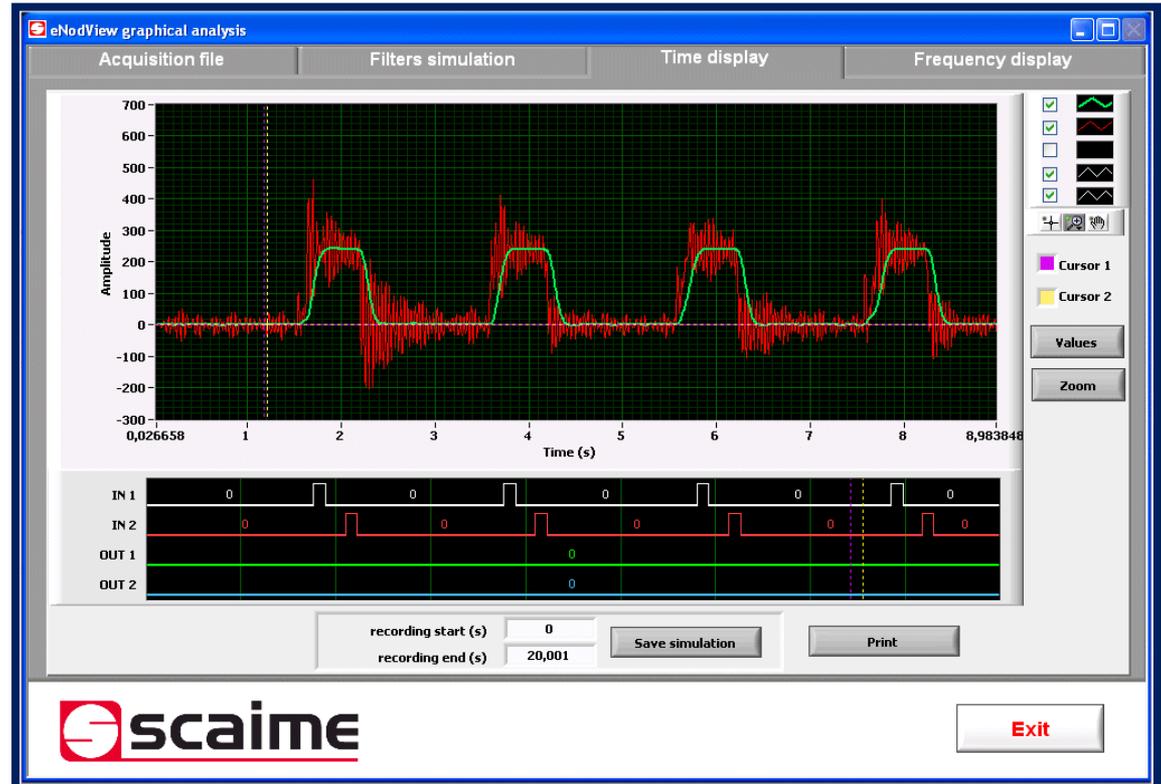
Embedded applications

Checkweigher



Implementation help with eNodView

► Vibration cancellation with filters simulation



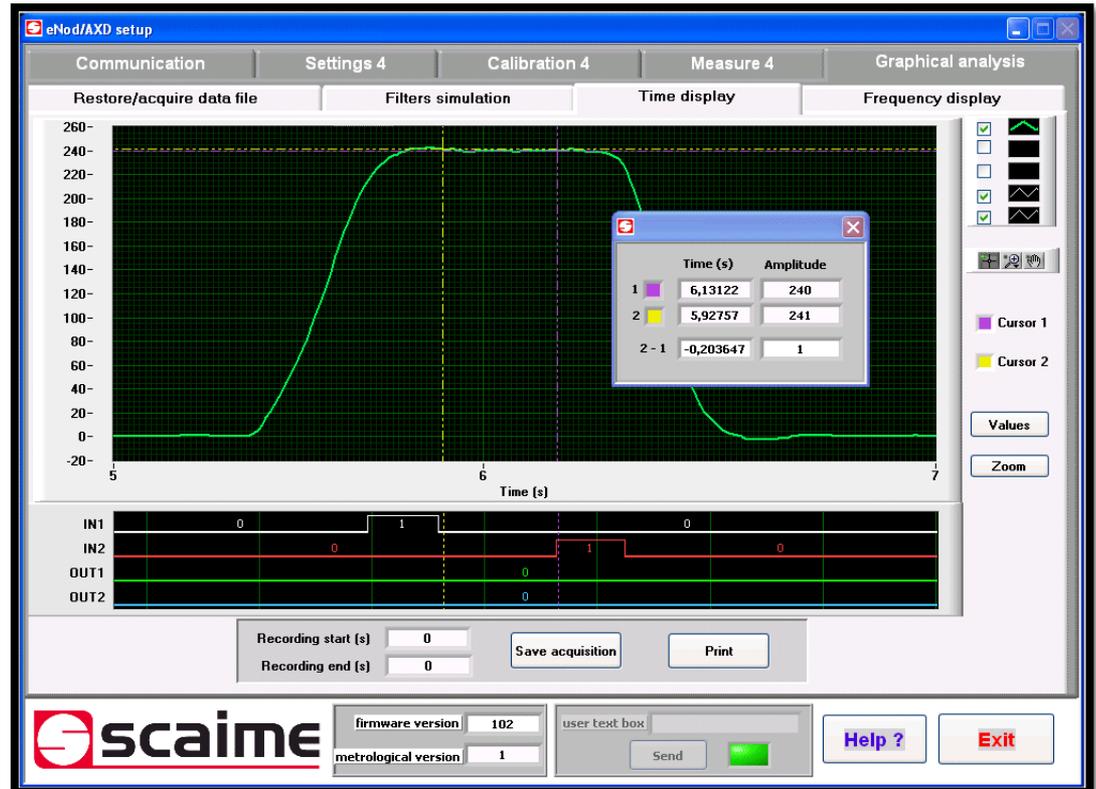
Embedded applications

Checkweigher



Checkweigher parameters setting

► Triggering adjustment with eNodView



Configuration



- ▶ A powerful PC software for configuration and implementation

1 Set up

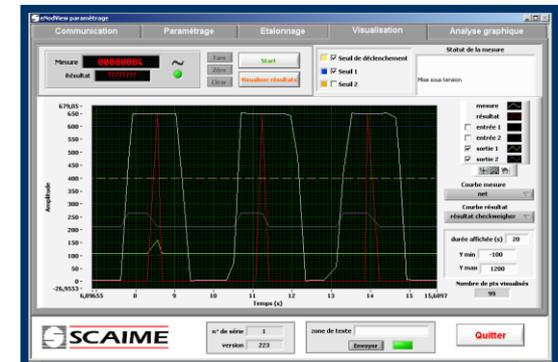
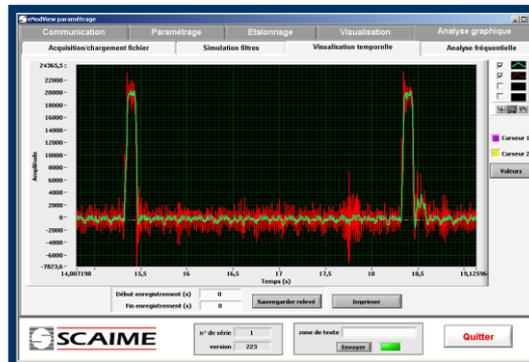
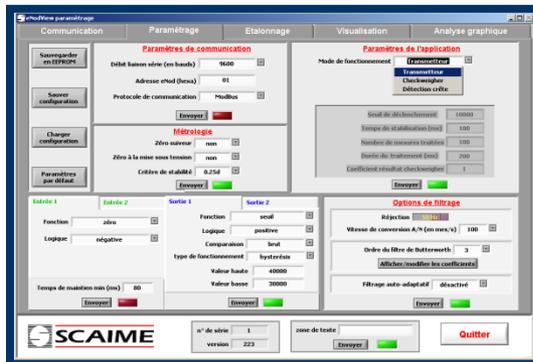
- Automatic detection of load cells connected to the network
- Access to all parameters
- Calibration

2 Analyze

- Measurement acquisition and displaying
- Frequency analysis (FFT)
- Digital filters simulation and displaying

3 Real time display

- Graphical view of Measurement and I/O
- Graphical view of application (dosing, checkweigher...)



Contacts

**Thanks for your
attention**



www.scaime.com

294 Rue Georges Charpak
74105 Annemasse Cedex – France
Tel. +33 450 87 78 64