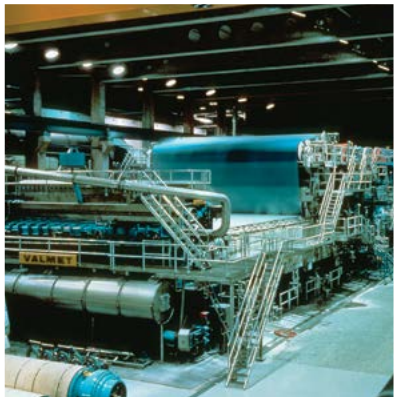
SKF Flowline Monitor

Turbine flow meter for precise flow rate and temperature monitoring in oil circulation lubrication systems

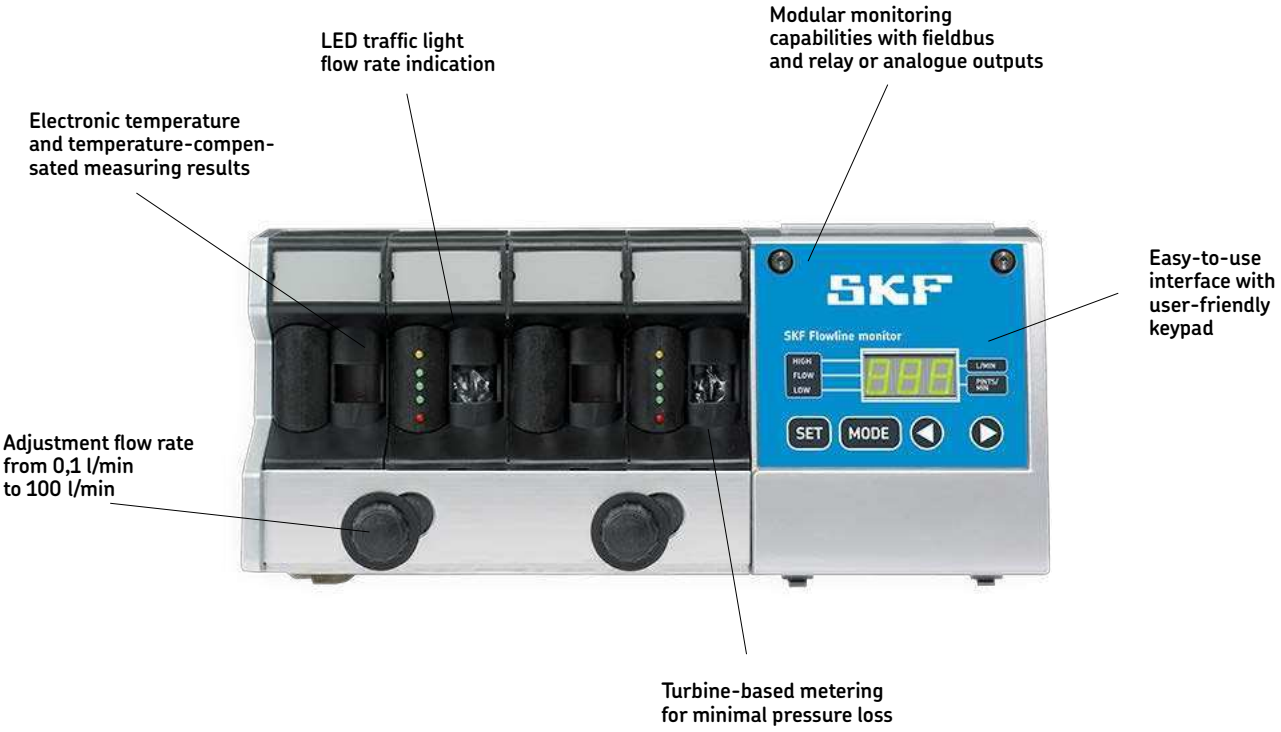
- Lubrication oils
  32 to 1 000 mm²/s
- up to 16 bar
  (232 psi)
- 0 to +65 °C
  (32 to 149 °F)
- 0,1 to 100 l/min
  (0.2 to 200 pt/min)
- NPT or BSPP
  outlet fittings
- Electronic temperature measurement



