

LDMTM Series

Liquid Dosing Module



Laboratory style Liquid Dosing Module

> Introduction

A Liquid Dosing Module (LDM) is a modular assembly of a (mini) CORI-FLOWTM mass flow meter and a pump or valve, built together in an enclosure as a complete unit with power supply, local HMI/PLC touch panel (or optionally remote) operation, having a fluid input and output. Purpose is to offer a complete solution to dose a liquid into a process. Dosage can be continuous (using a pump) or batch-wise (using on-off valves for short dosing times). An LDM can easily be configured to function in a certain mode using the configuration menu in the HMI/PLC. Internally all correct settings will be made for the hardware to perform in an optimal way for that mode. Main modes are: Continuous dosing, Batch dosing (filling) and Master/slave (ratio) control (mixing/blending). The LDM can either work in mass flow or volume flow mode.

> Technical specifications

- ◆ Power: 100...240 Vac / +24 Vdc
- ◆ Ambient temperature: 20...40°C
- ◆ Wetted materials: SS316 metal / Kalrez seals
- ◆ Housing:
 - Laboratory style: IP40
 - Industrial style: IP66/IP67
- ◆ mini CORI-FLOWTM meter M13/M14/M15, see applicable brochure or datasheet for specifications
- ◆ Pressure meter: 0...20 bar (accuracy $\pm 1\%$ F.S.)
- ◆ 4.3" 65,536 (16-bit) Color, Touch panel, TFT, LCD display
- ◆ Electrical connections: Industrial style :
 - screw terminals (inside) and cable glands - Laboratory style: cable connectors
- ◆ Connection to master flow meters/controllers via: 4...20 mA/0...5 Vdc/Modbus
- ◆ Multiple programmable alarms on flow, pressure, temperature, density
- ◆ Remote readout and operation e.g. from central command room (via TCP/IP Ethernet/Internet)
- ◆ Totalizers for fluid consumption (day, total)
- ◆ Alarm output via potential free contacts or remotely via Ethernet/Internet or GPRS/GSM
- ◆ Alarm and counter reset via HMI/PLC touch panel or switch (external/remote)
- ◆ Optional extra alarms and redundancy
- ◆ Optional 10 μ m filter
- ◆ Optional connection for external master for ratio control

Although all specifications in this datasheet are believed to be accurate, the right is reserved to make changes without notice or obligation.

Inside the box the necessary piping and protection has been realised to ensure that:

- ◆ Fluids to be dosed by the enduser will be safely transported from inlet to outlet
- ◆ Piping is compatible with the required fluids
- ◆ Maximum pressure will stay within safe limits
- ◆ Box can be cleaned sufficiently for the required application

Basic functionality

- ◆ Dosing: continuous, batch wise, highly accurate fluid dosing into your process
- ◆ Reading: flow, pressure, density, temperature, setpoint, ratio control (input slave factor and connection to external master signal), totalizers for consumption monitoring, alarms, configuration settings
- ◆ Trending (graph with time on x-axis): flows, pressure, density, temperature, PID-controller output
- ◆ Adjustable: setpoints, reset batch counter, reset alarms, instruments configuration settings (master + slave)
- ◆ Main menu with trends and soft-buttons to activate screens for parameter change

