


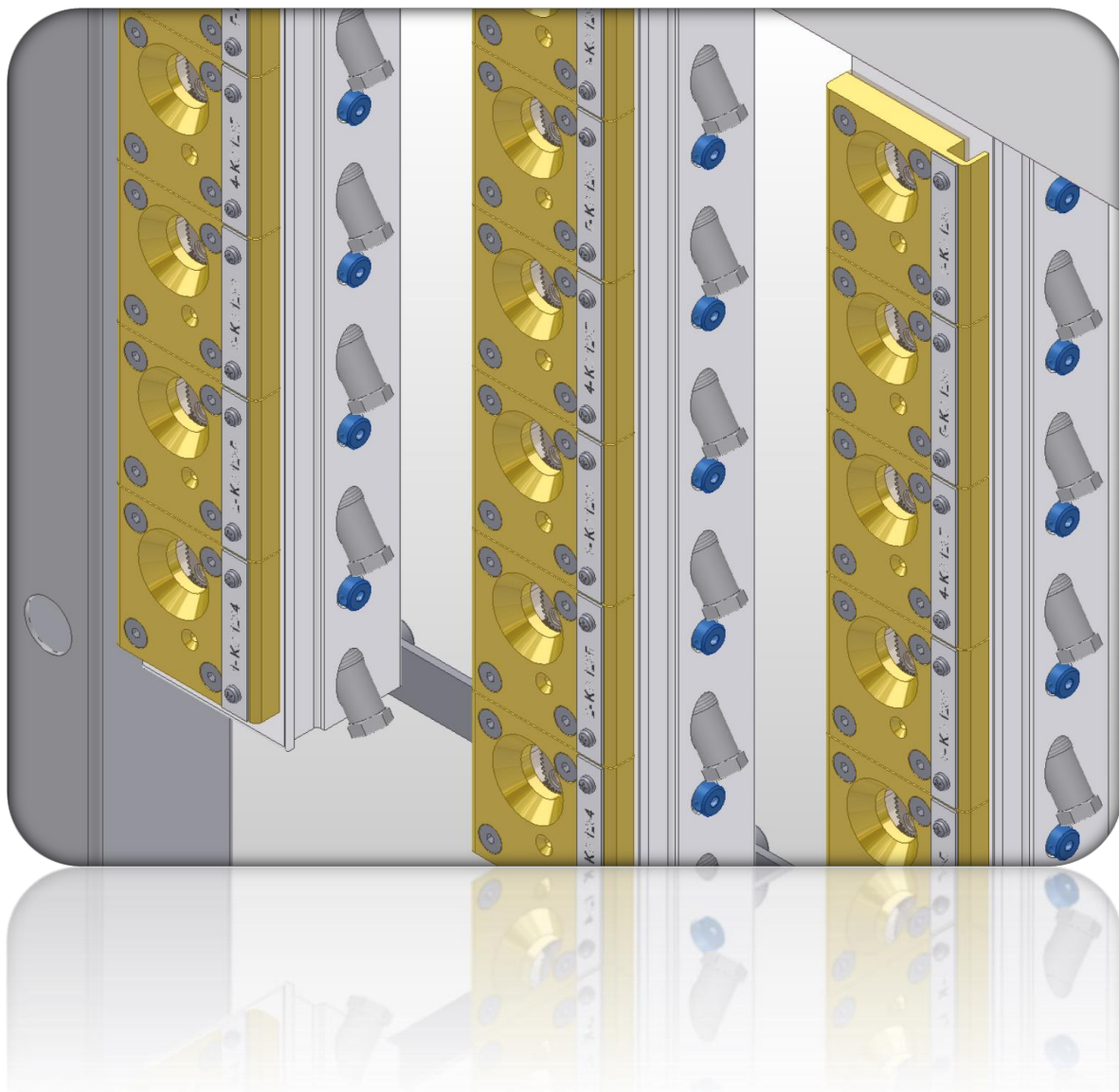
C-Flow RF oil flow meters



Part of  C-Lube product line

C-Flow RF oil flowmeters solution is based on **RealFlow** technology. This modern oval gear flow meters are specially designed for measuring and monitoring in a paper machine environment. **C-Flow RF** unit measures and controls volumetric lubrication oil flow, as well as generating accurate real-time readings for monitoring systems e.g. oil monitoring panel, PLC or DCS systems. A pair of oval gears calculates the “real flow rate”. The measurement signal is an inductive pulse, which is wired to a PLC system. These pulses can be also seen as light pulses locally. In addition, lower flow rates result in only a few light pulses, whereas higher flow rates result in a greater number light pulses.