Applications

- Pulp and paper industry
- Mineral processing
- Metal industry
- Cement plans
- Power plants
- Mining

Product information



Description

The SKF Flowline Monitor is used to divide, measure and control the flow rate in oil circulation lubrication systems. Three different flow meter sizes enable control and monitoring of 0,1 to 100 l/min flows with operating viscosities from 32 to 1 000 mm²/s. The flow meters operate individually and can be programmed and adjusted separately. Regardless of oil temperature and viscosity changes, the SKF Flowline Monitor provides accurate results. Computer configuration and remote monitoring are possible. Monitoring modules are available offering common alarms, individual alarms for each lubrication point and interfaces to process controls.

Features and benefits

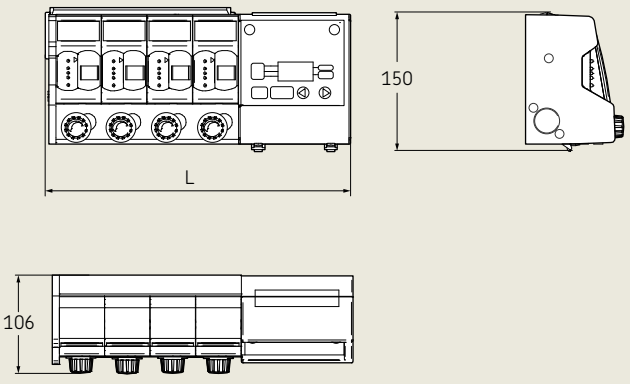
- Extended product service life due to improved adjustment valve surface coating
- Minimal pressure loss due to turbine-based monitoring and adjusting-valve technology
- Indication of flow accuracy of each lubrication point
- Modular monitoring capabilities
- Panel mounting possible
- Easy-to-use interface

Technical data

Function	turbine flow meter
Lubricant	mineral, synthetic or environmentally friendly oils with a viscosity of 32–1 000 mm²/s
Flow meters:	
FL15	2, 4, 6, 8, 10
FL50	1 or 2
FL 100	1
Flow rate:	
FL15	0,1–15 l/min; *0.2–32 pt/min*
FL50	15–50 l/min; *32–105 pt/min*
FL100	50–100 l/min; *105–210 pt/min*
Operating temperature	0 to + 65 °C; *+32 to 150 °F*
Operating pressure	max. 16 bar; *232 psi*
Power supply	20–36 V DC 24 V AC (-20 to + 5%)
Power consumption	5 W
Alarm relay	potential free contact; max. load 30 V DC / 1 A, 120 V AC / 1 A, resistive load
Inlet connection	
FL15	optional G1 or NPT1
FL50	optional G1 or NPT1
FL100	optional 2×G1 or 2×NPT1
Outlet connection	
FL15	optional G1/2 or NPT 1/2
FL50	optional G1 or NPT 1
FL100	optional G1 1/4 or NPT 1 1/4
Protection class	IP 65
Mounting position	upright