Special functionality

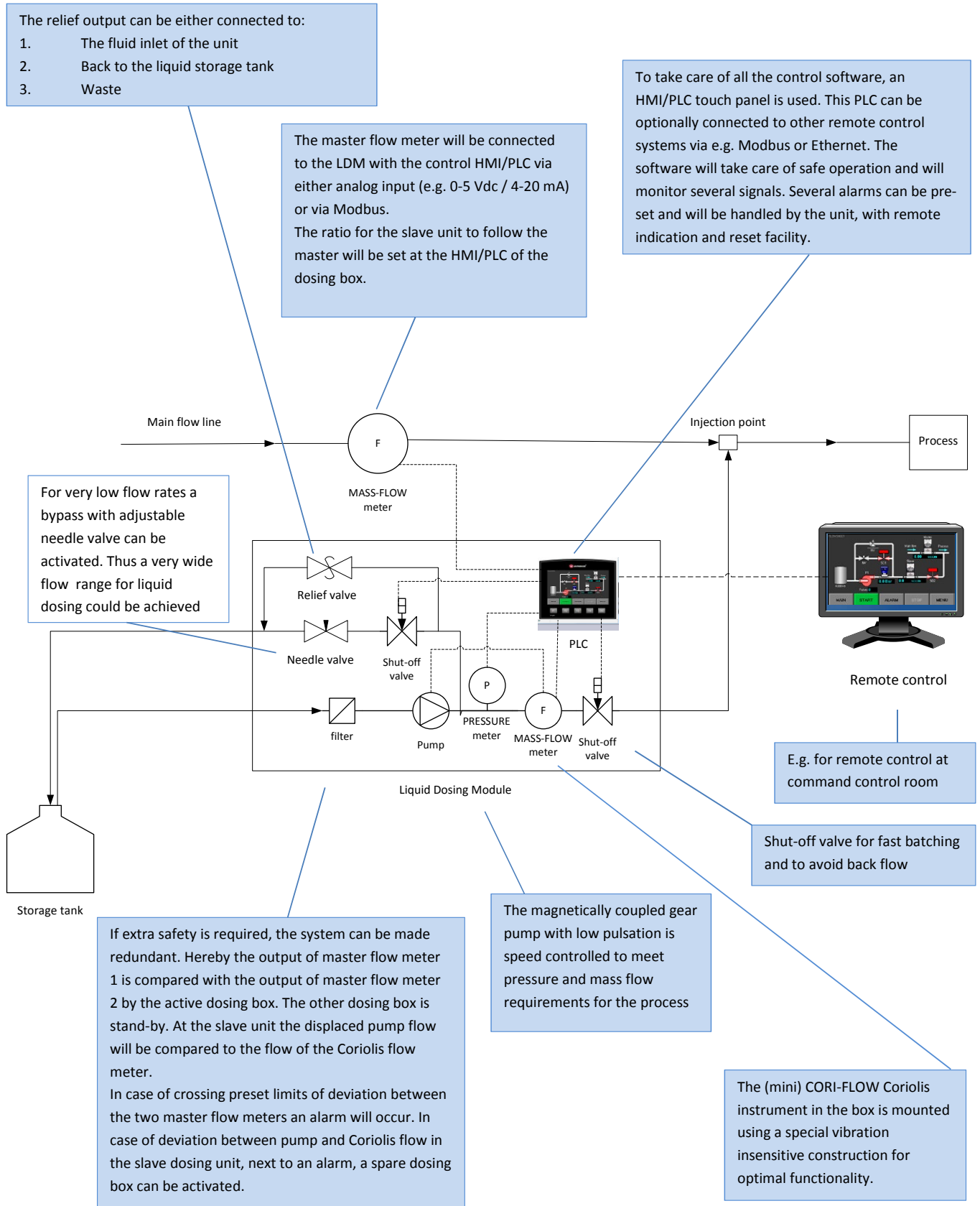
- ◆ Redundancy handling
- ◆ Additional alarming, inputs, outputs
- ◆ Remote access
- ◆ Batch dosing

> Flow meters (flow ranges for the dosing units)

	Unit	M13	M14	M15
Minimum full scale	[g/h]	50	1000	5000
Nominal flow	[g/h]	1000	10000	100000
Maximum full scale	[g/h]	2000	30000	300000
Minimum flow	[g/h]	1	30	200
Rangeability controller	[g/h]	$\geq 1:2000$	$\geq 1:1000$	$\geq 1:1500$

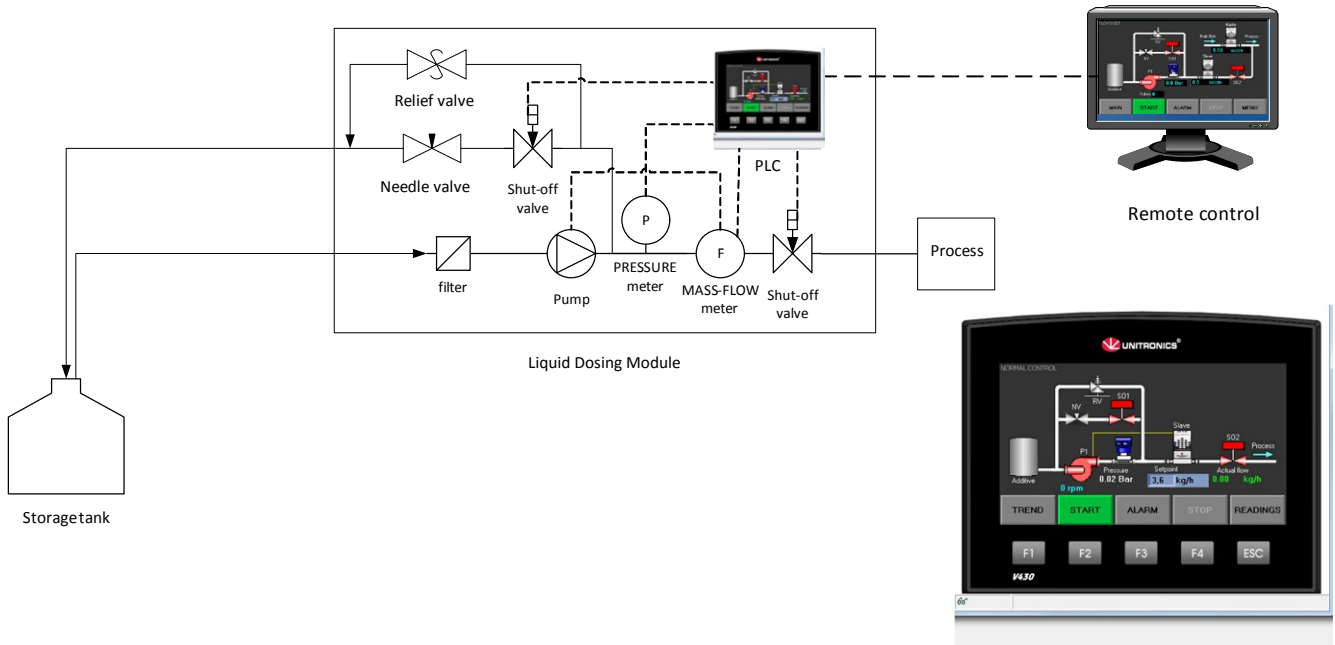
suitable (gear) pump, fitting to the flow range, will be speed controlled by the selected flow meter.

