



HELSINKI, FINLAND, 2015

## Digital Flow Meter

**STARDEX™ 0104**



## Security information.

Read this manual carefully before using STARDEX 0104 (The Device).

The device must be powered only with power supply from the delivery kit.

Getting the electrical charges on device body is strongly prohibited!

Ingress of moisture inside the device is strictly unacceptable!

Device enclosure is designed to protect components from mechanical impacts during normal use. Avoid damage of body, front and rear panels, don't drop the device and don't put heavy objects on the top of it.

In case of any sign of device defect, like smoke, sparks, and unusual smell or sound, coming from the device, switch it off and unplug immediately, then contact nearest STARDEX service center.

Only cables included in delivery kit must be used and they must not be damaged.

It is strictly prohibited to open the enclosure because there are no self-repairable parts inside.

Incorrect usage may damage device or injure the operator.

The device must always stand on the rubber props, attached to the bottom of the enclosure.

## Technical data and operation requirements.

Dimensions	300x474x134,5 mm
Power supply	220V ± 10%
Power consumption	10 W
Temperature requirements	from -10 <sup>0</sup> C to + 50 <sup>0</sup> C
Humidity	no more 90% at 25 <sup>0</sup> C

**Filters with screening of maximum 40 mkm must be used to avoid getting particles inside the measuring unit.**

**Measuring of pump flows in the range from 0.1 l/min to 2.5 l/min on each channel with tolerance less than 3%.**

**Measuring of injector flows from 0.001 l/min to 0.8 l/min on each channel with tolerance less than 3%.**

**The temperature of test fuel, running through the device must be in the range between +15 C° and +90°C.**

**Flow sensors are extremely sensitive to the ingress of foreign matter (dirt, chips, e.t.c). Even a small amount of foreign matter can permanently damage the flow sensor. The use of filters at the inputs of the device is absolutely necessary. The user is responsible for the cleanliness of the test fluid and the timely replacement of filters. The guarantee does not apply to the flow sensors. Possible repair or replacement is carried out by the user.**

## **General description.**

Flow Meter STARDEX 0104 is designed to test Common Rail fuel pumps and injectors by various manufacturers such as Bosch, Delphi, Denso, Siemens, Caterpillar and others on a test bench.

STARDEX 0104 is a 10-channel flow meter, that measures delivery and backflow of one pump and up to four injectors in different operations.

STARDEX 0104 can work with third-party pulses simulators (requires optional laptop with STARDEX software) as well as in tandem with STARDEX 030x.

In the device there are four channels to measure injector delivery flow, four channels to measure injector recovery flow, one channel to measure pump delivery flow and one channel for measuring pump backflow.

Flows may be measured in liters per hour and liters per minute on the operator choice.

When using STARDEX 0104 in tandem with STARDEX 030x, it is possible to measure the cyclic supply for the required number of cycles (required to connect the RPM sensor to STARDEX 030x).

**STARDEX 0104 is connected to STARDEX 030x series via USB interface. This kind of hardware configuration highly facilitates operator's job. STARDEX 030x automatically receives injectors and pump delivery and reflux measurement results and makes the test report.**

**Also with this kind of connection, an extra feature becomes available: STARDEX 030x becomes able to perform Delphi and Denso injectors coding.**