Drawings

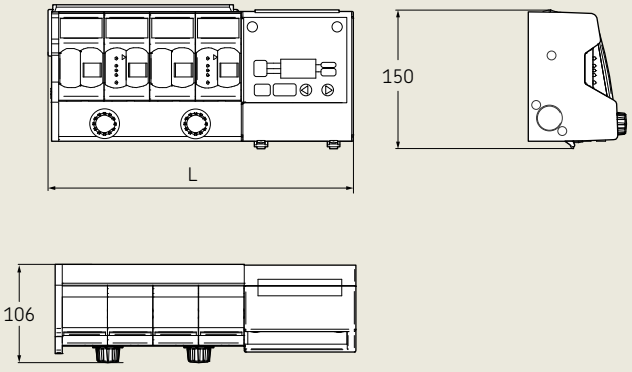
FL15



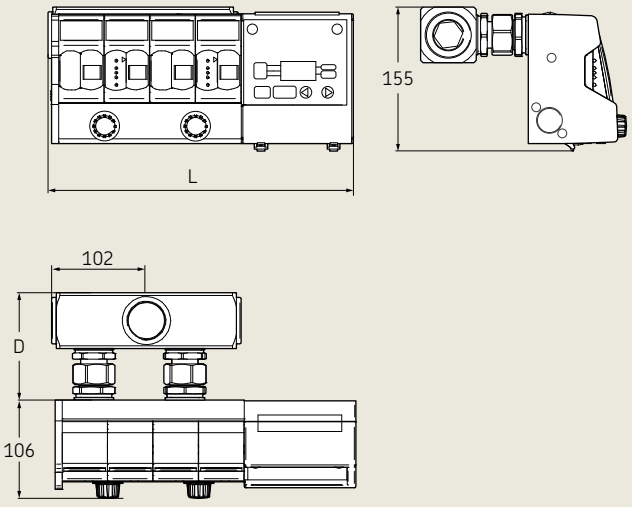
Dimensions

Flow meter type	L		D	
	mm	*in*	mm	*in*
FL15-02	226	*8,89*	–	–
FL15-04	324	*12,76*	–	–
FL15-06	422	*16,61*	–	–
FL15-08	520	*20,47*	–	–
FL15-10	618	*24,33*	–	–
FL50-01	226	*8,89*	–	–
FL50-02	324	*12,76*	–	–
FL100-01-R	324	*12,76*	116	*4,57*
FL100-01-U	324	*12,76*	124	*4,88*

FL50



FL100



Order information

Identification code

FL ____ – ____ – ____ – ____

Product series SKF Flowline Monitor

Product type

15 = FL15 **50** = FL50 **100** = FL100

Number of flow meters

01 = FL50 or FL100 with 1 single flow meter
02 = FL15 or FL50 with 2 flow meters
04 = FL15 with 4 flow meters
06 = FL15 with 6 flow meters
08 = FL15 with 8 flow meters
10 = FL15 with 10 flow meters

Connection thread

R = BSPP **U** = NPT

Interface card (optional)

CAN = CAN bus interface module **RCM** = Relay and CAN bus interface module **mA** = mA-output module

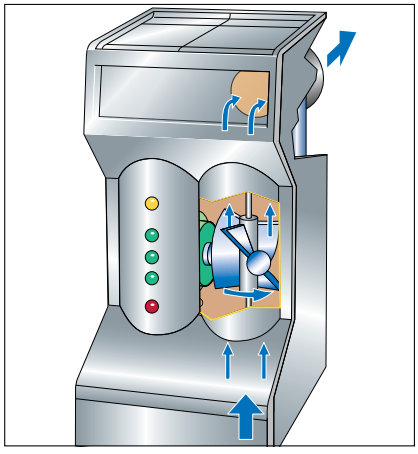
Flow meters with BSPP connection thread

Order number	Designation	Number of flow meters	Interface card
13120202	FL15-02-R	2	alarm relay output
13120204	FL15-04-R	4	alarm relay output
13120206	FL15-06-R	6	alarm relay output
13120208	FL15-08-R	8	alarm relay output
13120210	FL15-10-R	10	alarm relay output
13120300	FL50-R	1	alarm relay output
13120316	FL50-02-R	2	alarm relay output
13127800	FL100-01-R	1	alarm relay output
13120212	FL15-02-R-CAN	2	CAN bus module
13120214	FL15-04-R-CAN	4	CAN bus module
13120216	FL15-06-R-CAN	6	CAN bus module
13120218	FL15-08-R-CAN	8	CAN bus module
13120220	FL15-10-R-CAN	10	CAN bus module
13120310	FL50-R-CAN	1	CAN bus module
13120317	FL50-02-R-CAN	2	CAN bus module
13127808	FL100-01-R-CAN	1	CAN bus module
13120342	FL15-02-R-RCM	2	Relay & CAN bus module
13120344	FL15-04-R-RCM	4	Relay & CAN bus module
13120346	FL15-06-R-RCM	6	Relay & CAN bus module
13120348	FL15-08-R-RCM	8	Relay & CAN bus module
13120350	FL15-10-R-RCM	10	Relay & CAN bus module
13120312	FL50-R-RCM	1	Relay & CAN bus module
13120318	FL50-02-R-RCM	2	Relay & CAN bus module
13127802	FL100-01-R-RCM	1	Relay & CAN bus module
13120362	FL15-02-R-mA	2	analogue module
13120364	FL15-04-R-mA	4	analogue module
13120366	FL15-06-R-mA	6	analogue module
13120368	FL15-08-R-mA	8	analogue module
13120370	FL15-10-R-mA	10	analogue module
13120314	FL50-R-mA	1	analogue module
13120319	FL50-02-R-mA	2	analogue module
13127804	FL100-01-R-mA	1	analogue module
13120180	FL-100 OUTLET BLOCK G1 1/4	–	–

