

Operating, Monitoring and Displaying with Drive
Operator Panels (DOP)

Operator panels for drive engineering



Operator panels from SEW-EURODRIVE – for an optimum visual display within your system

Modern drive inverters are increasingly taking on technical control functions. In particular, immediate drive tasks, such as positioning, synchronous operation and the coordinated movement of several drives in relation to one another, are being performed with high levels of accuracy.

As functionality of the inverter improves, the demands on operation, visualization and diagnostics also increase. Constant optimization of the production process by adjusting individual parameters such as velocity, target positions, stop marks, ramps etc. is the prerequisite for a cost-efficient and reliable system.

SEW-EURODRIVE is responding to this development: With five operator panels of the DOP (Drive Operator Panel) series that offer additional and new functions in the application of modern drive technology, ensuring optimum visualization and operation of the system. The same is true particularly in conjunction with higher-level controllers.



Drive electronics and electromechanics for precise drive systems and a wide range of applications.

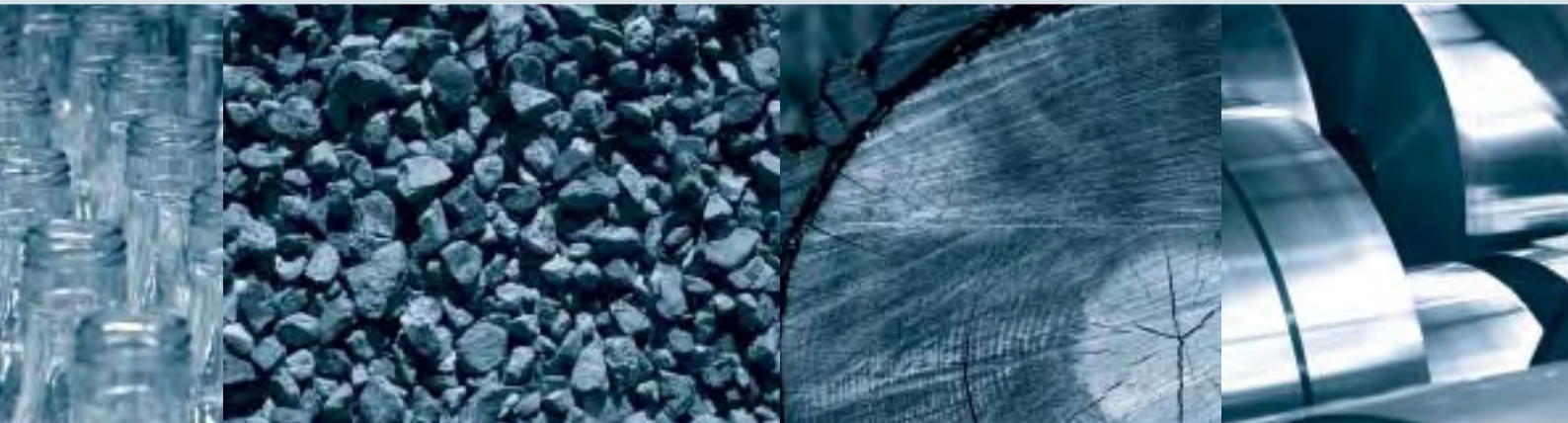
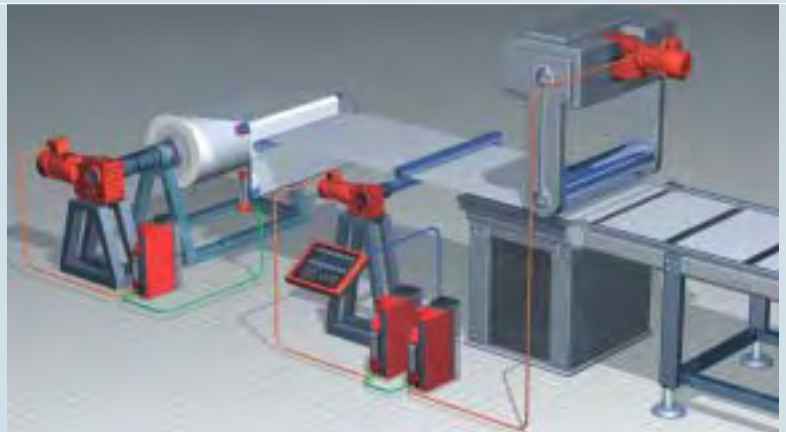
Driving the world – with innovative drive solutions for all branches of industry and for every application. Products and systems from SEW-EURODRIVE for any application – worldwide. SEW-EURODRIVE products are found in a variety of industries, such as automotive, building materials, food and beverage as well as metal-processing. The decision to use drive technology “made by SEW-EURODRIVE” stands for safety regarding functionality and investment.



