Basic for digital proportionals

1 **ABOUT DIGITAL PROPORTIONAL DRIVER**

Digital electronic drivers interface proportional electrohydraulic valves to the machine central unit and are used to achieve fast, smooth and accurate motions control.
Drivers proportionally convert the reference input signal, generated from the machine central unit, into a current supplied to the valve solenoid.
This current is controlled through PWM modulation of the driver power supply and is proportionally transformed into a force by the valve solenoid.
Solenoid force, acting the valve spool or poppet against a reacting spring, finally provides the valve's hydraulic regulation (see tech table **F001**).

DIGITAL DRIVERS CLASSIFICATION

WITHOUT LVDT TRANSDUCER

Drivers control is actuated by modulating the current supplied to valve solenoid, without evaluating the valve response.

WITH LVDT TRANSDUCER

High performance drivers control is actuated by modulating the current supplied to valve solenoid, evaluating the valve response through the transducer in order to compensate the environment variables.

ON-BOARD

On-board digital drivers, with or without LVDT transducer, are directly wired and assembled on the controlled proportional valve and are factory preset using automated bench to assure repetitive regulation characteristics.

OFF-BOARD

Off-board digital drivers, with or without LVDT transducer, can be installed far from the controlled valve in applications with overall dimensional limits or strong environmental conditions. They are the ideal solution for remote cabinet installation in applications with critical temperatures or vibrations.
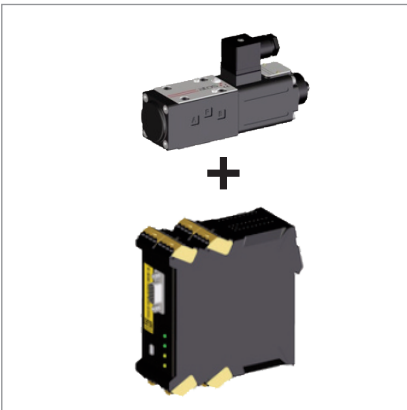
2 ATOS PROGRAMMING SOFTWARE - see tech table GS500

E-SW programming software allow to set the valve's functional parameters. It is supplied in DVD format and can be easily installed on a desktop or a notebook computer. The software graphic interface is organized in pages and levels related to different specific functional groups and allows to:

- simply access all the functional parameters of Atos digital proportional valves and drivers
- numerically adapt the factory preset parameters to the application requirements
- verify the actual working conditions
- identify and quickly solve fault conditions
- store the customized setting into the valve/driver or into the PC

The software automatically recognizes the connected valve model and adapts the displayed parameters.
For more information about main setting parameters by E-SW programming software, see tech table GS003

Different software versions are available depending on the driver communication interface to be programmed, see section 3 :

E-SW-BASIC	support:	NP (USB)	PS (Serial)	IR (Infrared)
E-SW-FIELDBUS	support:	BC (CANopen)	BP (PROFIBUS DP)	EH (EtherCAT)
		EW (POWERLINK)	EI (EtherNet/IP)	EP (PROFINET)

E-SW-* software with PQ option is required to program digital proportional components equipped with alternated P/Q control, see tech table GS002

Free programming software, web download:

E-SW-BASIC   web download = software can be downloaded upon web registration at www.atos.com ; service and DVD not included
Upon web registration user receive via email the Activation Code (software free license) and login data to access Atos Download Area

DVD programming software, to be ordered separately:

E-SW-*   DVD first supply = software has to be activated via web registration at www.atos.com ; 1 year service included
Upon web registration user receive via email the Activation Code (software license) and login data to access Atos Download Area

3 COMMUNICATION INTERFACES - see tech table GS510

The communication interface is the access port to all the information contained into the digital drivers: real-time signals, alarms and functional parameters can be digitally exchanged with external programming deavices without further elaboration.

Serial/USB interface: execution PS or NP
Drivers with serial or USB communication interface are designed to be connected to a desktop or notebook computer. As analog executions, these digital drivers can be operated by the machine automation using the analog and on-off signals available on the driver connectors.

Fieldbus interfaces: execution BC - CANopen, BP - PROFIBUS DP, EH - EtherCAT,   EW - POWERLINK, EI - EtherNet/IP, EP - PROFINET RT/IRT
Drivers with fieldbus communication interface allow an higher level of integration with the machine automation: machine central unit (fieldbus master), wired with all the controlled devices (fieldbus node), can completely operate the driver using the digital communication.

These drivers allow:

- complete diagnostic of the driver status
- more information available for machine operation
- improved accuracy and robustness of digital transmitted information
- direct access to all driver parameters
- costs reduction due to simpler and standardized wiring solutions
- costs reduction due to fast and simple installation and maintenance