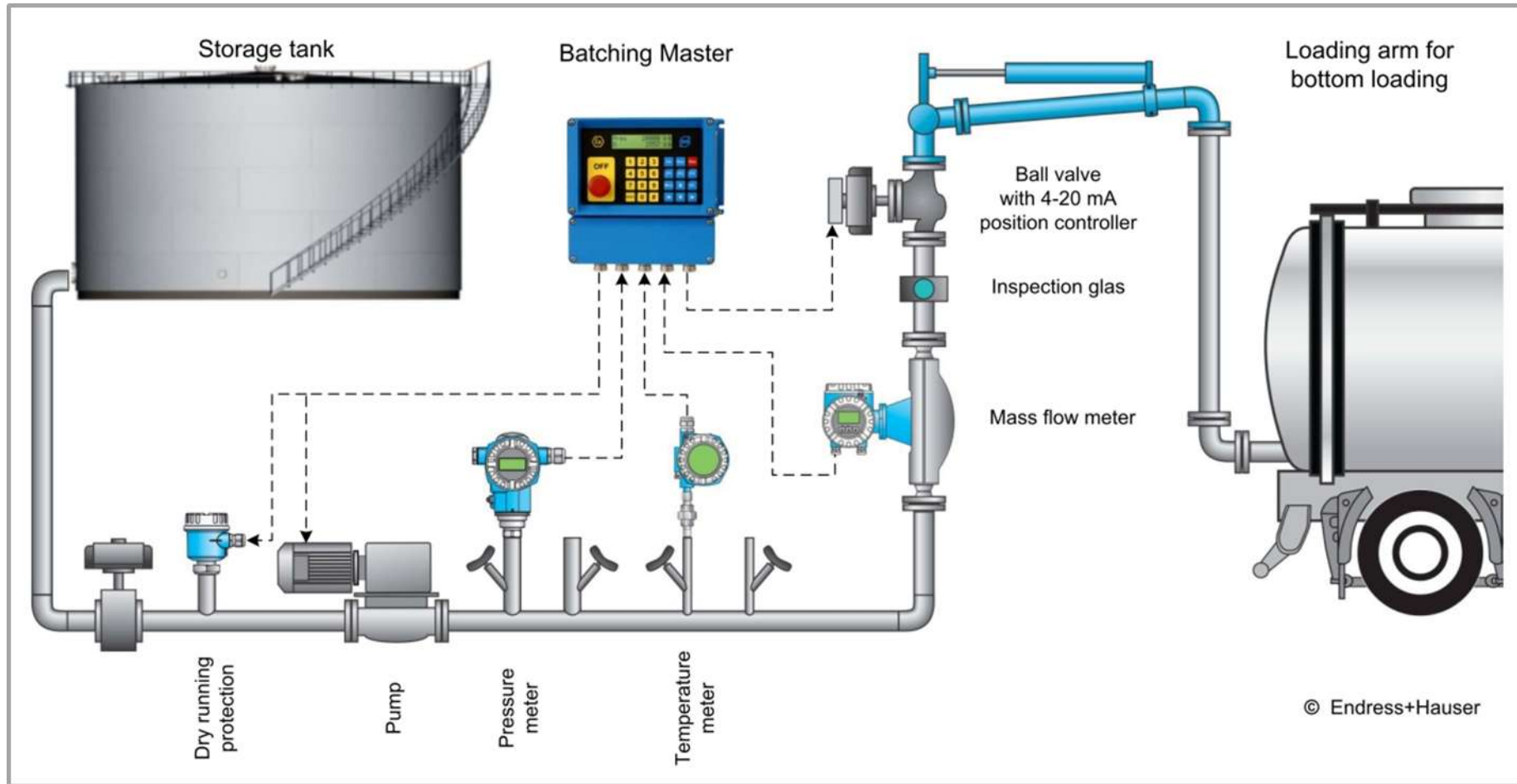


Intelligent Batch Solutions.....designed for you

Batch- and loading systems with the Batching Master 110i/210i



Intelligent Batch Solutions.....designed for you

Batching Master 110i (intrinsically safe unit)

Batching Master 110 (non-Ex device)



- Field housing for wall mounting
Dimensions: 240 x 240 x 120 mm
Material: Die-cast aluminium
IP rating: IP 65
Weight: 4,5 kg
- Local installation, direct at the loading station
- Backlight optional

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Batching Master 210i (intrinsically safe)

Batching Master 210 (non-Ex unit)



- Panel mount
(144 x 144 x 130 mm)
- Backlight optional

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Typical applications:

Truck loading:



Truck loading system for ships, trucks, rail way wagons, containers and IBC'S are controlled by the Batching Master

Batch system in production areas:



Batch systems for liquid basic products into batch reactors or mixing tanks

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Typical applications:

IBC filling:



Custody transfer proofed filling system for IBC's with the Krohne mass flowmeter, type Optimass

Truck loading:



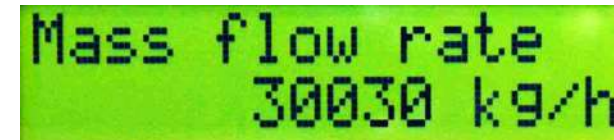
Truck loading system bio fuels with the Endress+Hauser mass flow meter Promass

Indication in the field:

- pre-set value
- batched quantity
- actual flow rate
- batch status
- failure messages
- temperature, density and pressure at the optional flow conversion function



Pres 20000 kg
B 2557 kg

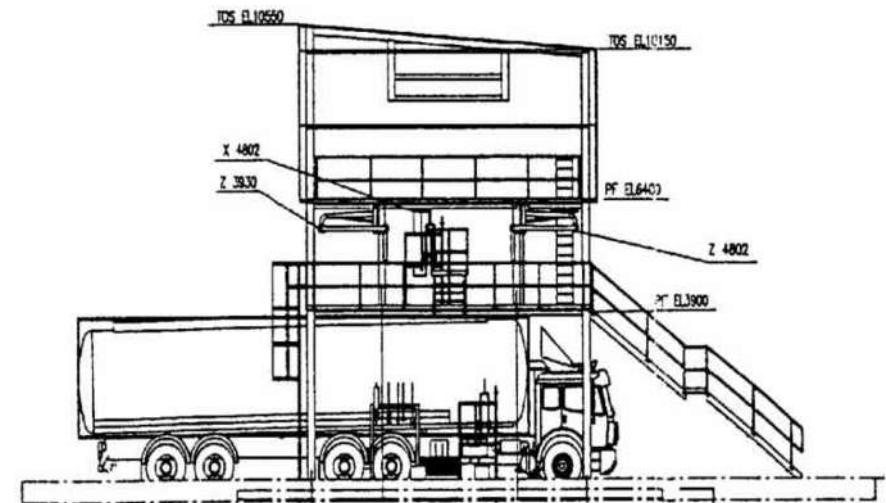


Mass flow rate
30030 kg/h

Safe operation in the field

The operator has the important information for a safe loading process locally at the filling station.

In case of a problem, the operator is able to stop the batch process safe and quick by the emergency stop switch at the front of the Batching Master.



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Flow meters:

All types of flow meters can be connected to the Batching Master via single pulses, double pulses, via a 4-20 mA signal or by Modbus.

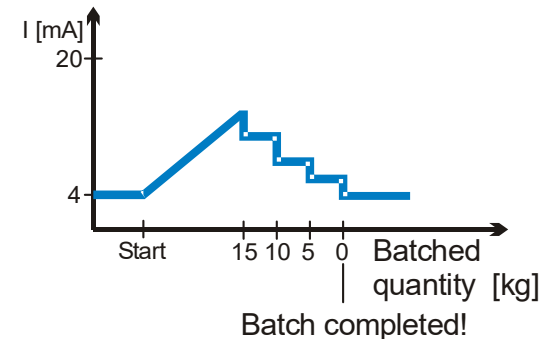
Precise batch:

The batching valve can be controlled by a 4-20 mA output signal. It opens in a soft start-ramp and at the end of the batch the valve will be closed in 5 steps in order to reduce the flow rate. This ramp minimize the overrun quantity at the end of the batch. Due to these ramps it is possible to get the highest batch accuracies.

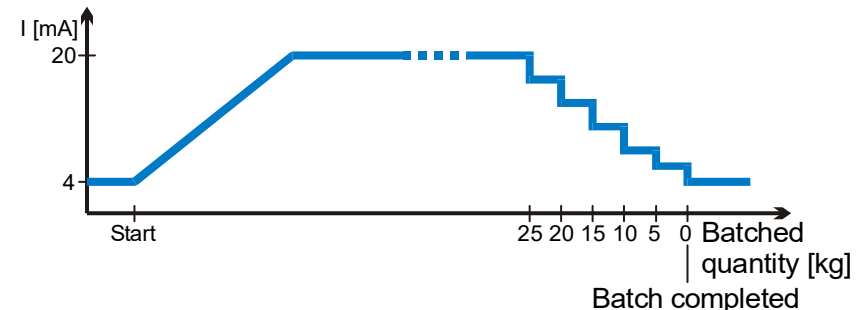
No “pressure hammers” in high flow rate systems:

They are eliminated because of the soft-start ramp and the 5-step shut-down ramp of the 4 - 20 mA signal to the batching valve.

Valve output ramp for small quantities:



Valve output ramp for high quantities:



Error messages in clear text

The Batching Master has many safety- and monitoring functions. In case of a failure the batch will be stopped immediately. After the reset of the failure the message, the batch can be continued via the start button.

Off-switch (Only at the field housing devices)

The Batching Master 110i has a emergency stop switch at the front, which can be delivered optional with a key for interlocking of the device.

The pressed OFF switch causes the following actions:

- the batch process will be stopped with a failure message
- the 4-20 mA valve output signal will be switched to 0 mA
- the digital outputs 1-3 will be deactivated from the power supply
- one normally closed contact element of the emergency stop is connected directly to the terminals 45 and 46. Via this output it is possible to transmit the status "OFF switch pressed" into the control room.



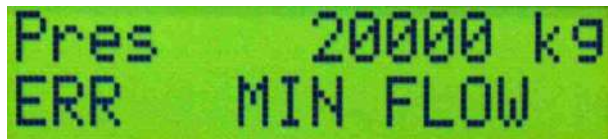
```
Pres 20000 kg
ERR OFF active
```

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Low flow rate monitoring

If the flow rate during the batch process falls below a min flow rate value for a programmed waiting time, then the batch will be stopped with the failure message "ERR MIN FLOW".

