

HYDAC

INTERNATIONAL



G-pro
A new **G**eneration of
professional control



ON/OFF

PWM

Plug &
Work

An excellent control to mobilize your visions



G-pro

The new joystick controller unit G-pro combines the flexible functionality of a remote control with that of a mobile controller. This means that electrically actuated valves as well as other electrical actuators can be controlled directly. The main control axes can be operated with an ergonomically designed thumb-joystick. Interchangeable control panels enable flexible configuration of the control unit. In combination with HYDAC mobile valves a multitude of control configurations are possible for different applications i. e. small tractors, front loaders, forestry-cranes, municipal machines and many other diverse mobile construction and agricultural machines.



Product advantages

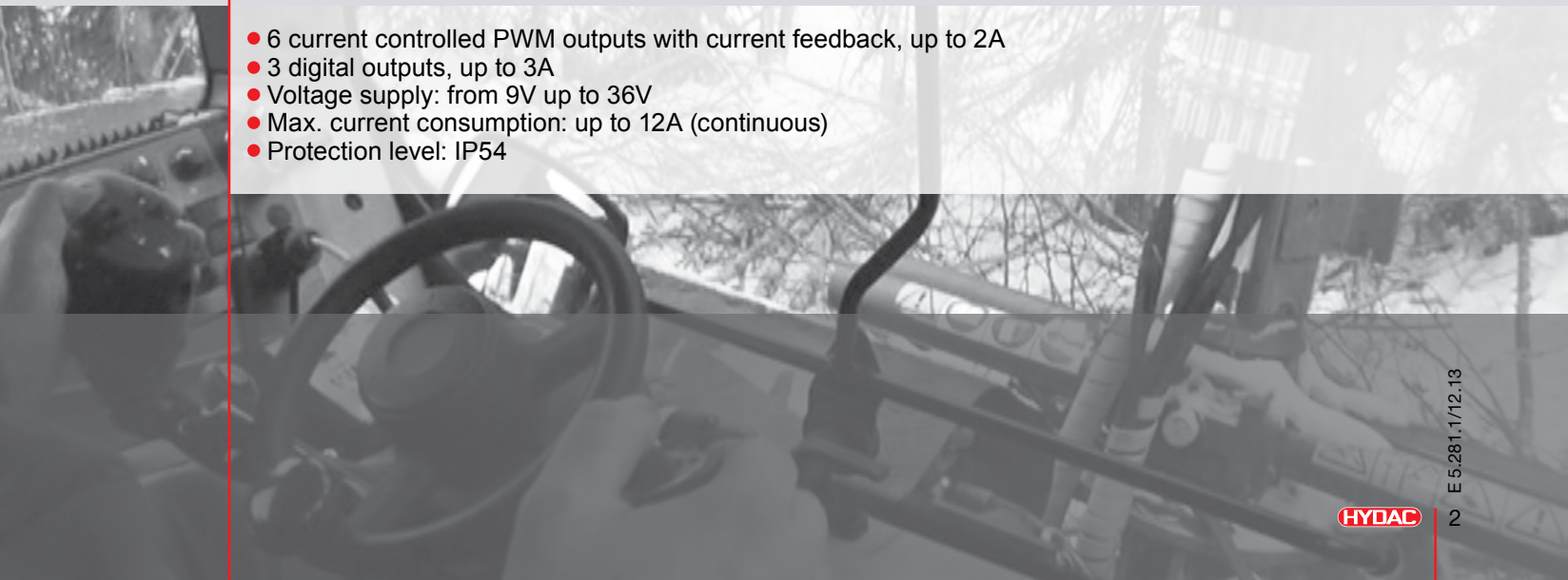
The G-pro is an innovative product combining a thumb joystick and additional operating elements with a mobile electronic controller in one modular unit. Simple mechanical mounting of the joystick unit is achieved with a flex-arm, which can be adjusted to the required positions, to ensure optimum ergonomics during operation. It is also possible to install the unit in a customized bracket, armrest or console.

