

System 20



System 20

Features & Benefits

Covering a wide range of flow rates, fluid types and applications, Parker's System 20 sensors are designed to be used with System 20 electronic or analogue monitors, contamination monitors and the H₂Oil. Specially developed System 20 sensors are available for use with aggressive fluids. (EPDM Seals)

- System 20 monitors, combined with the inline sensor, give the user accurate and instant readings of flow, pressure and temperature without the need to shut down the system.
- For use with all mineral oils, water and water/oil emulsions.
- **Analogue Monitor** utilises 3 Day-Glo dial gauges with a protective hinged cover.
- Calibrated up to 380 l/min with dual scale bar/psi & °C/°F. (US GPM also available)
- **EM20 Electronic Monitor** gives a full digital display.
- Automatically calibrated for all 3 sizes of sensor.
- Indicates line, differential and rising peak pressure.
- Easily scrolled from metric to US.
- 300 test memory.
- Capable of downloading saved data to datum.



Typical Applications

- Drilling equipment
- Mining
- Grinding and conveying
- Industrial hydraulics
- Mobile

Hydraulic system users need to ensure that lost production is kept to the absolute minimum. To ensure this, predictive maintenance and therefore routine condition monitoring of major components is essential.

System 20 inline sensors remain at the heart of condition and contamination monitoring. Whether you're mining the coal, building the new bypass, harvesting the crops, crossing the oceans or drilling offshore – whatever the industry, System 20 represents the premier system monitoring available today.



Specification: Sensors

Construction:

Machined steel body. Electroless nickel coating to minimum depth of 40 microns
Brass/stainless steel internal components

Flow capacities:

All suitable for use with oil, water and water/oil emulsion

Size 0 – 6-25 l/min (0.5-7US GPM)

Size 1 – 20-100 l/min (1.5-26 US GPM)

Size 2 – 80-380 l/min (5-100 US GPM)

Max. working pressure:

420 bar (6000psi)

Capability:

Reverse flow

Pressure drop:

At max. rated flow, Δp is 1.1 bar (mineral oil fluid at 30 cSt 140 SSU).

Ports:

Size 0 – G³/₈
Size 1 – G³/₄
Size 2 – G1¹/₄ } (SAE threads also available)

Repeatability:

±1% FSD

Accuracy:

Flow ±2.5% full scale deflection

Weight:

Size 0 – 0.5kg (1.2lbs)

Size 1 – 3.5kg (8.4lbs)

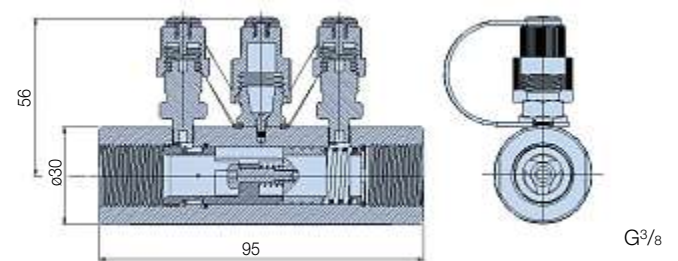
Size 2 – 4.4kg (9lbs)

Aggressive Fluid Applications:

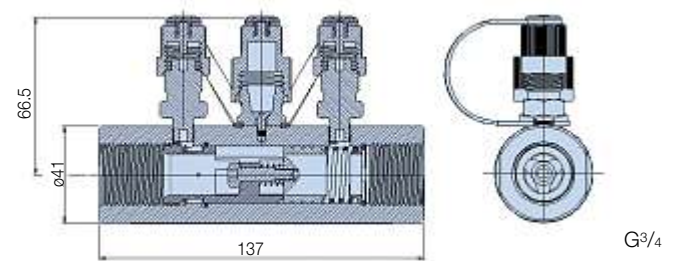
EPDM internal/external 'O'-rings and seals