Flow meters with NPT connection thread

Order number	Designation	Number of flow meters	Interface card
13120222	FL15-02-U	2	alarm relay output
13120224	FL15-04-U	4	alarm relay output
13120226	FL15-06-U	6	alarm relay output
13120228	FL15-08-U	8	alarm relay output
13120230	FL15-10-U	10	alarm relay output
13120320	FL50-U	1	alarm relay output
13120336	FL50-02-U	2	alarm relay output
13127810	FL100-01-U	1	alarm relay output
13120232	FL15-02-U-CAN	2	CAN bus module
13120234	FL15-04-U-CAN	4	CAN bus module
13120236	FL15-06-U-CAN	6	CAN bus module
13120238	FL15-08-U-CAN	8	CAN bus module
13120240	FL15-10-U-CAN	10	CAN bus module
13120330	FL50-U-CAN	1	CAN bus module
13120337	FL50-02-U-CAN	2	CAN bus module
13127810	FL100-01-U-CAN	1	CAN bus module
13120352	FL15-02-U-RCM	2	Relay & CAN bus module
13120354	FL15-04-U-RCM	4	Relay & CAN bus module
13120356	FL15-06-U-RCM	6	Relay & CAN bus module
13120358	FL15-08-U-RCM	8	Relay & CAN bus module
13120360	FL15-10-U-RCM	10	Relay & CAN bus module
13120331	FL50-U-RCM	1	Relay & CAN bus module
13120338	FL50-02-U-RCM	2	Relay & CAN bus module
13127812	FL100-01-U-RCM	1	Relay & CAN bus module
13120372	FL15-02-U-mA	2	analogue module
13120374	FL15-04-U-mA	4	analogue module
13120376	FL15-06-U-mA	6	analogue module
13120378	FL15-08-U-mA	8	analogue module
13120380	FL15-10-U-mA	10	analogue module
13120334	FL50-U-mA	1	analogue module
13120339	FL50-02-U-mA	2	analogue module
13127816	FL100-01-U-mA	1	analogue module
13120182	FL-100 OUTLET BLOCK NPT1 1/4	–	–

Energy efficient and accurate operation



User-friendly keypad

The SKF Flowline Monitor's keypad is easy to operate. Flow rates and settings can be viewed on the digital display. All settings can be adjusted using the keypad.

Traffic light feature

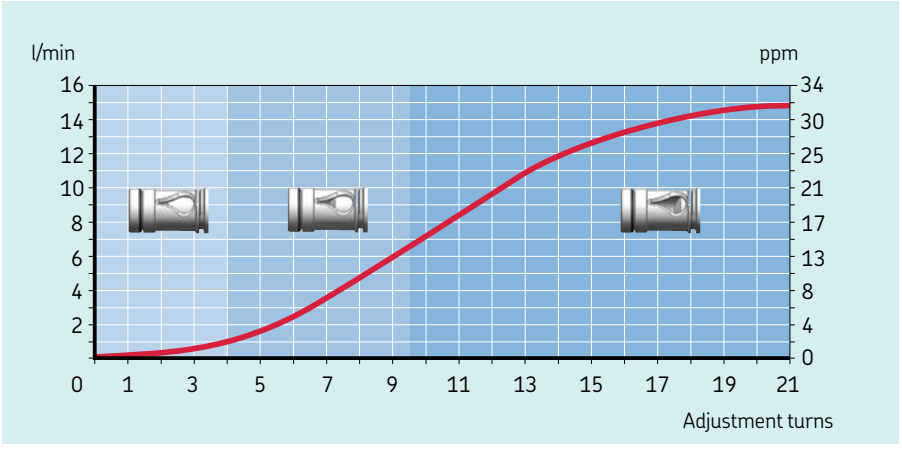
The LED indicators in the flow meters show a visual indication of oil flow volume. Any deviation from set point can be detected by the different LED indicator colours.