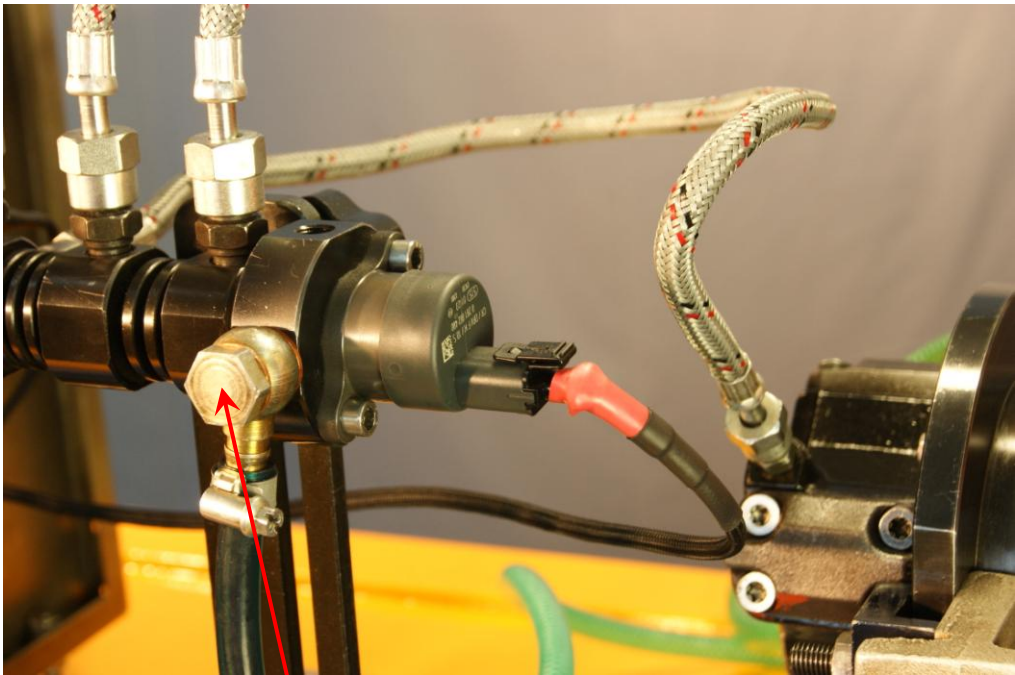
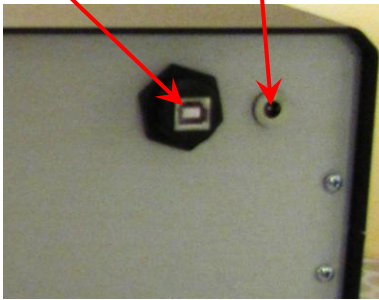
Connection and use of the device.

Injector backflow inlets	Total discharge from the pump	Total discharge from the injectors
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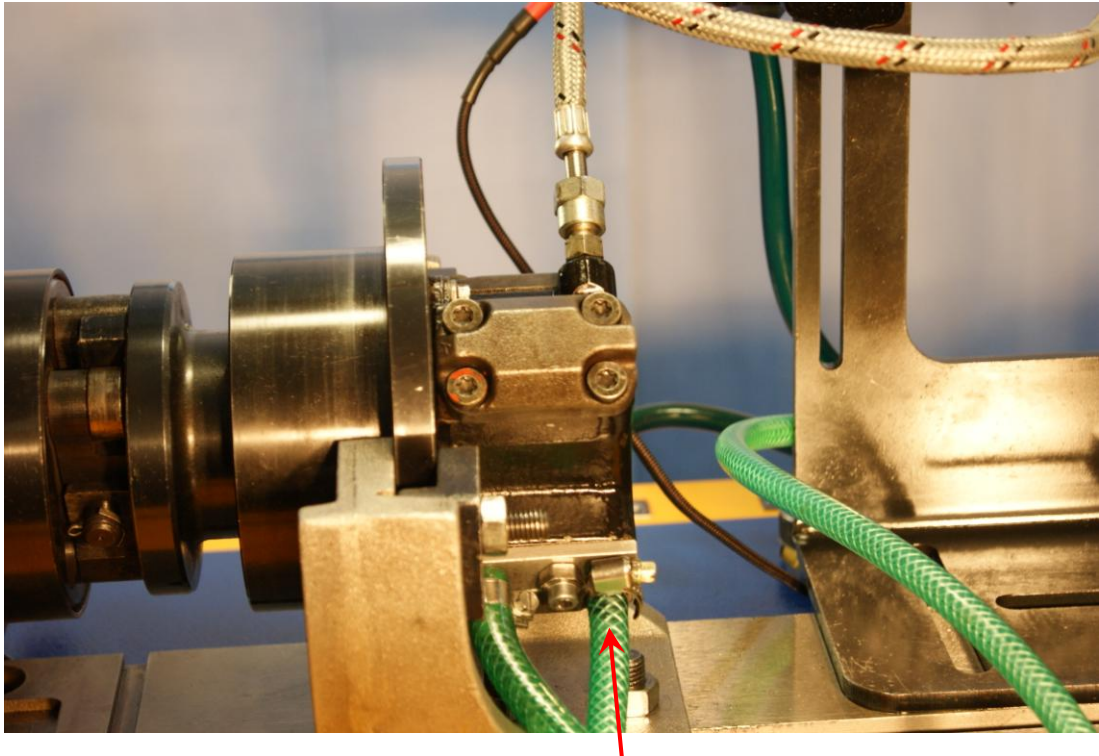