Installation Details

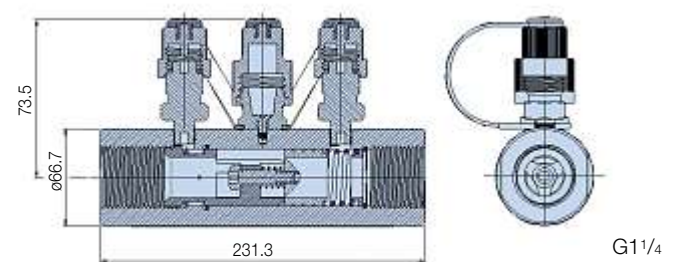
Size 0 Sensor



Size 1 Sensor



Size 2 Sensor



Ordering Information

Standard products table

| Product number | Supersedes | Size | Flow range l/min | Fluid type | Port threads |
|-------------------|--------------|------|------------------|------------|--------------|
| STI0144100 | STI.0144.100 | 0 | 6-25 | Mineral | 3/8 |
| STI1144100 | STI.1144.100 | 1 | 20-100 | Mineral | 3/4 |
| STI2144100 | STI.2144.100 | 2 | 80-380 | Mineral | 1 1/4 |
| STI0148100 | STI.0148.100 | 0 | 6-25 | Aggressive | 3/8 |
| STI1148100 | STI.1148.100 | 1 | 20-100 | Aggressive | 3/4 |
| STI2148100 | STI.2148.100 | 2 | 80-380 | Aggressive | 1 1/4 |

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.

Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Note 3: Mobile Sensors are also available - Contact Parker

System 20

A drilling equipment operation in a zinc mine has had System 20 installed for several years.

System 20 Saving £50,000 Pump Damage

Installing System 20 was part of a major restructuring plan to improve mining effectiveness and profitability. Machine operator training and oil storage operative training were essential elements of the plan. Prior to this investment, pump terminal damage could cost £10,000 for a replacement, over £1000 service costs and up to £39,000 in lost production. Add to this the difficulties of the mine's geography and it's easy to see the problems that have now been overcome.

System 20 Electronic Monitor

With System 20 inline sensors installed in a hydraulic system, faults can be predicted and remedied, all you have to do is connect the System 20 Electronic Hand Held Monitor (EM20). Designed to display flow, temperature, differential, rising peak and line pressure, System 20 Electronic can also calculate hydraulic power (kW and hp.) at a given point in a system to establish efficiency and power consumption.

System 20 electronics versatility does not end there. The EM20 is automatically calibrated for all System 20 inline sensors using water or oil and can display in l/min, US GPM, bar, psi and kg/cm².



Battery powered and completely portable, the EM20 displays readings on the LCD and can store under a test number. Data can be downloaded via an RS232 connection to Datum. A sealed keyboard and fingertip control make the unit maintenance free and simple to use anywhere.

System 20 -The Key To Predictive Maintenance

The risk of fluid contamination by intrusive test devices is eliminated. Using System 20 Sensors and the monitor together, hydraulic fluids need never be disturbed. The monitoring procedure takes only a matter of minutes. With one System 20 monitor a user can check a complete fleet of vehicles or a factory full of hydraulic plant equipment. Predicting a problem means it can be put right as part of a planned maintenance programme. Simple routine monitoring with System 20 keeps machines running at a high level of operational efficiency.

System 20 Saving £325,000 A Day Lost Production

The mining industry puts a considerable demand on hydraulics and there are others such as agricultural machinery, harvesters or tractors and, for example, cement manufacturing plants that are equally demanding of hydraulic efficiency.

A grinding and conveying plant processes in excess of 1000 tons of ore per day in the manufacture of cement products. A days lost production costs £32,000. After one year of operation the Plant Engineers decided to invest in System 20 equipment, strategically placed to allow the Engineers to 'fault-find' the major components quickly and easily. The result is that downtime and loss of production have been reduced by 80%.



System 20 -The Proven System

For operators of industrial and mobile machinery who recognise the benefits of installing System 20 in a hydraulic system, the System 20 hand-held analogue monitor offers significant advantages, particularly in intrinsically safe applications. Like the System 20 electronic, the analogue monitor is completely portable and can be connected immediately to a purpose-designed inline System 20 sensor but requires no power source.

The analogue monitor will then - provide the user with an accurate and repeatable analysis of system flow, pressure and temperature - without having to stop the machine.

Designed as a sealed assembly requiring no routine maintenance or adjustment, analogue monitors are suitable for use with all mineral oils, water/oil emulsions and water.



The lightweight monitor has 3 dayglo dial gauges and features a protective hinged cover. The flow scale features double scale calibration - up to 100 l/min and 380 l/min and has excess flow and reverse flow indication.

Electronic Monitor Specification

Construction:

A sealed assembly requiring no routine maintenance or adjustment. Body moulding in Acrylonitrile Butadene Styrene (ABS). Key pad moulded in silicon rubber. The monitor is suitable for use with all mineral oils, water and water/oil emulsions.

LCD details

Flow section:

The analogue flow scale has reverse flow and overflow indication and provides a percentage reading of the digital full scale display automatically calibrated for all sizes of System 20 Sensor.

Pressure section:

Designed to indicate line pressure, differential pressure and rising peak pressure. Connected to a System 20 Sensor it will monitor pressure up to 420 bar (6000 psi) with an accuracy of $\pm 1\%$ FSD.