The remaining installation of the pre-programmable remote control only takes a matter of minutes. Simply connect the power supply to the G-pro joystick controller unit, attach the harness to the control valve or actuator and without the need for a separate mobile controller, work can start with a smaller mobile machine – just like “Plug & Work”. Via 6 current controlled PWM outputs (with current feedback) 3 proportional axes can be operated. A maximum of 3 additional on/off outputs can be activated with push buttons.

Compared to conventional joystick solutions, the complete design has no moving or bending cable components and the risk of cable break resulting from frequent operations is thereby reduced. All operational modes and system errors can be visualized by LED's. With an easy to operate software tool the control unit can be programmed through a standard micro USB interface.

Technical data

- 6 current controlled PWM outputs with current feedback, up to 2A
- 3 digital outputs, up to 3A
- Voltage supply: from 9V up to 36V
- Max. current consumption: up to 12A (continuous)
- Protection level: IP54





“G-pro is different!”

“By different I mean a fresh approach. I don’t know of a similar setup with thumb joystick design and integrated power circuits. Combination with the flex arm mount makes it unique.”

Fredrik Martinsson,
Product Designer

What was the idea for G-pro, how did it start?

It started with several market/ sales requests for an electronic remote controller. Inspired by our previous customized developments we wanted to build on knowledge gained in functionality, design and ergonomics, but at the same time create a more basic product which would be easier to configure for a variety of applications.

Marcus Pfeiffer,
Director Sales & Applications

Were there any key issues during the project?

The price level needed to be pitched so that the step from wire control or hydraulic controls was not that big. With integration of the power unit fewer parts are needed and that has a positive effect, not only on pricing, but also by simplifying installation. This was to be the first serious alternative to wire control. The overall design offers flexibility for various applications.

Anders Öhlund,
Manager Research & Development

How did you test the system and the joystick?

Besides various in-house laboratory testing by our electronic design partner and formal third part EMC testing, the joystick has also been field tested on a forestry crane application since December 2012. We have tested the initial prototype systems for front loaders on our “mobile laboratory” which is an agricultural tractor with a special hydraulic supply setup and enables simulation of basically all current tractor systems. This is a huge advantage in understanding customer needs and total functionality.

Olof Näsholm-Gidlund,
Test Engineer

How was G-pro received by the test customers?

We have been surprised by the very positive response. Internally within the development team we initially considered G-pro as a “simple” product with an universal exterior design – but it meets the customers’ needs .

