IPER-PVP-VISION

Measuring, storage and control device for injection parameters of up to 8 injectors

IPER-PVP-VISION is a system for the measuring, storage and control in the soil consolidation process with concrete injections; the system can control up to a max of 8 injectors.
The system has the dual function of automatically controlling the injectors and of measuring/supplying the characteristic parameters by which the injection has been carried out for following static control analyses.
For each concrete injector, the device allows to measure and store the following parameters:

Parameters measured	Plant Management
Injected mixture pressure	Injector START-STOP automatic control
Injected mixture instantaneous flow rate	HIGH-LOW pressure automatic control
Injected mixture volume	Proportional valve automatic management with PWM signal
Valve or sheath breakage pressure	Proportional valve automatic management with analog signal
Max. pressure in low pressure phase	Pressure controlled injection, max. volume and GIN automatic management
Final pressure	

IPER-PVP-VISION controls and operates simultaneously up to 8 jet pumps; the management can be **manual** (START-STOP) or **automatic** according to the achieved **limit of pressure** or **volume** or to the **Gin number** previously set up.
The system also allows to **manage** the switch from **high** to **low** pressure of each injector and the continuous adjustment of the injection instantaneous flow rate by controlling the **proportional valve** of the injector (if available).

IPER-PVP-VISION is equipped with a connector for the direct connection to a **GSM modem** for the **remote transfer of stored data**, the programming of working parameters and the service of **remote assistance**.

For each concrete injection, the system stores the name of the injection, the valve number, the mixture type, the duration of the operation, the date and time of the jet operation, as well as the number of the injector used, the default limit values (max. pressure, max. volume and GIN number), and the cause of the injection stop. The full-colour LCD displays the trend in time of the pressure and instantaneous flow rate for each ongoing jet operation or it allows to monitor simultaneously the state of 8 injectors with the values of flow rate, pressure, volume as measured in real time.

The data acquired and stored into the **IPER-PVP-VISION** can be downloaded by means of a simple USB memory support and can be transferred into any PC; here data can be displayed and made-up with the use of a simple readout, display and printing software to produce job reports which can meet all the building project needs.

Pressure sensor

Once the data have been transferred to the PC, by using the new generation and easy-to-use **VISUAL-SGD** software, it is possible to carry out a statistic analysis of stored data during the processing, execute quality controls over the production and **print out the recordings** with the typical graphs for each injection completed.
For most advanced analyses, the **Geo-INJ-Report management software** can also be used, which allows to store the data by sorting them per date of injection, jet operation, and type of mixture; by calculating the total volumes so injected, the total time of injection for operation and for injector divided according to the criteria of sorting selected.

The START-STOP control on each injector is given by an electric contact which switches on in phase of injector activation. The high-low pressure switch for each injector is carried out by an electric contact which switches on in phase of injector activation and which returns to the standby position to control the switch to the low pressure condition. The system is equipped with linear variable outlets (analog and PWM) for the direct control of proportional valves: these manage the flow rate of the injectors to allow to inject even minimum quantities of mixture by achieving a higher level of refilling without the risk of sudden changes in pressure.

Technical features

Central unit:
- Colour 7-inch LCD Display, 800x480 WVGA and 21-key polycarbonate keyboard
- 2 GB internal memory (RAM).
- 2 RS-232 / RS 422 serial outlets + 1 CAN bus
- USB port for data download
- Data stored in the XML format, GM-Data
- Aluminium container (295 x 185 x 55 mm)
- IP65 mech. protection (DIN40050)
- 24 V DC voltage (18-36V), 8 W
- Service temperature: -10° to 60° C

Remote Logger:
- Pressure sensors: 10 bars … 700 bars
- Mixture flow rate/volume sensors: max. 50 mc; resolution of 1 litre
- Injector control outlets: Nr. 4+4 (Relay)
- Analog outputs: 4-20mA or 0-5V or 0-10V (E/V proportional controls)
- PWM control outlets: 1500 mA max. (E/V proportional control)