Red indicates that the flow rate is below the low alarm-limit value and yellow indicates that the flow rate is above the high alarm-limit value. When the green LED indicators are on, the flow rate is within tolerance. This makes it possible to control the system visually in the production facility during routine control checks without the necessity of using the keypad.

Control valve and adjustment range

The special design of the control valve, together with a sensitive turbine, provides an excellent adjustability over the entire flow range.

Flow control valve



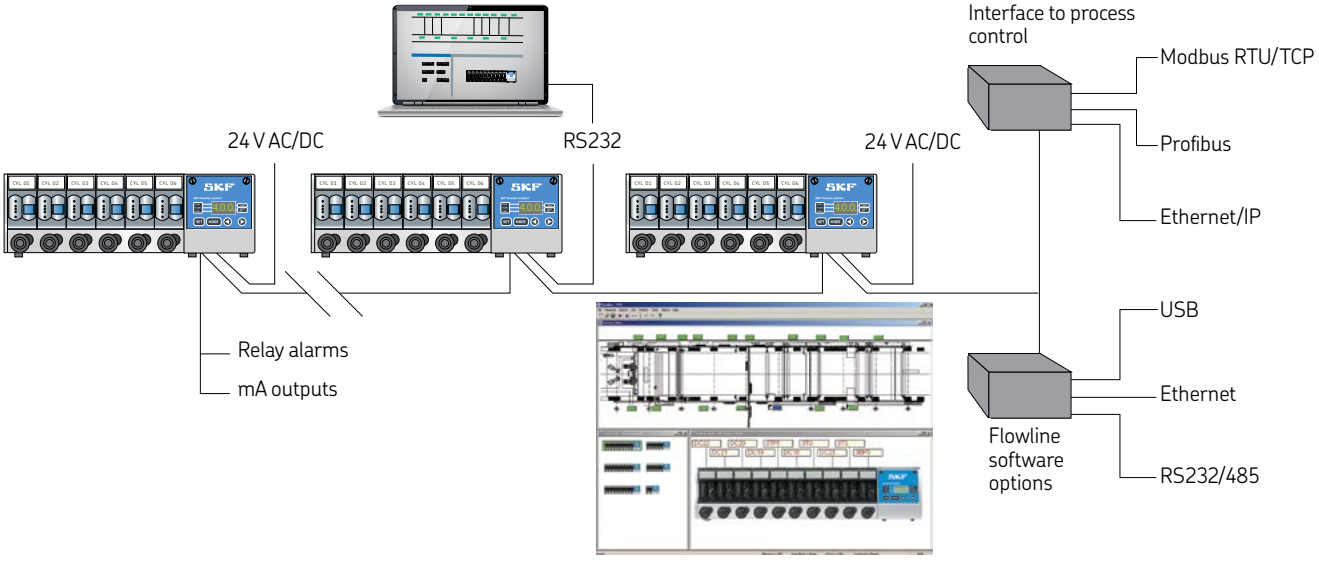
Flow curve

Modular system to meet individual monitoring requirements

A standard SKF Flowline Monitor includes one common alarm, which is included in basic FL group electronics. In addition to the standard version, optional modular interfaces make it easy to choose the right monitoring options for your solution:

- CAN module with CAN bus connections
- Analogue module with 4-20 mA output for each lubrication point
- RC module with combined relay and CAN bus connections (RCM)

There is a reserved slot for this optional module in all SKF Flowline Monitor models: FL15, FL50 and FL100.