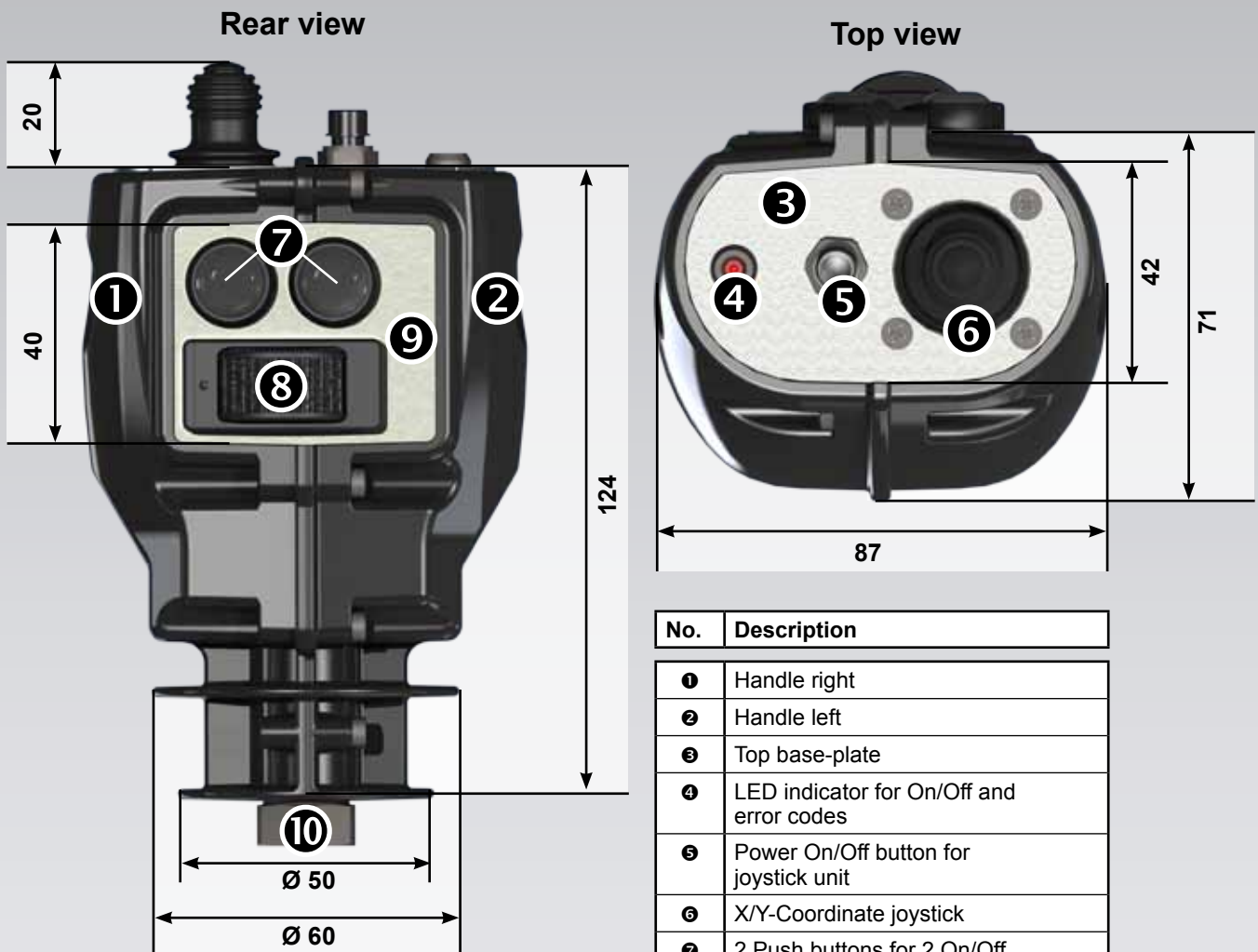
Thomas Zakrisson,
Manager Technical Sales



Dimensions and components

In general G-pro is available as a X-Y axis joystick for both right and left hand operation. Different top and rear plates are available. On request the plates can be configured with customized function elements. The G-pro configuration below shows:

- Right hand X/Y coordinate joystick
- 1 thumb wheel for one proportional auxiliary function
- 2 push buttons for On/Off functions
- 1 LED control diode indicator for On/Off and error codes
- 1 power On/Off button for joystick unit



No.	Description
1	Handle right
2	Handle left
3	Top base-plate
4	LED indicator for On/Off and error codes
5	Power On/Off button for joystick unit
6	X/Y-Coordinate joystick
7	2 Push buttons for 2 On/Off functions
8	1 Thumb wheel for 1 proportional auxiliary function
9	Rear base-plate
10	Mounting adapter for flex arm