The real-time flow reading, set point and alarm limits (lower and upper limits) are available for every measurement point. The alarms are binary alarms and suitable e.g., relays.



The status of the flow meters can be observed at a glance by the flashing LEDs.

Measuring station and display (HMI)

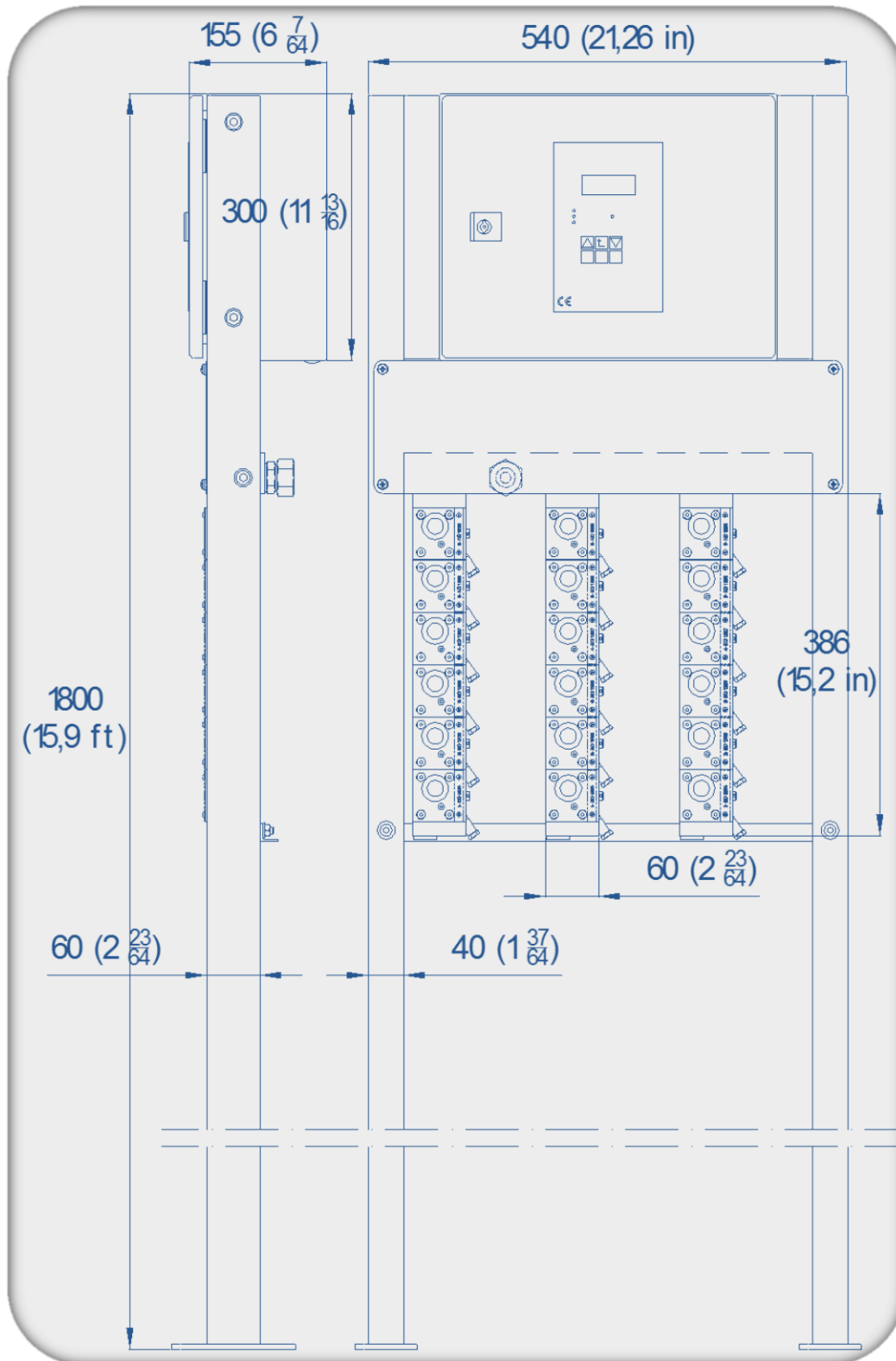
The data communication to the remote system can be connected using either an RS-485 (Modbus RTU) or TCP/IP Ethernet (TCP), WLAN or GSM/GSPR communication protocol.

