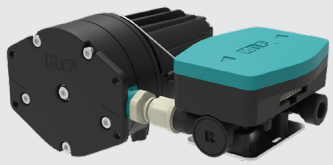
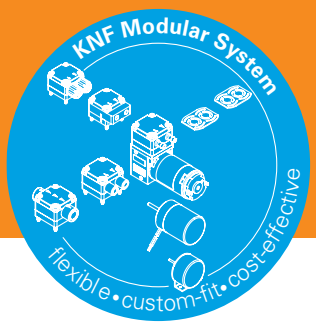
FMS-FC 1.150
METERING PUMP WITH FLOW CONTROL



FMS-FC 1.150

ADVANTAGES

- Stable liquid flow via closed-loop control
- Consistent flowrate over product lifetime
- Stable against changes in liquid temperature
- Stable against varying system pressure
- Configurable output parameters
- Failure / Bubble detection
- Flexible communication interfaces
- Easy system integration



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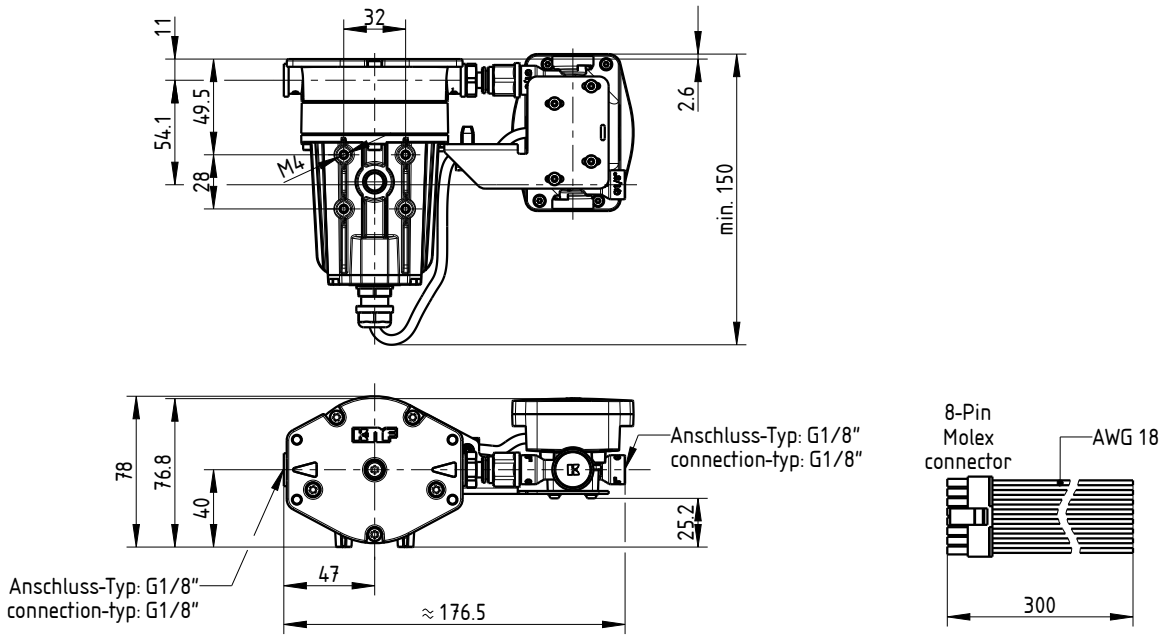
POSSIBLE AREAS OF USE

- Cleaning & Disinfection
- Medical diagnostics
- Industrial metering systems
- Laboratory instruments
- Printing (Inkjet)
- Chemical Industry

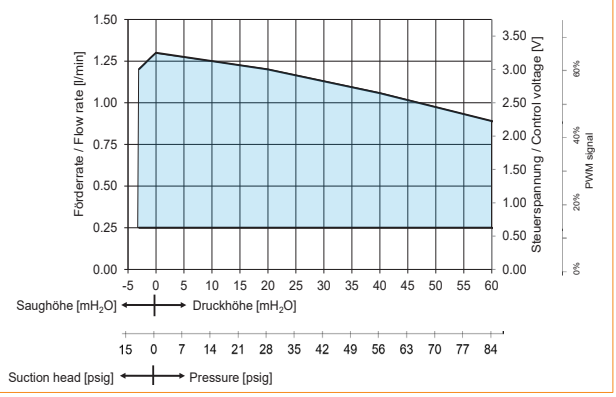
PERFORMANCE DATA	
Series model	**FMS-FC 1.150 KTRCP**
Material variant	**KT (Further combinations on request)**
Pump head	PP
Diaphragm	PTFE
Valve and O-rings materials	FFKM
Flow rate range at atmos (ml/min)	250 – 1300
Sensor fluid channel	PPS, PEEK
Suction height (mH2O)	>3
Sensor O-rings & Fittings	FKM
Permissible liquid temperature (°C)	5 – 80
Permissible ambient temperature (°C)	5 – 40
Set point accuracy	+/- 4% reading with water
Calibration	Calibration in factory @ 0 bar g / 25°C with water
Repeatability CV	+/- 2%
Nominal pressure (mH2O)	60
IP Protection factor pump	IP 40