This function is required at custody transfer metering systems, but it is also an important safety function at a standard batching systems. It stops an uncontrolled filling process in the case of a problem of the flow meter or in the metering system.



Pres 20000 kg
ERR MIN FLOW

Sensor break- and measuring range overrun monitoring

The Batching Master monitors the 4-20 mA input signal and the NAMUR contact input circuit. In case of a sensor break or a measuring range overrun the batch will be stopped with a failure message.

Error at the flow meter or at the air separator

The error output of the flow meter or an min contact of an air separator can be connected to a digital input of the Batching Master. In case of a error the batch process will stopped with a failure message.

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Two release signals

These two release signals are working via digital inputs of the Batching Master. If the release signals are deactivated, then the batch will be stopped with a failure message.

The texts of the messages can be changed by the programming.



Pres 20000 kg
ERR.L-MAX TANKER



Pres 20000 kg
ERR.NO GROUNDING

Terminal function (optional):

The supervisory system is able to use the Batching Master as a HMI (human machine interface) for the communication to the operator in the field.

By the Modbus interface it's possible to indicate question texts at the display of the batch controller and the user is able to make selections or confirmations by the function keys or to enter information like order numbers or access codes via the numeric key board.



CODE: *****
PLEASE ENTER!



EARTH CONNECTED?
F1=OK F3=ABORT

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PID controller functions (optional)

The Batching Master has two separate PID controller functions, they are working parallel, only during the batch process. The calculated output signals of the two controllers are working on the 4-20 mA output to the batching valve. The lowest output signal will be given out to the batching valve.

Flow controller

Via the flow controller it's possible to batch the product with a required flow rate. The set point can be fixed or can free adjustable for the operator.



SP	20000	kg/h
PV	19990	kg/h

Override controller

The override controller is able to control a second physical value during the batch, like the temperature or the pressure of the product. In the case that the process value is too high, the flow rate will be reduced or the batch will be complete stopped.



SP	9.8	bar
PV	9.8	bar

Pressure keeping function for liquefied gas

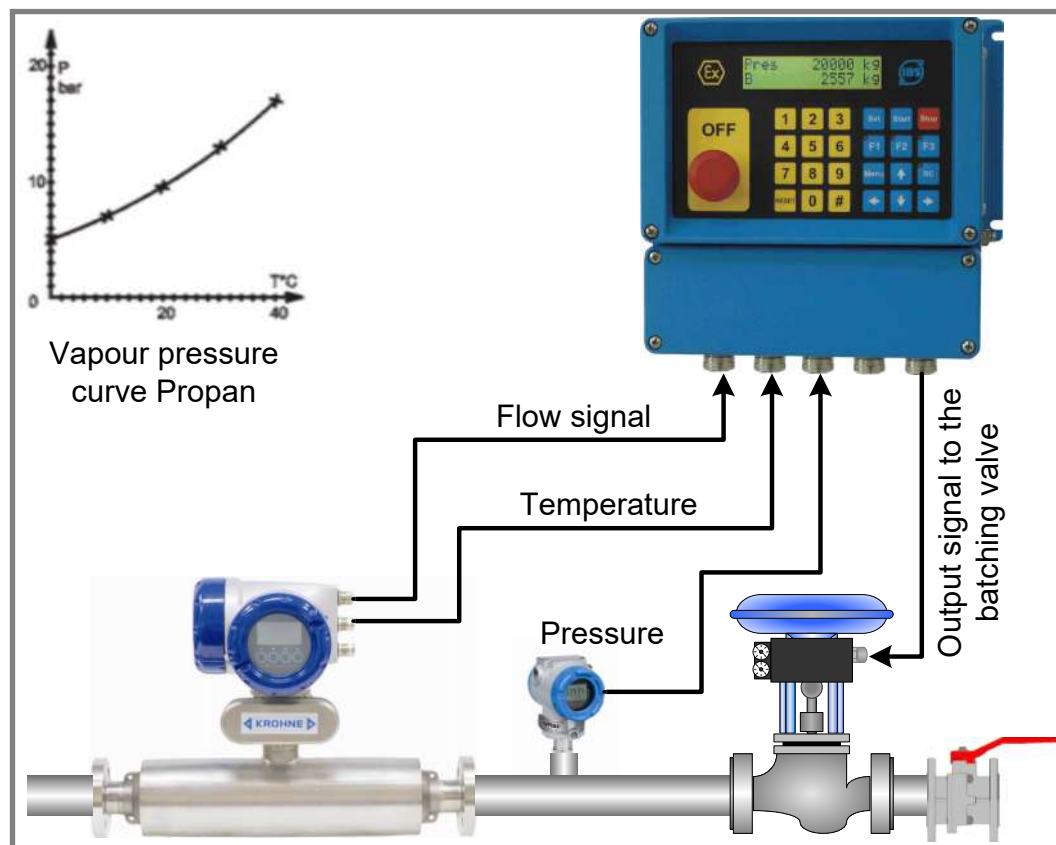
Liquefied gas like LPG, propane or butane demonstrates out gassing effects as soon as the pressure falls below the vaporization pressure of the gas. These vapour locks would cause measuring failures at the flow meter.

Via the override controller it is possible to keep the pressure in system during the batch.