Injector delivery inlets	Pump delivery inlet	Pump recovery inlet
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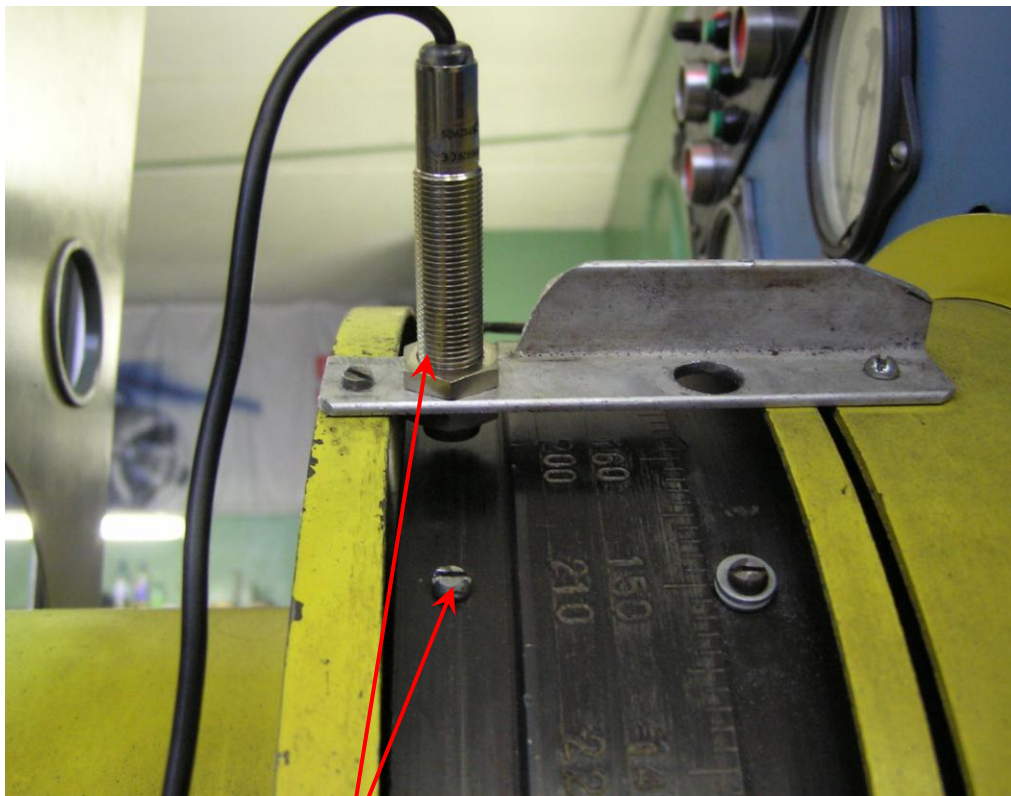
USB	Power supply connector
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Rail pressure regulator backflow connection
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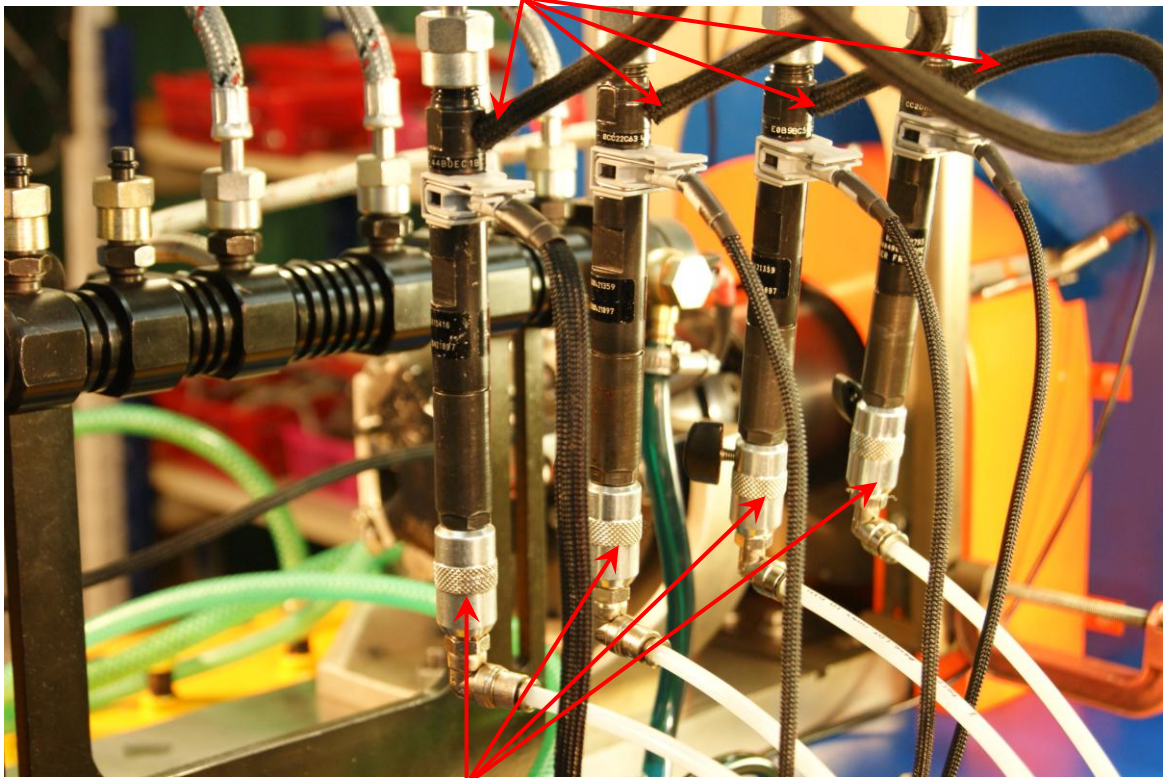
CRpump recovery connection