ELECTRICAL DATA & COMMUNICATION	
Connection type	8-wire interface Molex Micro-Fit 3.0 Header
Nominal Supply Voltage (V)	24 +/- 10%
Power (W)	27.1
I load max (A)	3.5
Control Signal (V)	0 – 5
Control Input	Analog, PWM
Signal output	PWM (Analog or alternative output values available upon request)
Serial	UART TTL
IP Protection Sensor / Electronic housing	IP 40 (IP 54 on request)
INFLUENCE ON FLOWRATE	
Viscosity range / compensation	0.3 – 50 mPas at 20°C, higher viscosities on request. Default setting 1 mPas, adjustable via KNF Connect
Drift over lifetime	No drift due to flowrate monitoring
Influence of pressure 0 – 6 bar	No influence, compensated by closed loop control
Temperature measurement (°C)	+/- 5 non-media-contact (reaction time t(90) = 3 min)
Liquid temperature	No influence, actively compensated by measurement
Suction height btw. 0-3mH2O	+/- 1%
HYDRAULIC INTERFACE	
Sensor (inlet)	1x Thread G1/8
Pump (outlet)	1x Thread G1/8
Connector	see Accessories, recommended tube inner diameters >= 6 mm

FMS-FC 1.150

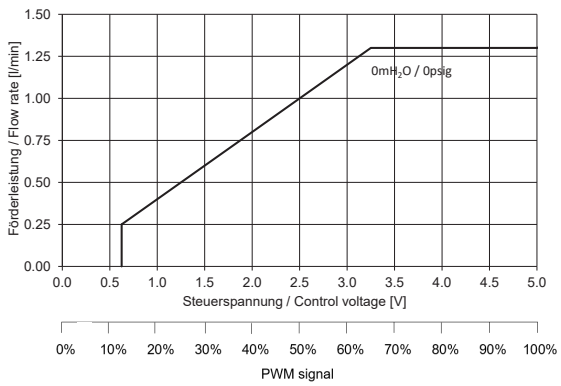


FMS-FC 1.150 KTRCP



It is important to ensure that your operating point lies within the blue range, otherwise the pump will not be able to meet your requirements.

FMS-FC 1.150 KTRCP



ELECTRIC SPECIFICATIONS

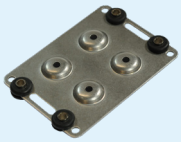
Number	Designation	Function*
PIN 1	Analog/Digital GND	GND analog/digital input/output
PIN 2	Analog/Digital Input* Default: 0–5V DC	Target flow rate Scaling: 0.4l/min per 1V
PIN 3	Analog/Digital Output* Default: PWM (5V)	Measured flow rate Scaling: 0.4l/min per 20%
PIN 4	Serial GND	GND for serial communicaton
PIN 5	Serial COM	UART TTL, RS-232 → Tx (transmit) CAN Bus → CAN High
PIN 6	Serial COM	UART TTL, RS-232 → Rx (receive) CAN Bus → CAN Low
PIN 7	GND	GND for power supply
PIN 8	24 V	Power supply

* Customized adaptations (e.g., analog/digital, other output values, or interfaces) are possible. Please contact your local KNF representative for more information.

INTERFACE PROJECT OPTIONS

RS-232 (Electronics assembly option)
CAN Bus (Electronics assembly option)

ACCESSORIES

Description	Illustration	Part No.	Details
Starter-Kit cable USB – UART TTL		358825	USB Connecting cable to parametrize the FMS-FC System with the KNF Connect Software, open wire ends for power and control input/signal output
Starter-Kit cable USB – RS232 (Project option)		361323	USB Connecting cable to parametrize the FMS-FC System with the KNF Connect Software, open wire ends for power and control input/signal output
Mounting plate		178997	Enabling additional mounting options. Screws included in the set.
Compression fitting		178423	Connection for flexible tubes suitable for higher pressures. Connection: DN08/10 Material: PP O-Ring: FKM Thread: G1/8"

INTELLIGENT FEATURES

Features	Description
FlowControl (FC)	The pump includes a built-in PID controller that keeps the flow rate stable within the specified range, even under changing ambient conditions (e.g., back pressure). The flow rate setpoint can be entered via: – Serial interface – Analog or digital input
Temperature Sensor	The temperature sensor compensates for changes in fluid properties caused by temperature fluctuations – Output via serial interface – Output via analog/digital possible on request
Bubble detection	The FMS-FC system detects bubbles in the fluid line at three sensitivity levels. – Output via serial interface – Analog/digital output available on request
Viscosity range	Automatically compensated based on customer settings (KNF Connect) setting range 0.3 – 50 mPas (default 1 mPas).

The performance values for the series models shown on this data sheet were determined under test conditions.
The actual performance values may differ and depend in particular on the usage conditions and therefore on the specific application, on the parameters of the components involved in the user's system and on any technical modifications carried out which deviate from the standard configuration or the as delivered condition.

If individual designs have been created for specific customers on the basis of series models, other technical performance data may apply.
Before operation begins, the relevant operating instructions and/or assembly or installation instructions should be read and the safety information contained in these instructions should be noted.
KNF reserves the right to make changes to the product and the associated documentation without prior notice to the customer.

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KNF reserves the right to make technical changes without notice.
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