If the pressure falls below the required set point the output to the batching valve will be reduced, if pressure will not increase the batch will be stopped.

By a 25-step linearization function the pressure set point will be calculated out of the temperature signal. (see vapour pressure curve)

Via the additional flow controller function is also possible to control the flow rate during the loading.



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Manual filling / purge functions

For the emptying, cleaning or filling of the measuring system it could be necessary to open the batching valve and also additional valves.

This can be done by the function keys at the device, by a digital input or by Modbus. At the purge mode the valve output opens to 20 mA and one digital output switches. During this purge process the flow rate signal will not be counted.

Pres 20000 kg
Purge

Automatic filling / purge functions

It is also possible to have an automatic filling or purging procedure before the start of the batching process.

This can be done for a programmed time or until a contact at a digital input indicates liquid in the measuring system.

Pres 10000 kg
WAITING F. BATCH



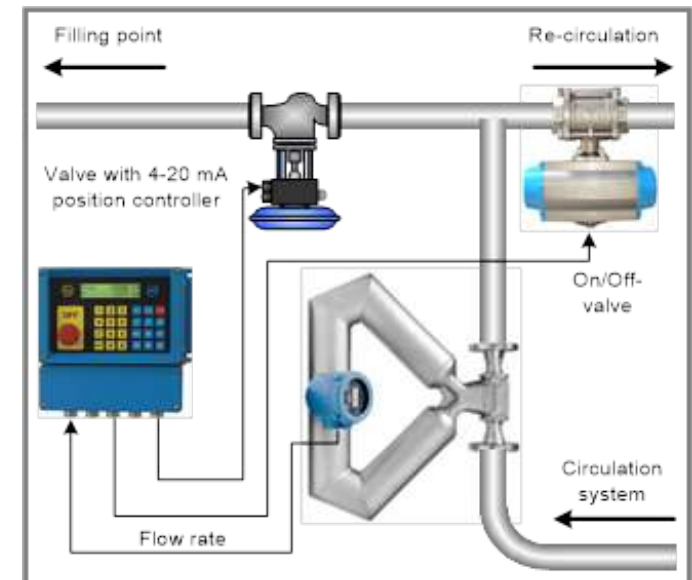
Batch systems for ultra pure water:

Ultra pure water is used in the pharmaceutical and cosmetic industries.

The water need to flow continuous in a circulation, this prevents the formation of germs.

Before the batch start the circulation valve will be closed automatically.

Different waiting time functions take care, that only the quantity during the batch process will be counted.



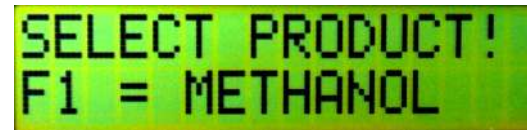
Intelligent Batch Solutions.....designed for you

Product way selection via the function keys F1 - F3

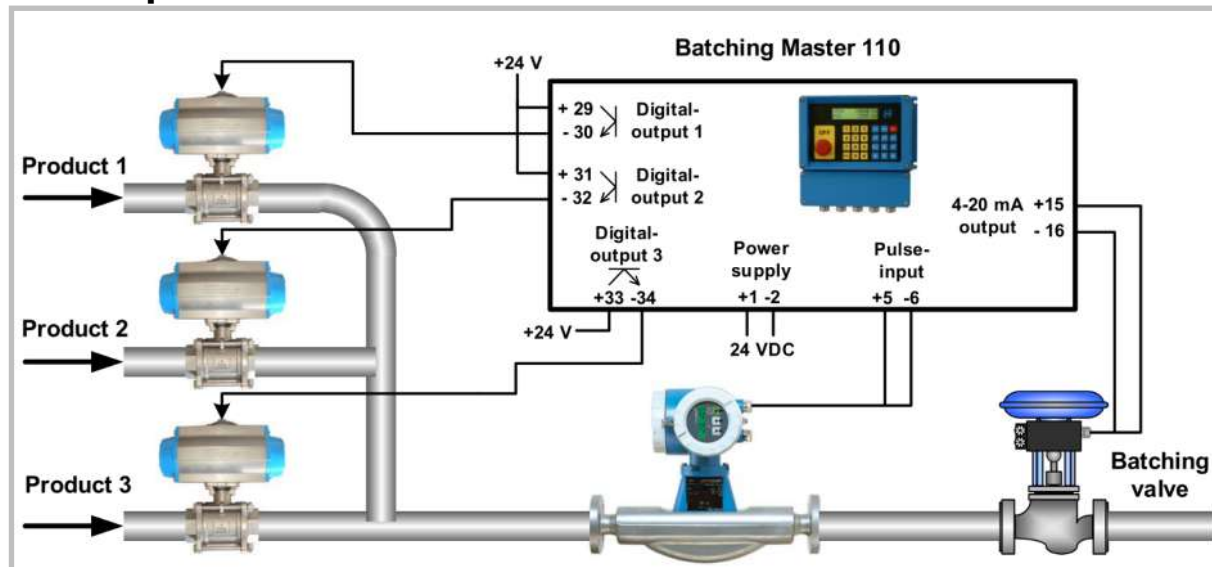
It is possible to select one of 3 product ways before the start of the batch. The texts for the question and the product ways can be programmed in the menu.