Temperature section:

Temperature reading between -10°C and $+110^{\circ}\text{C}$ (0°F to 230°F).

Dimensions:

The ABS Case is 291mm (11.46") long, 105mm (4.13") wide and 76mm (3") deep overall.

Weight:

1.4kg (3lbs).

Data logging:

Each test logs the following data:

Test number; time & date; sensor size; media tested; flow rate, pressure & temperature.

Data download:

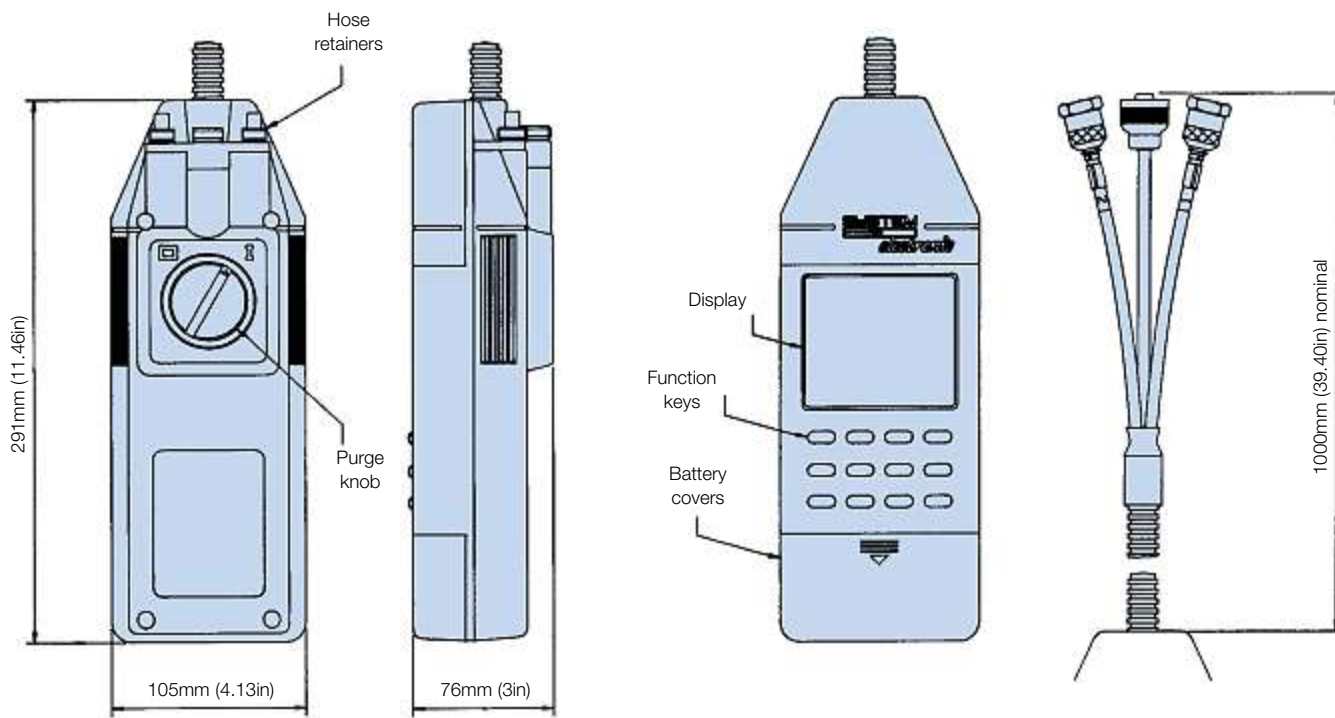
The System 20 electronic monitor is capable of downloading saved test data to a 16 column serial printer, or a compatible PC via an RS232 connection using datum.

Batteries:

6 x AA batteries.

Re-calibration:

Annual certification by an approved Parker Service Centre.



Ordering Information

Standard products table

| Product number | Supersedes | Description |
|-----------------|------------|----------------------------------|
| EM209000 | N/A | System 20 electronic monitor |
| B84779 | B.84.779 | Datum download software |
| P653607 | N/A | Monitor and sensor carrying case |
| B85617 | B.85.617 | Dongle and cable assembly |

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Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

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Analogue Monitor Specification

Construction:

A sealed assembly requiring no routine maintenance or adjustment. Body moulding in Acrylonitrile Butadene Styrene (ABS). The monitor is suitable for use with all mineral oils, water and water/oil emulsions. The monitor has 3 dayglo dial gauges and features a protective hinged cover.