Operator interface is a 4 x 20 lines local LCD display with six buttons and 4 status LEDs (Relay alarms, one of which is programmable).



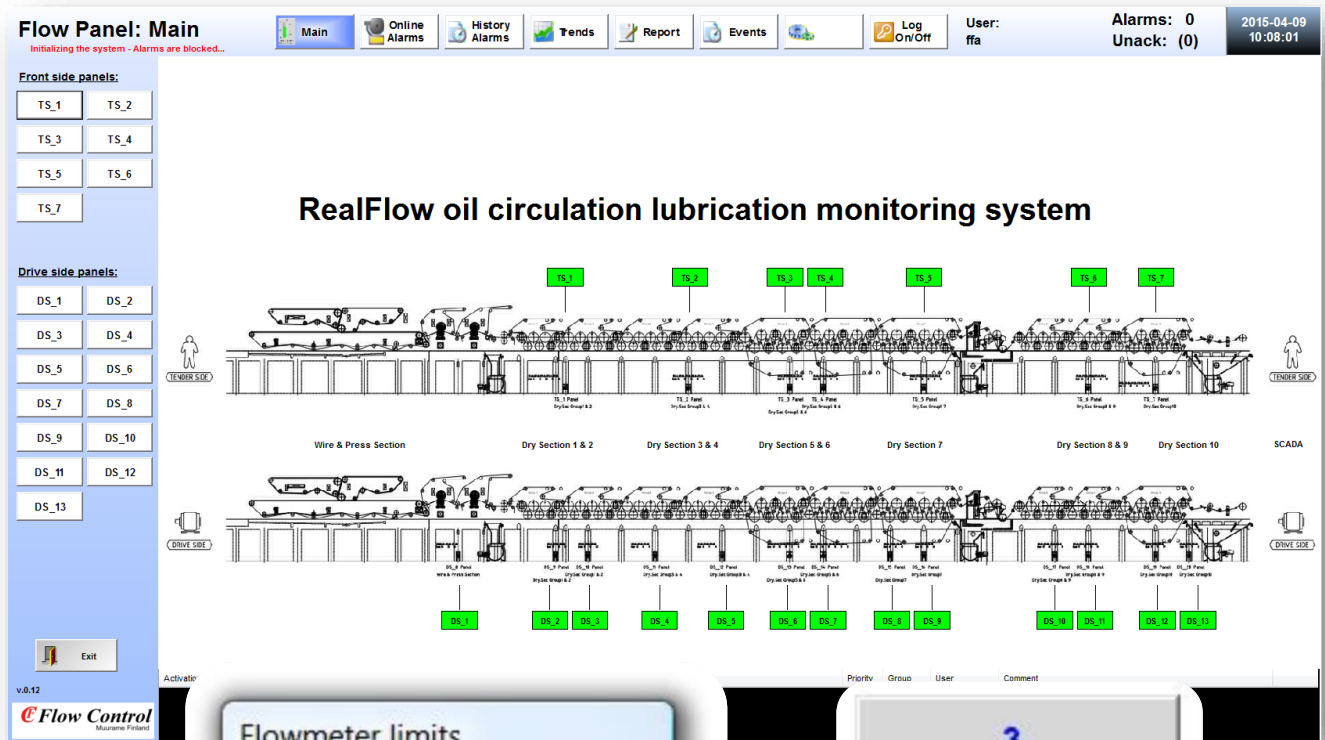
C-Flow RF oil flow meter panel

C-Flow RF units can be installed as groups which are easy and quick to fit into a lubrication piping network.



Monitoring software SCADA (Web Studio by InduSoft®)

Web Studio is very modern, multi-featured, and cost-effective SCADA software. The same development environment can be used to create applications for Windows 2000/XP/2003/Vista/7 Server PCs, and for Windows CE touch-screen displays. One mouse click and applications can be converted to fully compatible with Internet.