The following sections are typically:

- Selection of reactors into which the product should be batched
- Selection of loading arms
- Selection of storage tanks
- Selection of products



SELECT PRODUCT!
F1 = METHANOL



Flow conversion functions

- for the calculation between mass, volume and standard volume.
- the flow input signal can be mass or volume.
- the calculations can be done via temperature, pressure and density.
- average density and temperature available
- the standard density can be programmed or can be calculated from the actual density value.
- The input values and counter values can be indicated via a special menu at the Batching Master. These values are also available via Modbus.

Calculation formulas:

- API 2540/2004, tables 1-3 for refined products, crude oil and special products in metric units
- linear correction function

Batch Dimension:
Volume

Batched Mass
1117 kg

Batched St-Vol.
1482 l

Mass flow rate
30030 kg/h

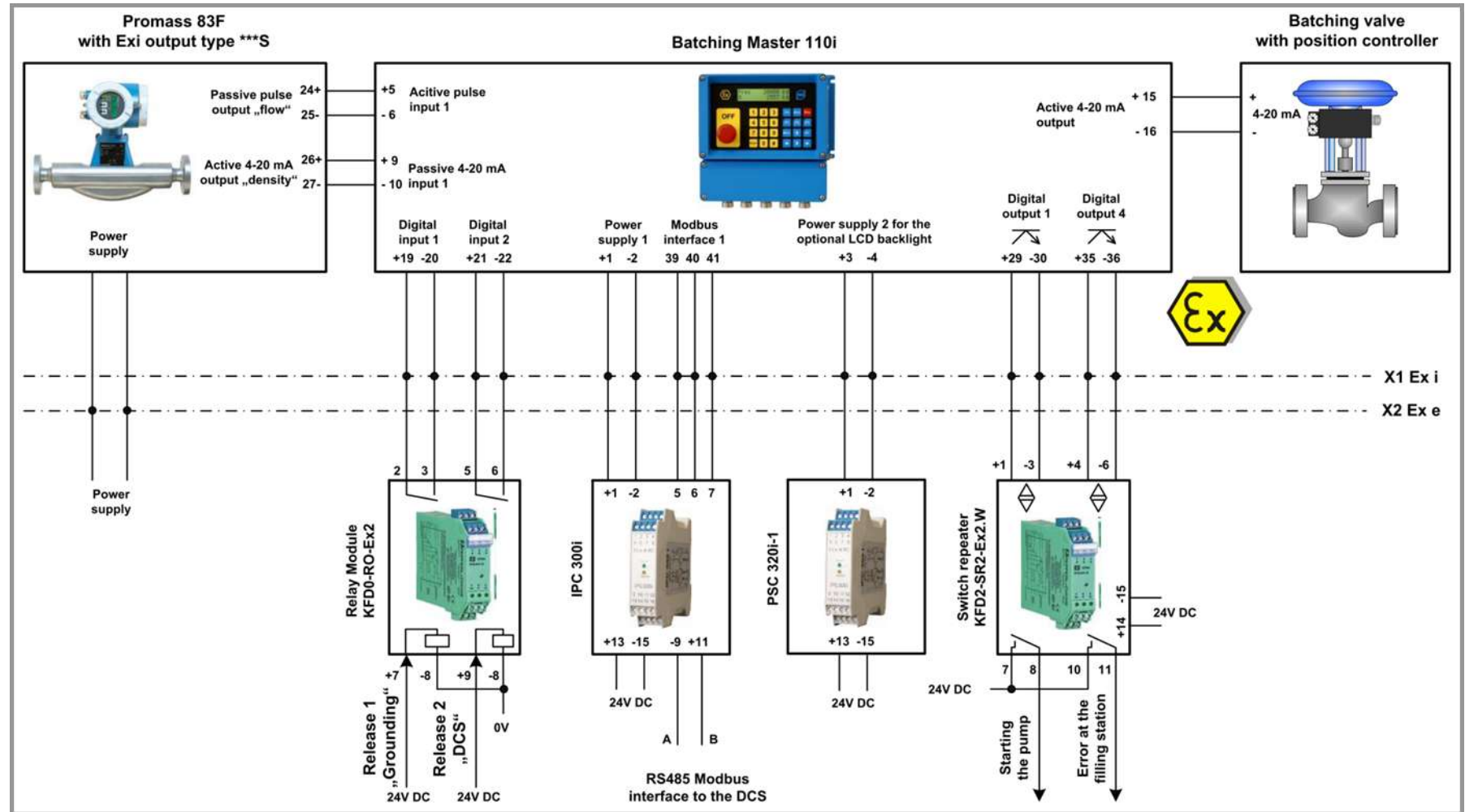
Act. Temperature
20.0 °C

Average Density
750.00 kg/m³

Calc. B-Density
753.61 kg/m³

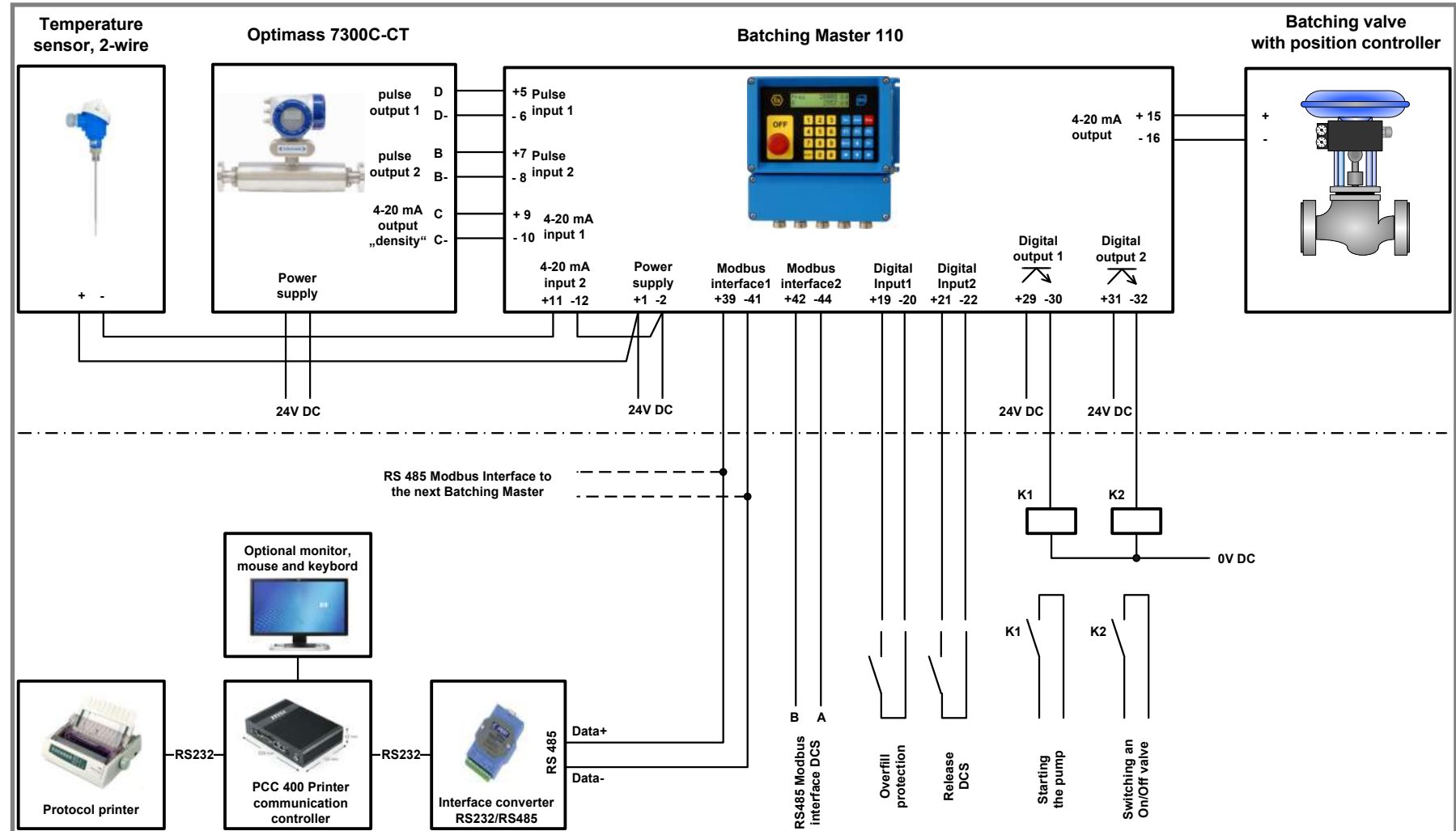
Intelligent Batch Solutions.....designed for you

Loading station in the hazardous area with the Promass 83F and Batching Master 110i



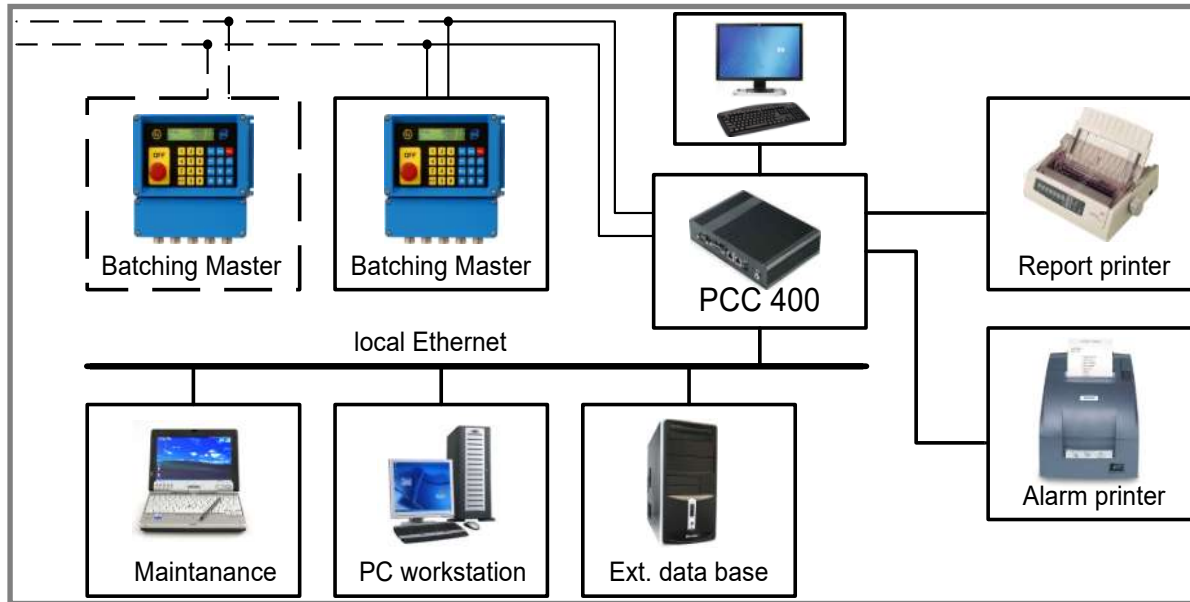
Intelligent Batch Solutions.....designed for you