Gauge details

Flow section:

The flow scale has double scales for size 1 and 2 sensors only. Calibrated up to 100 l/min (26 US GPM) and 380 l/min (100 US GPM). The flow dial has excess-flow indication.

When the system is in reverse flow or when the high pressure lines to the sensor have been transposed, a 'below zero' indication is given.

Pressure section:

Dial readings in both bar and psi up to 420 bar (6000psi).

Temperature section:

The temperature dial gives readings between -10°C and +110°C (0°F to 230°F).

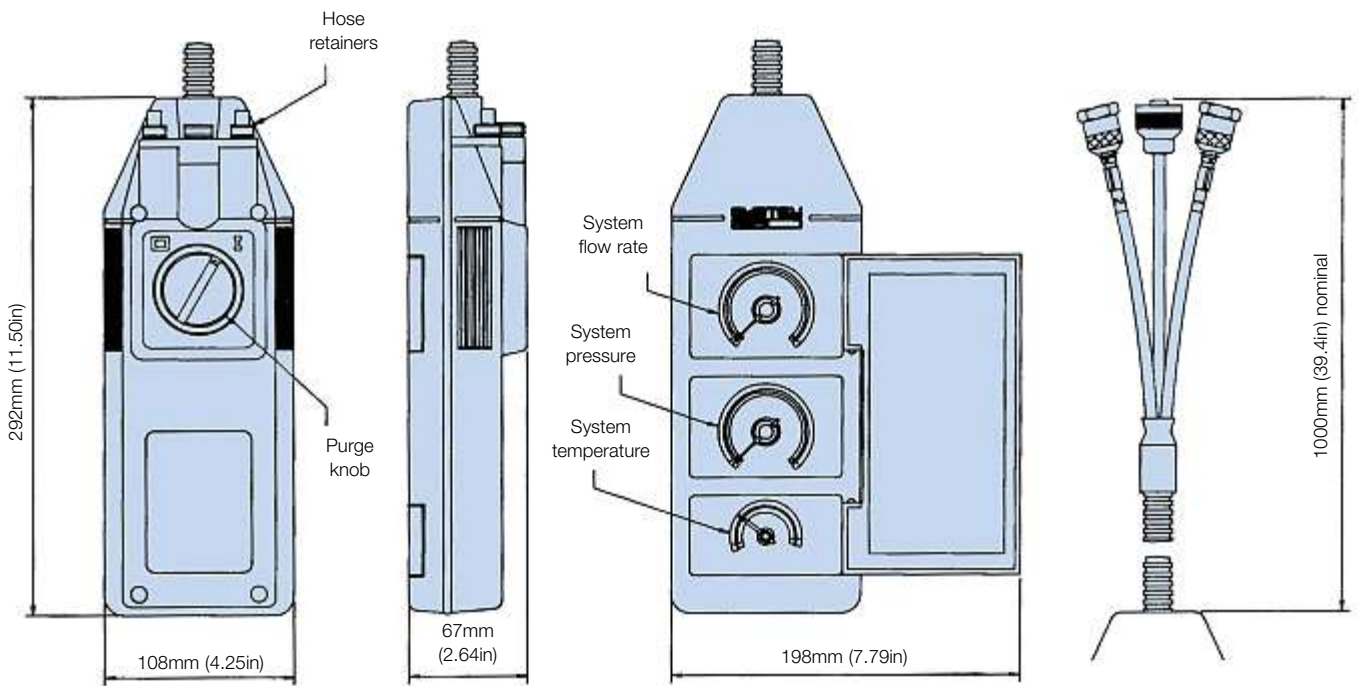
Dimensions:

The ABS Case is 292mm (11.5in) long, 108mm (4.25in) wide and 67mm (2.64in) deep overall.

Weight:

1.4kg (3lbs).

A viscosity chart is provided for mineral oil applications where monitoring is required at variable viscosities (cSt).



Ordering Information

Standard products table

| Product number | Supersedes | Media type | Flow readings | Pressure readings | Temperature readings |
|-------------------|--------------|------------|---------------|--------------------|----------------------|
| STM6211110 | STM.6211.110 | Oil | l/min | Dual scale bar/PSI | Dual scale °C/°F |
| STM6611110 | STM.6611.110 | Oil | US GPM | Dual scale bar/PSI | Dual scale °C/°F |
| STM6211120 | STM.6211.120 | Water | l/min | Dual scale bar/PSI | Dual scale °C/°F |
| STM6611120 | STM.6611.120 | Water | US GPM | Dual scale bar/PSI | Dual scale °C/°F |

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Accessories

| Product number | Description |
|----------------|----------------------------------|
| P653607 | Monitor and sensor carrying case |
| P653106 | Metal sensor protective cap |