RPMsensor and sensing element



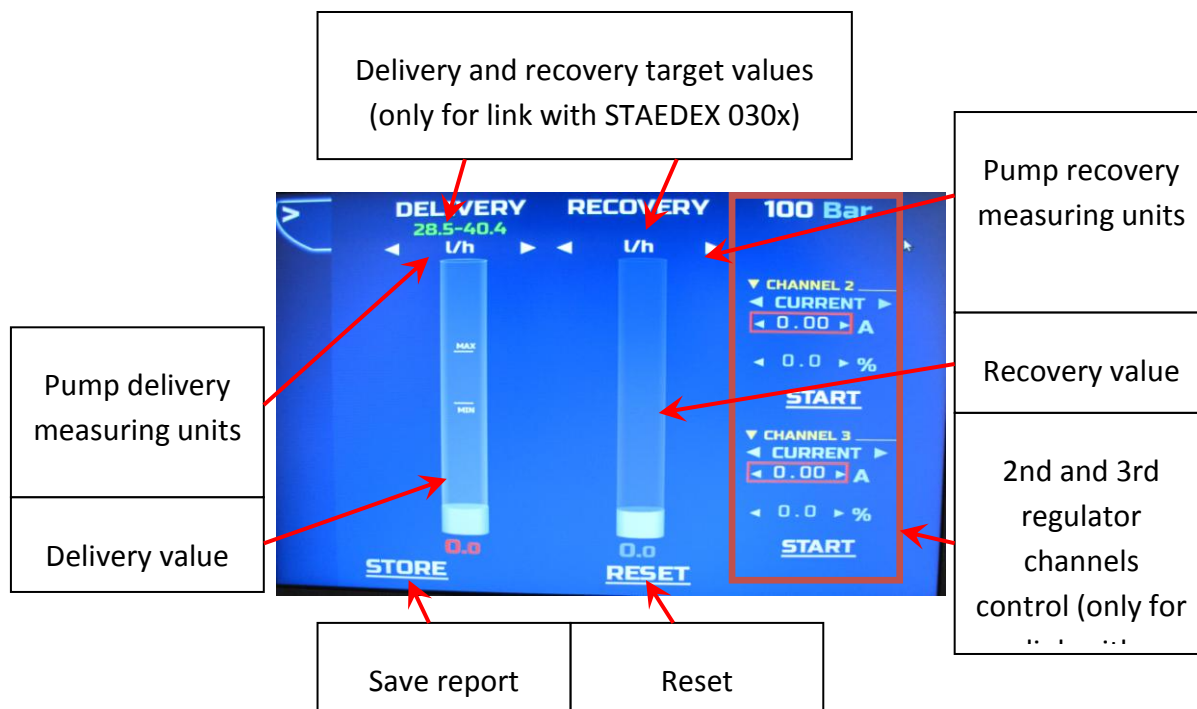
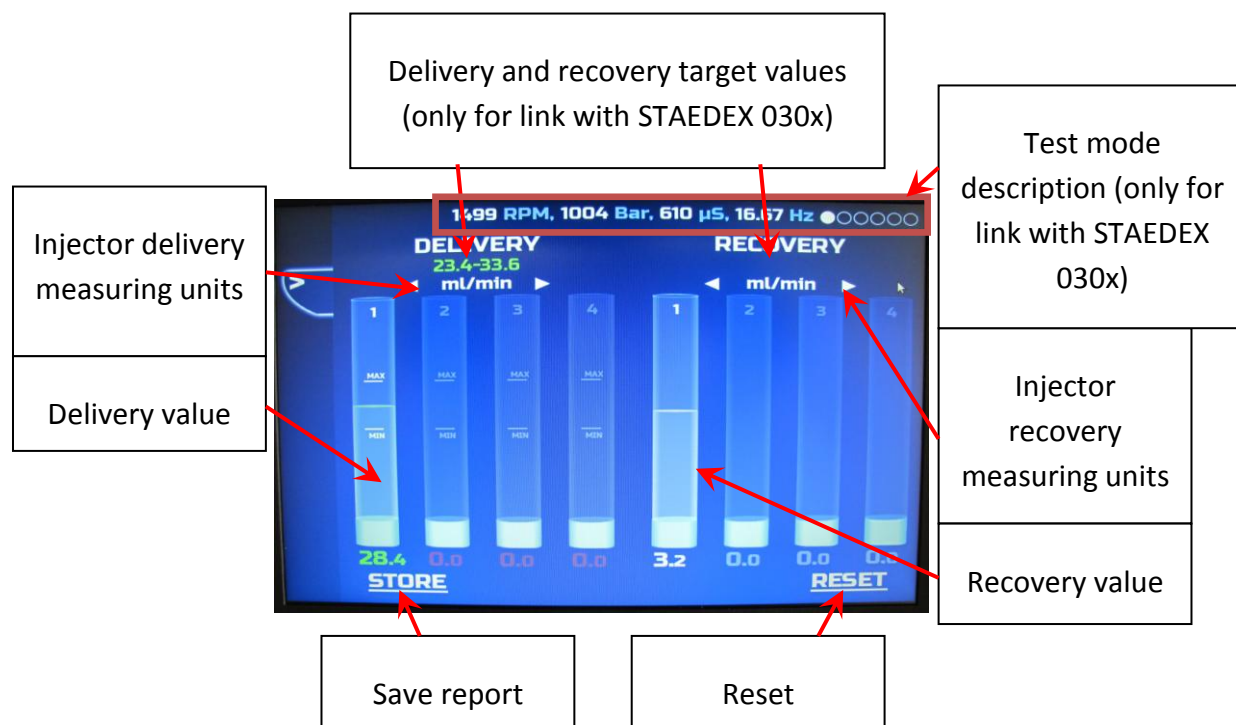
Injectors recovery lines