Custody transfer loading system with the Optimass 7300C-CT and Batching Master 110 in the safe area



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Creation of loading reports and communication solutions with the PCC 400



- Custody transfer proofed
- Storage and print out of loading reports
- Printing of labels for the marking of IBC's
- Storage and print out of log files like alarm lists
- Connection to the local Ethernet

Storage of the loading reports:

- In an internal data base with an export function into CSV-files.
- PDF copies of the batch protocols can be stored on the local drive of the PCC or an external USB stick or drive.

Optional:

- Data exchange with customers software system via MySQL data bases.
- Input of additional information like a batch number before the start.
- Product way selection, the ways will be switched by Modbus relay modules.

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Information exchange with an order management software via MySQL:

- Information exchange between a customers order management software (TAS) and the loading terminals the field.
- The TAS software writes the planed loading orders into a MySQL table “orders”.
- The operator enters the order number at the loading station. As access control the PCC 400 checks if the order number is valid for the selected loading station.
- Important information will be indicated and then the pre-set value will be transmitted.
- At the end of the batch the loading results will be written into the table “loadings”

Operation at the
batch controllers:

Enter Order No.:
Set=Confirmation

Customer:
IBC Chemicals

Product name:
Methanol

Truck ID:
120005321

Pres:___15000 kg
Set=OK, F3=New

Pres:___14850 kg
Set=Confirmation

Table “orders”, written by the TAS:

- Order number
- Customer name
- Product name
- Status of the order:
0 = order open
2 = order completed

Table “loadings”, written by the PCC 400:

- | | |
|----------------------|---------------------------|
| - TAG number | - Pre-set value |
| - Order number | - Batched mass |
| - Customer name | - Batched volume |
| - Product name | - Batched standard volume |
| - Batch number | - Average density |
| - Start and end time | - Average temperature |

Flow computer Pipeline Master 110i/210i

For using at flow metering skids in pipelines or at continuous flow measuring systems. The Pipeline Master 110i/210i has the same hardware like the Batching Master 110i, only the software is different.

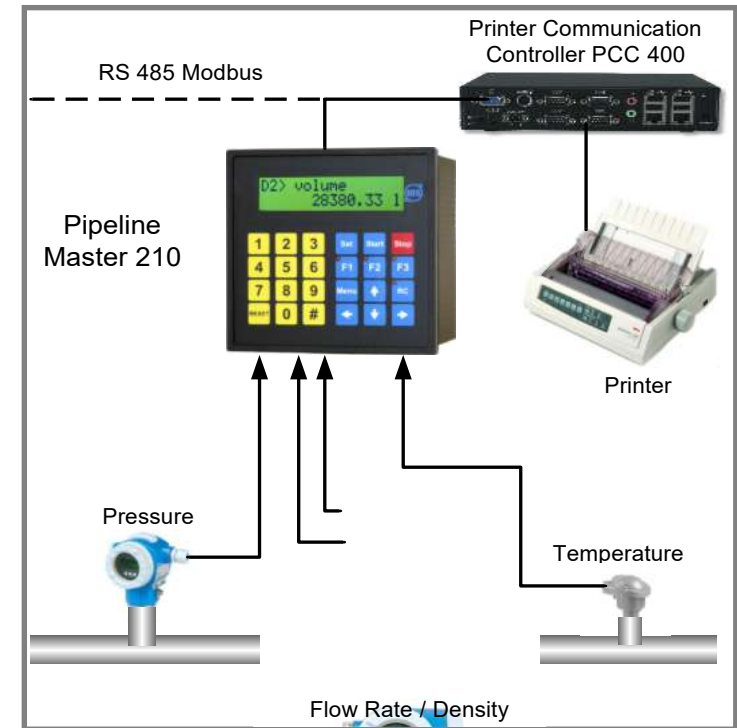
Flow conversion functions for the calculation of mass, volume and standard volume are available based on the following formulas:

- API 2540/2004, tables A-C for crude oil, refined products and special products in metric units
- Linear correction function

6 counter blocks are available with:

- mass, volume and standard volume counters
- in positive and reverse direction
- failure counters for all values
- average density, temperature and pressure

The PCC 400 creates the reports with the counter values which are stored in files and can be printed. Different communications to external data bases are optional available.



