

### Installation and Adjustment Instructions

Please read carefully: No liability can be accepted for damage caused by improper use of the captor.

#### 1.0 General

flow-captor system 4205/4053.31 monitors the velocity of flow in pipes and the temperature of the flowing medium. The system is calibrated to the specified medium oil: Shell Diala D, the flow measurement range is between 0 - 400 cm/s, the temperature measuring range is between -20 °C and +100 °C.

The sensor system consists of a flow-captor sensor and the signal transducer which are connected by means of a plug/socket.

The flow-captor 4205 contains the sensor elements for flow and temperature.

The electronics unit contains signal processing including the calibrations elements.

#### 2.0 flow-captor

##### 2.1 Flow Sensor Element

The flow sensors are selected, calibrated temperature differential sensor elements which, together with the sensing wall, form a functional unit. The sensor elements are thermally defined onto the sensing wall which consists of non-corrosive stainless steel. The temperature difference is regulated by the switching of the signal transducer.

##### 2.2 Temperature Sensor Element

The temperature sensor element is a semi-conductor thermal resistor.

#### 3.0 Signal Transducer

##### 3.1 Flow Monitoring Section

The electronics of the flow-captor flow sensor system pick up the temperature difference signal and regulate the necessary thermal capacity necessary for determining a constant temperature difference. The actuator is pulse width modulated in order to reduce the heat loss.

The amount of heat energy transmitted to the sensor element is measured. The flow information derived from this is fed to the output stage which adapts the flow information to the required output signal.

##### 3.2 Temperature Monitoring Section

The electronics of the temperature section measure the non-linear signal of the sensor element, linearise it and produce from it the required output value.

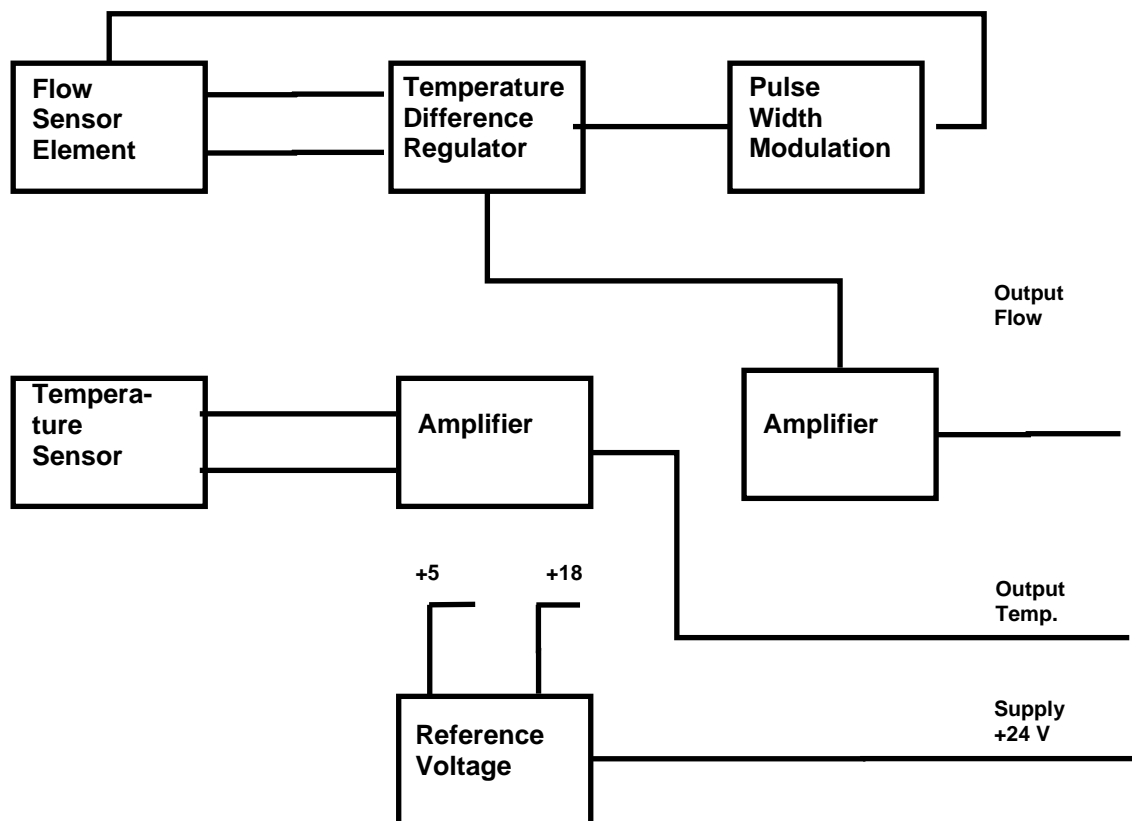
##### 3.3 Power Supply Section

The power supply section contains the reverse battery protection and produces the necessary reference voltages for the sensor circuits.

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### Block Diagram



**flow-captor**  
Type 4205

**Signal Transducer**  
Type 4053.31

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### 4.0 Installation

- 4.1 The flow-captor system consists of a flow sensor and a signal transducer. Both units have the same engraved serial number. Only corresponding numbers should be connected with each other.
- 4.2 The flow-captor sensor type 4205 has a conical shape and must be fitted into the suitable fitting. The sensor will be held in position by a M36x2 nut (SW41).
- 4.3 Installation depth of the sensing surface into the pipe should be min. 5 mm ( for smaller pipes). The most favourable depth for other pipe sizes is 1/7th of the inner pipe diameter (e.g.: 9 mm ±1 mm by pipe ID 65 mm).
- 4.4 The flow-captor sensor will be sealed by an O-ring. The O-ring is part of the delivery.
- 4.5 When installing the flow-captor avoid any twisting of the sensor cable (shielded cable).
- 4.6 The transducer housing, type 4053.31, should be installed in such a way that unnecessary twisting of the sensor cable is avoided when connecting with the plug. A drilling diagram accompanies each unit in order to simplify installation.