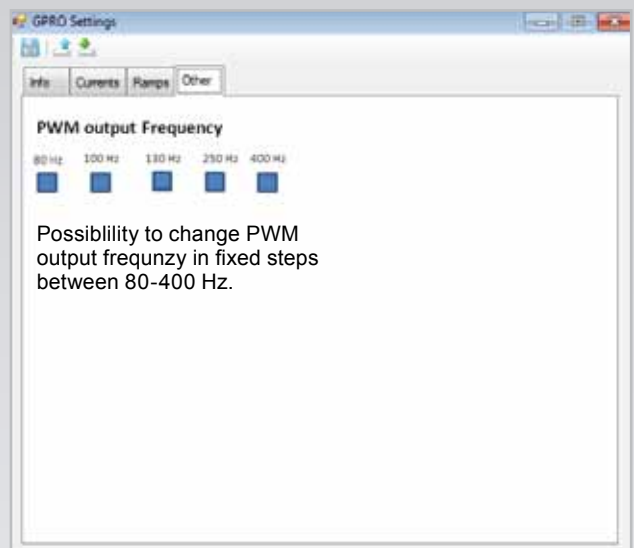
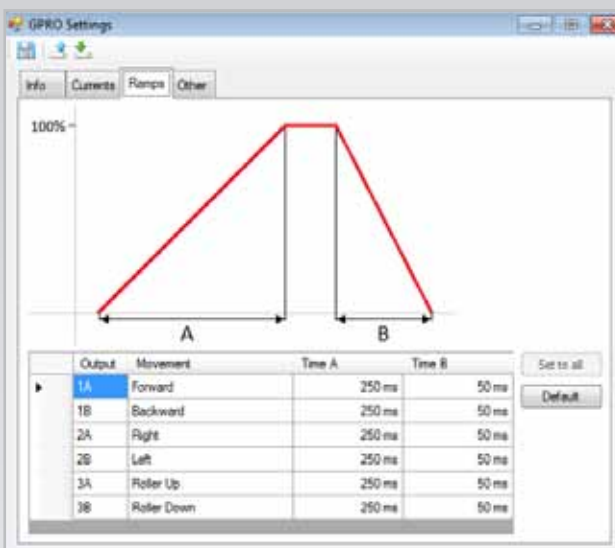
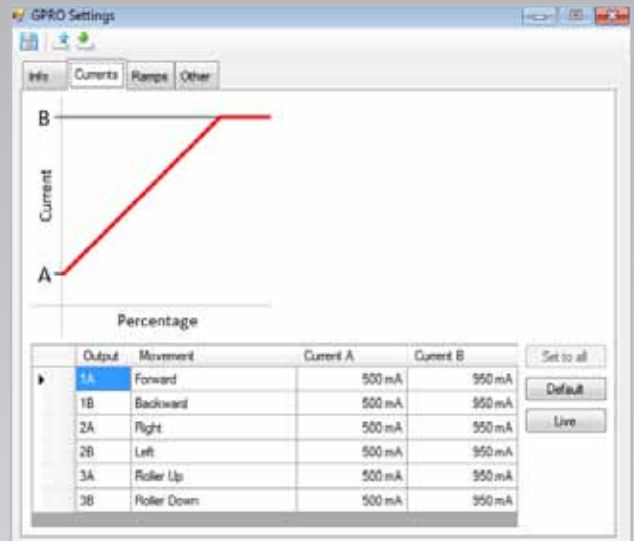
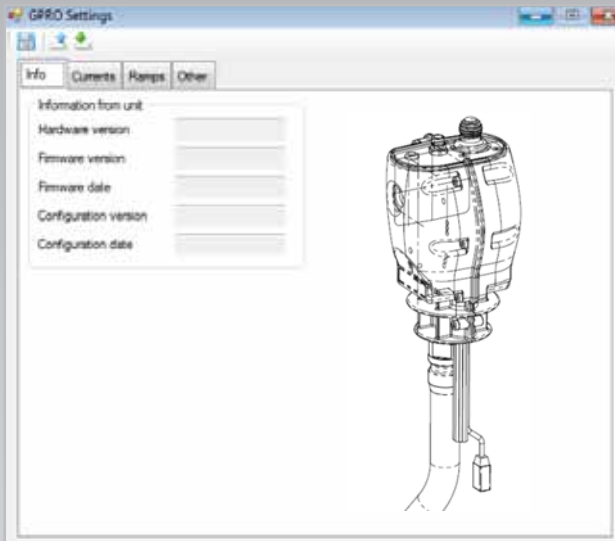


G-pro Software "P-Set"

Parameter settings

G-pro can be connected directly to the PC via the USB micro port interface. Using a software tool adjustments and settings of operating parameters such as start- and stop current, start and stop ramps, and PWM frequency can be carried out easily and individually. Examples for possible G-pro settings are shown on the screen shots below.