Flowmeter limits

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Type: RF1

Hi-Limit: 1.18

Lo-Limit: 0.84

Lolo-Limit: 0.69

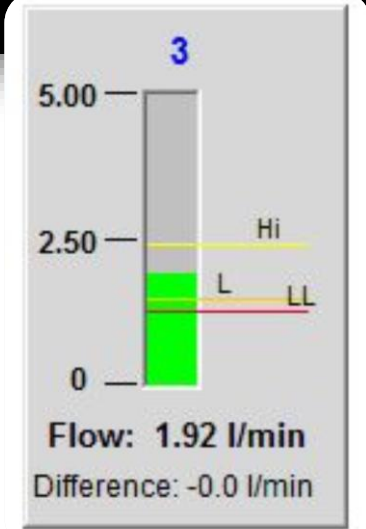
Setpoint: 1.00

Hysteresis: 0.01

OPT.Relay

Trend window

Close

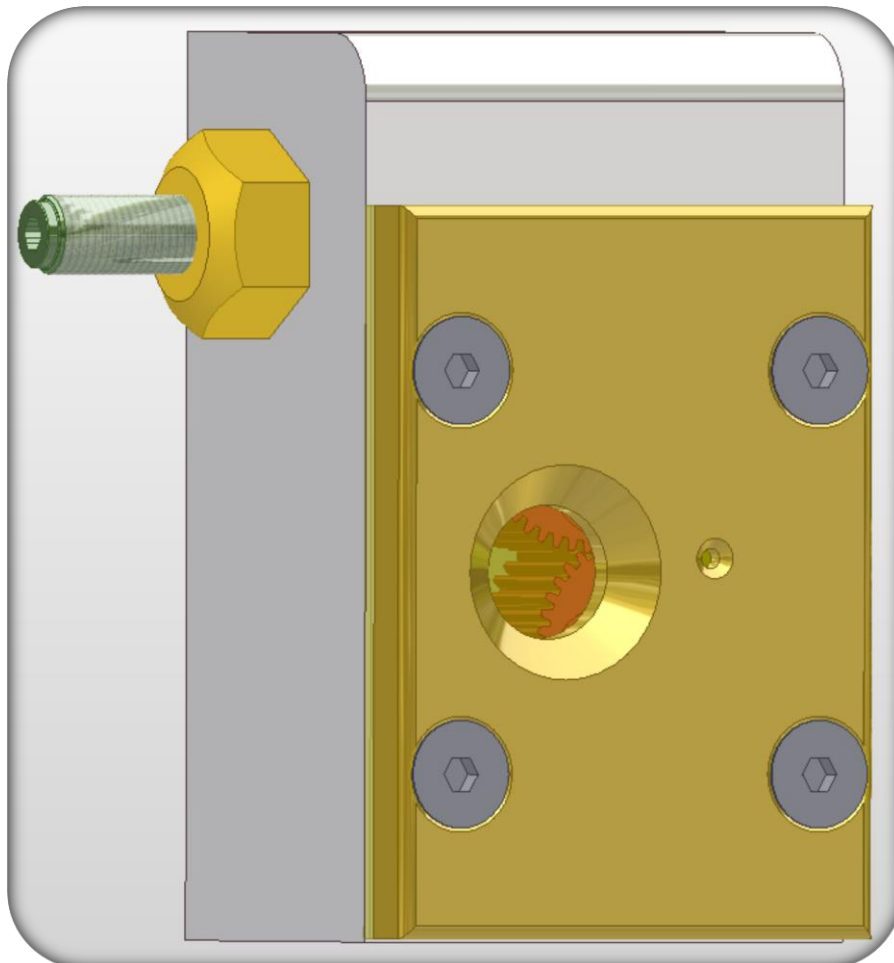


Difference: -0.0 l/min
Flow: 1.92 l/min

C-Flow RF Features and benefits

- ✓ Almost viscosity independent (30 – 900 cSt / 141-4170 SUS).
- ✓ Independent of oil temperature.
- ✓ Wide flow ranges (0.05 up to 60 LPM / 0.11-127 US Pints)
- ✓ Number of measuring stations – 1...512 pcs (Modbus TCP/IP) (1...20480 lubrication points).
- ✓ Easy user interface - 4 lines LCD – display or touch screen (option).
- ✓ Cleaning and service can be made on the run (models RF-1-3 and RF-Mini < 6 LMP / 12,7 US Pints.
- ✓ True service valve (bypass) function – opened service valve keeps the flow rate 80 % the same even if the oval gears are blocked (pressure and viscosity will not affect the flow rate).
- ✓ A mounting case system is not needed in C-Flow RF flow meter systems (option).
- ✓ A single and a dual oval gear meters for a bigger flow rates up to 60 LPM (127 US Pints).