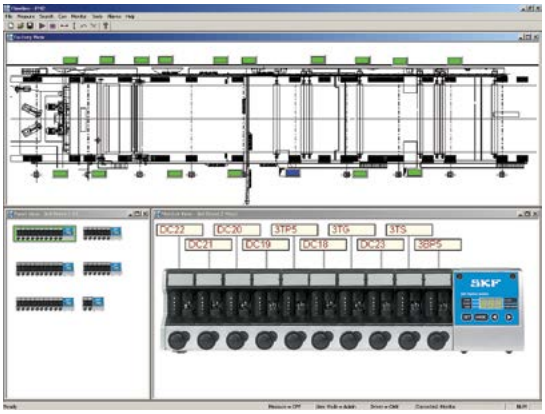


Software

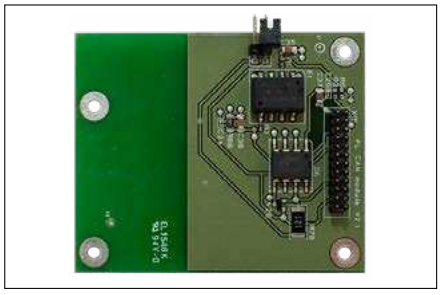
The Windows-based SKF Flowline Software is the user interface for the centralized control system. With SKF Flowline Software, the user can monitor and control the operation of the measuring system, display flow rates and alarms, and modify settings such as flow rate alarm limits of flow meters. SKF Flowline Software collects continuous flow rate data, oil temperature and alarm trends.

SKF Flowline software also can be used for servicing and configuration of a single SKF Flowline Monitor. To accomplish this, a laptop with serial port is then needed.

Flow rate data and flow meter status information can be transmitted to the user's local control system through a built-in DCS-interface.



CAN module



The CAN bus interface is used for connecting the monitors to remote control and monitoring systems. Various fieldbus alternatives are available for connecting to customer's DCS systems by using standard CAN/Fieldbus gateways:

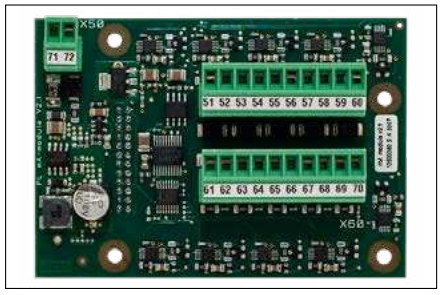
- Modbus RTU
- Modbus TCP
- Profibus
- Ethernet/IP

SKF Flowline Hub and Flowline Software can be used with CAN bus interface to build a stand-alone, PC-based control and monitoring system.

Applications:

- Systems where one or several lubrication points must be monitored individually or are located in a wide area
- Paper machine dryer sections, etc.

Analogue module with 4–20 mA

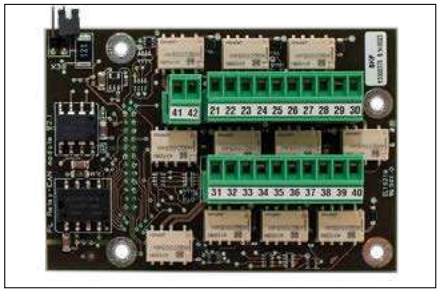


A FL mA module is a plug-in interface board for the SKF Flowline Monitor. It features 10 independent channels for low-rate-dependent, scalable analogue output of each flow meter. The power supply and current loops have galvanic isolation from the supply voltage of the Flowline Monitor.

Applications:

- Systems where only a few lubrication points must be monitored
- Analogue output is required
- Fans, pumps, etc.

RC module



The relay and CAN module (RCM) provides CAN bus communication, individual flow meter alarms or specified common alarms, depending on the operational mode selected by the user:

- Individual alarm relay for a maximum of 10 flow meters
- Two individual alarm relays for a maximum of 5 flow meters
- Common alarm relays for all flow meters with 7 different relay operations, including no-flow information

Applications:

- Systems where one or several lubrication points must be monitored individually or are located in a wide area
- Relay and fieldbus communication is required
- Paper machine dryer sections, etc.

Mounting options

Supply piping assembly

Legs | Wall brackets | Hood mounting

- Easy and flexible panel installation with optional legs, wall brackets or hood mounting frame
- Many standard panel sizes for up to 60 lubrication points
- Plexiglass cover protects flow meters
- Panel material is stainless steel AISI316
- Options: Supply piping assembly, hinges to plexiglass cover, lock and light

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