For more customized solutions HYDAC offers also application software tools a according to specific application requirements and customer needs.





G-pro

Front-Loader applications



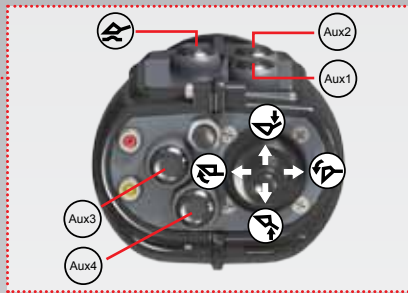
The first serious alternative to manual control via cable

The G-pro joystick controller in combination with the application software, a special version for front-loader applications, covers the typical demands for stability, efficiency, performance and comfort with support for functions such as: lift and tilt, float position, 3rd function and loader damping on/off. With G-pro and HYDAC mobile valves these demands can be achieved. An example of a front-loader configuration package is shown below with one G-pro joystick controller, a RMX202 directional valve and a RV361 selector valve both with electro-hydraulic controls. The G-pro joystick is connected via harness directly to the AMP junior timer at electro-hydraulic valve control interfaces. Deutsch DT series connectors are used for the internal harness interfaces.



On request, HYDAC can offer a wide variety of customized system solutions also including sensors and electronic controls according to specific application requirements and customer needs.

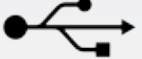
G-pro joystick in front-loader configuration



PWM out is directly linked via harness Deutsch DT-Series connector to AMP junior timer

Electrical Deutsch DT-Series connectors

Possible to adjust settings via USB/PC



G-pro integrated electrical harness

Electrical Deutsch DT-Series connectors

Example of suitable directional control valve RMX202 for typical front-loader's 2 main functions: **lift and tilt**