Injector delivery lines

- Connect rail pressure regulator backflow to Pump DELIVERY Inlet of STARDEX 0104.
- Connect recovery of the pump, being tested, to the Pump RECOVERY Inlet of STARDEX 0104.
- Connect nozzles of injector, being tested, to Injector DELIVERY Inlets of STARDEX 0104.
- Connect recovery lines of nozzles to Injectors RECOVERY Inlets of STARDEX 0104.
- Connect Pump OUTLET and Injectors OUTLET of STARDEX 0104 to the test bench test fuel tank.
- Connect STARDEX 0104 to a laptop where STARDEX software installed or connect it to STARDEX 030x via USB cable.
- To measure the cycle supply, connect the RPM sensor to STARDEX 030x. Install RPM sensor and sensing element on the bench. The gap between the sensor and the sensing pin must not exceed 4 mm.
- Connect power supply unit to the connector on the rear panel of device.
- Device is ready to use.

## Interface description and operation of device.



To start working with the device, just run the pump or injectors test and open measurement from the menu on the right side of the screen.

Using STARDEX 0104 you can measure delivery and recovery of injectors and pump in various modes as follow:

- ml/hour
- ml/min
- ml/beats (only for link with STARDEX 030x)

Press the reset to start metering delivery and return. To save the test results in a report click store.

## Delivery kit.

STARDEX0104	1 pc.
Power supply unit with cable and connector	1 pc.
Fuel filter	8pc.
Fuel tube $\varnothing$ 6 mm	12 m.
Fuel tube $\varnothing$ 8mm	6 m.
Fuel tube $\varnothing$ 10mm	6 m.
Fast connectors for fuel tubes $\varnothing$ 6 mm	8 pcs.
Fast connectors for fuel tubes $\varnothing$ 8 mm	2pcs.
Fast connectors for fuel tubes $\varnothing$ 10 mm	2pcs.
Technical description	1 pc.

Equipped with optional RPM sensor if supplied with STARDEX 0304





## Warranty and technical support.

The equipment has 1 year warranty. The manufacturer is not responsible for the damage, due to violation of the operation terms, misuse including unskillful or mistaken personnel actions and if there are traces of mechanical impact. **The guarantee does not apply to the flow sensors.** Post-warranty service of device is performed at cost components and the work. The manufacturer reserves the right to design modifications and equipment without advance notice.

## Shipping details.

Weight 12 kg.

Length 600 mm.

Width 400 mm.

Height 300 mm.

## Manufactured by:

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