C-Flow RF single oval gear flow meter (RF-4, -5 or -6)



C-Flow RF oval gear flow meters	
Model RF-Mini	0.05–1 LPM / 0.11–2.11 US Pints
Model RF-1	0.15–2 LPM / 0.32–4.23 US Pints
Model RF-2	0.5–3 LPM / 1.06–6.34 US Pints
Model RF-3	1–5 (max. 6) LPM / 2.11–10.6 (max. 12.7) US Pints
Number of lubrication points in one bank	1...8 pcs.
Number of flow meters in one group	1...40 pcs.
Model RF-4 (a single meter)	1–10 (max. 15) LPM / 2.11–21.1 US Pints
Model RF-5 (a single meter)	2–20 (max. 22) LPM / 4.23–42.3 US Pints
Model RF-6 (a single meter)	4–30 LPM / 8,46–63 US Pints
Model RF-6D (a dual meter)	8-60 LPM / 16.9-127 US Pints
Max. pressure	12 bar / 1,2 MPa / 174 psi
Max. oil temperature	+70°C / +158°F (flow sensor's max. T)
Ambient temperature	+60°C / +140°F (measuring station's max. T)
Accuracy:	± 3-5 % o.F.S. (can be calibrated)
Pressure loss (RF-1/2/3/Mini)	0.1-2 bar/1-29 psi (0.15-5 LPM/0.3-11 US Pints) 3.2 bar/46 psi (7 LPM/15 US Pints) (ISO VG 220/1000 SUS @+40°C)
Pressure loss (RF-4-6 and -6D)	≤1 bar/15 psi (30 LPM/63 US Pints) (ISO VG 220/1000 SUS @+40°C/104°F)
Materials	
Body and cover	Aluminium (EN AW 6063), EN AW-6082 (supply manifold)
Window	PA 6 or 12 (Grilamid® TR55), PSU Udel® P-1700
Oval gears	PPS (RF-1-3) RF-4-6/6D Aluminium (CuSnZn)
Other parts	EN AW-6082/6063/2007, PA 6/12 (as option PEI)
O-rings	FPM (Viton®)
Threads (on models RF-1-3 and Mini)	SFS-EN ISO 228-1
-inlet (supply manifold)	G 3/4" or NPT
-outlet	G 3/8" or NPT
-inlet (on models RF-4-6 and -6D)	G 1" or NPT
-outlet (single or duals meters RF 4-6 and 6D)	G 1" or NPT
Service valve (bypass)	Standard on models RF-1...3 and Mini
Support feet	L=1800, 60x40x1,5, EN 1.4301/AISI 304 L= 5,9 ft, 2 23/64 x 2 37/64 x 1/16
Measuring stations	
Power supply	100–240 VAC 50/60 Hz, 1,8 A (output 24 V DC / 2,5 A)
AL-PC16	16 inputs 1..16 lubrication points
AL-PC40	40 inputs 1..40 lubrication points
Enclosure AE (By Rittal)	380x300x210 (IP65, EN 1.4301/AISI 304 or steel (powder-coated) 14,96x11,81x8,27 in.
flow sensors	
Inductive 3-wire	PNP, ≤15 mA
Inductive 2-wire	Namur sensors, ≤30 mA
LCD display	
HMI	4 lines x 20 characters, 6 keys
Alarm LEDs	Red for relay alarms (3 + 1 LowLow-/Low-/High- Flow / + OPT)

C-Flow RF a single oval gear flow meters (RF-4, -5 or -6) dimensions

RF-4: 135x80x60 mm, RF-5: 135x80x65 mm and RF-6: 135x80x80 mm

RF-4: 3.15x5.31x2.34 in, RF-5: 3.15x5.31x2.54 in and RF-6: 3.15x5.31x3.13 in

