

## MFD-Titan Controls Pneumo-Hydraulic Drives



An efficient use of power and energy saves wear on the tooling and the workpiece, whilst avoiding unnecessary noise. The drive of the TOX power package, consisting of a pneumatic cylinder with an integrated oil system and an automatic power stroke, only requires a small amount of energy for the rapid-approach and return stroke. TOX PRESSOTECHNIK chose Moeller's MFD-Titan, a simple and easy-to-operate control device that offers maximum functionality.

### THE COMPANY

As a leading manufacturer of pneumo-hydraulic drives and sheet joining systems, TOX PRESSOTECHNIK GmbH & Co. KG from Weingarten in Upper Swabia, has operations worldwide for manufacturing industries. The TOX joining system is used for the joining of a wide range of materials without damaging the surface. The technology and products, which are almost entirely patented, are used in several fields, including the automotive, electrical engineering and computer industry, household goods or furniture industry.

**MOELLER** 

We keep power under control.

The TOX power package operates only on shop air, without hydraulic power units. The controls are very simple, the same as for any normal double acting pneumatic cylinder. The operating stroke is divided into three stages: the air-operated rapid-approach stroke, the pneumo-hydraulic power stroke and air-operated return stroke. A full-featured control program is implemented for controlling TOX products. The core of the system is the control unit. All operating steps must be clearly visible and accessible at any time. The MFD-Titan control relay can fulfill these requirements entirely by combining control and visualization functions in one compact device. The compact multi-function display from Moeller provides an innovative and attractive device for operating and visualization tasks with compact dimensions. The rugged display stands out with its high quality design, whilst offering a high level of flexibility in operation and parameter setting. Industrial quality in compliance with IEC/EN 60947 allows it to be used in both harsh and outdoor environments.

#### Parameter definition made easy

The full-featured MFD graphic display with 132 x 64 pixels comes with an optional backlight and meets the stringent industrial requirements of IP65. Two freely configurable LEDs are provided to indicate additional operating states and signal alarms. The operating temperature range is -25 to +55°C and therefore allows the electronic controls to be used in machines or systems. The most outstanding advantage of the multi-function display is the simple circuit diagram input it allows. Every circuit connection is wired in the same way as it was taught in schools and colleges: Contact – Contact – Contact – Coil; Done! The device can manage up to 256 rungs or circuit connections. The series and parallel connection of contacts is just as straightforward as the parameter and setpoint entry for timing relays or counters. Each MFD-Titan® is provided with an integrated power flow display which ensures a high level of safety during commissioning and allows faults to be found in the initial circuit diagram. This clearly highlights every energized rung and dims those that are not energized. The circuit diagram is stored internally (retentively) and can also be saved externally on a memory module (EEPROM) together with all set parameters, for transport, security and backup. A password protection function

and up to ten operator menu languages are available.

#### Simple and unambiguous operation

The operation of TOX power packages is initiated by pressing the two-hand safety actuator. Operation is only started if both actuators are pressed simultaneously. The operating piston then moves out in a rapid-approach stroke until there is a resistance at a certain point. The counter force causes the power stroke valve to activate the power stroke. The controls are self-latching so that the control command is accepted and the two safety actuators are deactivated. Once the force has been reached that is proportional to the value set at the oil pressure switch, the controls initiate the return stroke, irrespective of whether the safety actuators are still pressed or were already released. The operating piston of the power package then returns back to its initial position. Additional functions such as oil level monitoring, unit counter, safety light barrier, end position scan and separate activation options, as well as an interface for monitoring devices (3 I/O) can be implemented with MFD-Titan without any problems.

A graphical display of the process is also provided - a multiple benefit, allowing users to react quickly in the event of malfunctions, and providing unambiguous displays for ease of operation.

The creation of the entire circuit diagram, the generation and output of images, animated display texts or status values are carried out in easySoft-Pro. This software is simple and easy to use, whilst also enabling entire projects to be stored, archived and printed out. It also allows the use of Windows Bitmap and JPEG formats for graphics. These can be created in the integrated Mask Editor, which enables a 1:1 or larger scale representation of the image on the MFD display as required.

#### Onboard network

Virtually all innovative automation solutions rely on a communication bus or a data network so that a cost-efficient decentralised concept can be implemented. The easy 800 control relay series and its associated MFD-Titan are the ideal solution for these kinds



of tasks. Their integrated and decentralised easy.NET network allows the control relays to be networked to up to eight stations easily and economically. An easyLink interface is also provided for linking the control relay to standard fieldbus systems by means of suitable modules, thus allowing connection to fieldbus systems such as CANopen, DeviceNet, ASi and PROFIBUS DP via communication modules. Depending on the fieldbus selected, the control relay functions as an intelligent node in a communication network with any master or head end controller.

Quicklink ID:

MS0701

## CONCLUSION

The continuous pressure to develop innovative products and reduce prices, together with increased demands with regard to machine operation and control, characterise the machine and system building market. This trend is being met with a new generation of control relays and multi-function displays which are increasingly competing with micro and compact PLCs. Featuring short program cycles, a wide range of function and arithmetic blocks, as well as optional fieldbus networking capabilities, these kinds of devices are erasing the traditional image of a control relay. These are advancing to become compact visualization devices with integrated operation and full-featured control functions.

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