> Master - Slave (ratio) control for mixing / blending



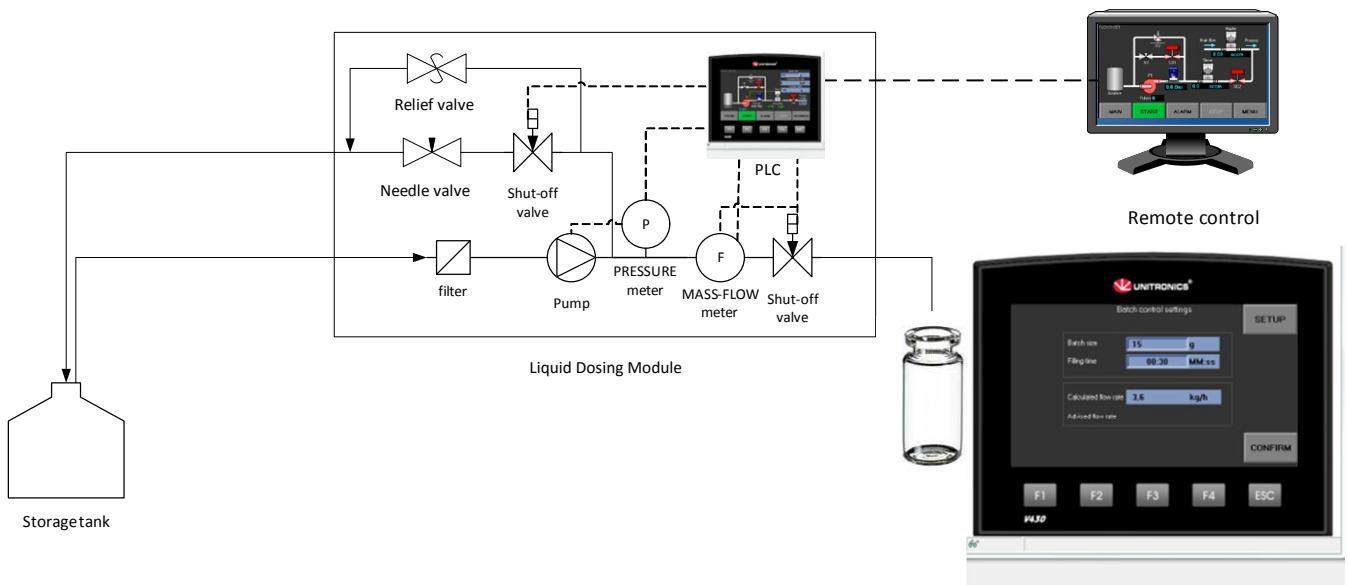
> Continuous flow dosing

In this mode the LDM will continuously dose liquid flow into a process. Either volume flow or mass flow dosage.
E.g. for micro reactor systems, laboratory tests, dyes dosing or process control.
Multiple LDMs may be connected for blending/mixing.



Batch dosing (filling):

In this mode the LDM will dose a liquid as a batch in a certain time. Either volume flow or mass flow dosage.
E.g. for additive dosage (aromas, flavours, colorants/dyes) into a process or vial.
Multiple LDMs may be connected for blending/mixing.



> Your advantages

- ◆ Complete dosing solution in one box
- ◆ Easy installation and operation by HMI/PLC touch panel
- ◆ High accuracy dosing of liquids: thus less waste and maximal performance of your process
- ◆ Multiple parameter trending for optimal process control
- ◆ Can also be connected to existing flow meters through 4...20 mA/0...5 Vdc signal (e.g. for ratio control)
- ◆ Optimal safety and monitoring of alarms and trends
- ◆ Pressure monitoring/control and relief valve to avoid too high pressures
- ◆ Advice what to do in case of an alarm
- ◆ Fluid consumption monitoring
- ◆ Wide range of flow possible
- ◆ Self test facilities
- ◆ Low maintenance
- ◆ Remote access (e.g. via Ethernet/Internet)
- ◆ Easy integration into existing systems and control



Subject to change

Laboratory style: IP40



Industrial style: IP66/IP67