Connector AMP junior timer

Selector valve RV361 for the 3rd function and loader damping on/off



G-pro Forestry-Crane applications



Combine dynamic performance and precision efficiently in one package

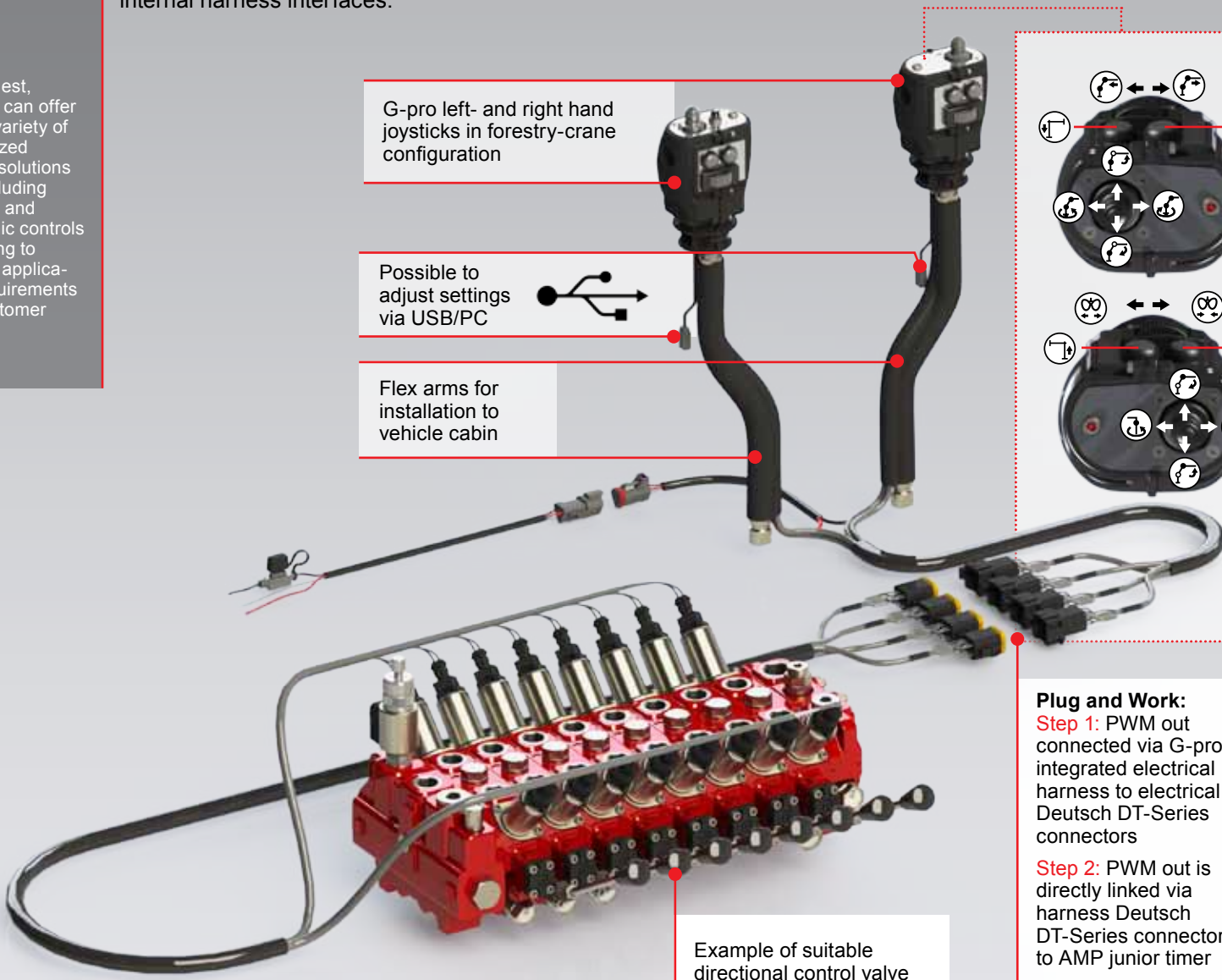
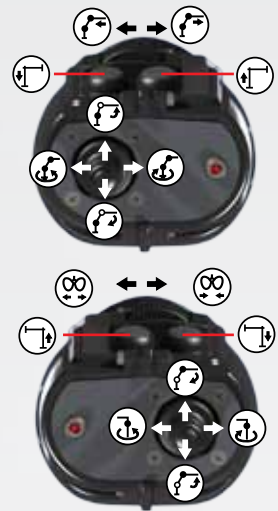
The G-pro joystick controller in combination with the application software covers the typical demands with support for required functions. Typical features of a modern forestry-crane are performance, controllability, efficiency and comfort. With G-pro and HYDAC mobile valves these demands can be achieved. An example for a forestry-crane configuration package is shown below with two G-pro joystick controllers and a RS228 directional valve with electro-hydraulic controls. The G-pro joystick is connected via harness directly to the AMP junior timer at electro-hydraulic valve control interfaces. Deutsch DT series connectors are used for the internal harness interfaces.

On request, HYDAC can offer a wide variety of customized system solutions also including sensors and electronic controls according to specific application requirements and customer needs.

G-pro left- and right hand joysticks in forestry-crane configuration

Possible to adjust settings via USB/PC

Flex arms for installation to vehicle cabin



Example of suitable directional control valve RS 228 for forestry-crane applications

Plug and Work:
Step 1: PWM out connected via G-pro integrated electrical harness to electrical Deutsch DT-Series connectors
Step 2: PWM out is directly linked via harness Deutsch DT-Series connector to AMP junior timer



Nordhydraulic Kramfors, Sweden



HYDAC Denmark



HYDAC China



HYDAC USA



HYDAC Italy



HYDAC France



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Globale Presence. Local Expertise.



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Note

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.