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Non-Ex batch controller BC 20 for simple applications

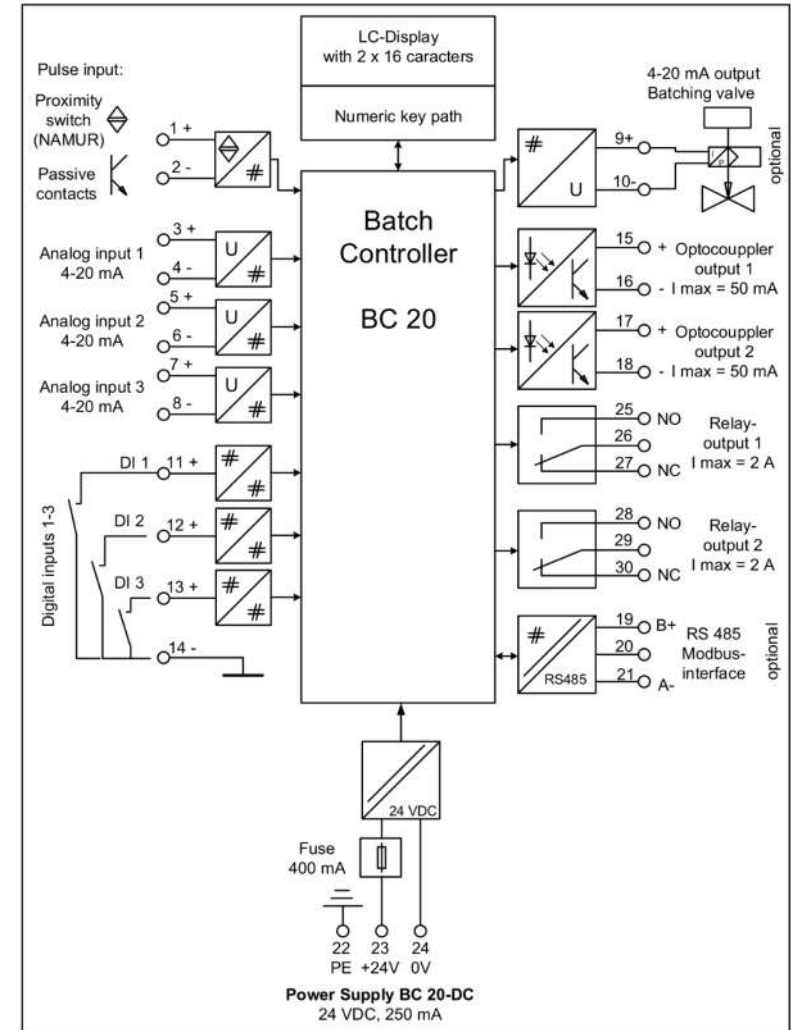


Options:

- 4-20 mA valve output with ramp functions
- PID flow rate controller function
- RS 485 Modbus interface

Features:

- Dimensions: 96 x 96 x 120 mm
- Power supply: 24 VDC
- Back light for the LCD
- Intelligent overrun correction



Power supply and interface modules

PSC 300i-1:

- 1 x Exi power supply (U=24V, I=50mA)
for the PS1 of the Batching Master 110i/210i

PSC 320i-1:

- 1 x Exi power supply (U=6V, I=100mA)
For the PS2 of the Batching Master 110i/210i
(required for the optional back light of the LCD)

PSC 330i-2:

- 1 x Exi power supply (U=24V, I=50mA)
for the PS1 of the Batching Master 110i/210i
- 1 x Exi power supply (U=6V, I=100mA)
For the PS2 of the Batching Master 110i/210i
(required for the optional back light of the LCD)

IPC 300i:

- 1 x Exi power supply (U=24V, I=50mA)
for the PS1 of the Batching Master 110i/210i
- 1 x Interface barrier (Modbus Protocol):
 - Exi TTY interface to the Batching Master 110i/210i
 - RS 485 interface at the safe area side



Order variants for the Batching Master 110i/210i:

Batching Master 110i, ATEX, IP65 field housing

Batching Master 110, non-Ex, IP65 field housing

Batching Master 210i, ATEX, panel mount housing

Batching Master 210, non-Ex, panel mount housing

Options

Back light for the LCD (an additional Exi power supply is required)

Modbus interface (the interface and power supply module IPC 300i is required)

Terminal function, the price includes the option „Modbus interface“

Custody transfer version, the price includes the option „Modbus interface“

PID controller function

Flow conversion function between mass, volume and standard volume

Special function „Automatic filling or emptying of the measuring system“

Selection of three product ways via the function keys F1-F3

Emergency stop switch as a key switch

Exi interface and power supply modules:

PSC 300i-1, power supply module, 1-channel

PSC 330i-2, power supply module, 2-channel

IPC 300i, interface and power supply module

Some of our Main Clients:

Actemium
Airbus
Basel
BASF
Bilfinger
Bayer
Basell
BP
Celanese
Clariant
DHC Chemie
Degussa
Endress + Hauser
Emerson
Evonik
ExxonMobil
GBF
Grillo
Gemlik
HCT
Iberfluid
Ineos
Kali+Salz

KANEX
Krohne Messtechnik
Lanxess
Lipoid
Merck
Mettler Toledo
Novartis
OQEMIQS
Pinnacle
Rain Carbon
Roche
Sanofi-Aventis
Saltigo
SKW
Shell
Total
Yokogawa
Wacker Chemie

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Exi process controllers



Ex-proofed batch controllers



Non-Ex batch controllers in different price ranges



Exi bargraph indicators



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53925 Kall / Germany

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sales@ibs-batchcontrol.de



Pipeline flow computers