A perfect match

When drive electronics from SEW-EURODRIVE, such as the intelligent MOVIDRIVE® drive inverter or the MOVITRAC® 07 frequency inverter are involved, the operator panels expand their technical functions since they access the inverter parameters directly. The recipe management function can be used to configure the system for a new product at the push of a button. This is possible because all necessary parameters are transmitted from the operator terminal to the connected inverter. Communication between drive inverter and operator panel is made possible by means of serial communication via the RS485 connection.

The drive operator panels set up an application-specific operation and diagnostics interface with the user (human machine interface) so that the system can be operated simply and effectively.



Drive Operator Panels (DOP) from SEW-EURODRIVE – operating and monitoring with one unit


Operator panels were developed to meet the requirements set for human-machine communication when controlling or monitoring different applications in the manufacturing and process industries. Drive operator panels guarantee clarity and safety for the communication between human and machine even for very complex production processes.

The operator panel simplifies the operator's work since they can easily be adapted to the working environment. The operator has quick and easy access to information on the current machine status and is able to change settings directly and in a flexible manner. That means the operator can continue to use the concepts her or she is familiar with.

The functions of the operator panel make for a graphical and text-based display and control of the production process. The panels are easy to operate and they are cost-efficient when compared to conventional solutions with buttons, indicator lamps, time relays, preset counters and seven-day clocks.

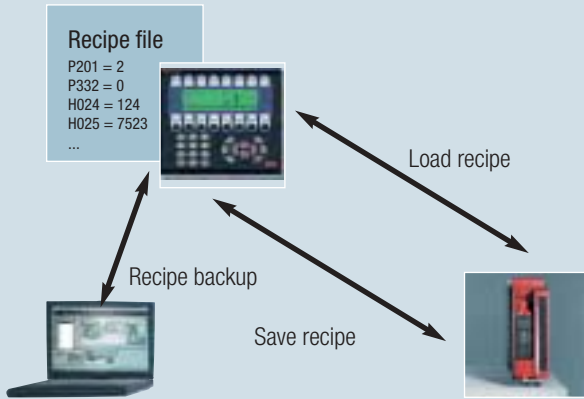


Overview of available
Drive Operator Panels

Type of operator panel:	Functions:	
DOP11A-10	<ul style="list-style-type: none"> - 2x20 character LCD text display (monochrome) with background illumination - 24 V_{DC} voltage supply, 200 mA - 2 serial interfaces (RS232 & RS422/RS485) - IP65 membrane keypad with navigation keys, numeric keypad and 3 function keys - 64 Kbytes Flash EEPROM 	
DOP11A-20	<ul style="list-style-type: none"> - 240x64 pixels LCD graphic display (monochrome) with background illumination - 24 V_{DC} voltage supply, 450 mA - 2 serial interfaces (RS232 & RS422) - IP65 membrane keypad with navigation keys, numeric keypad and eight function keys - 16 LEDs (two colors; red/green) - 1 option slot 400 KBytes Flash EEPROM 	
DOP11A-30	<ul style="list-style-type: none"> - 320x240 - 320x240 pixels, 1/4 VGA touch display (256 colors, STN, 5.7") with background illumination - 24 V_{DC} voltage supply, 450 mA - 2 serial interfaces (RS232, RS422 or RS485) - IP65 - Horizontal or vertical installation - 1 option slot - 400 Kbytes Flash EEPROM 	
DOP11A-40	<ul style="list-style-type: none"> - 320x240 pixels, 1/4 VGA color display (256 colors, STN, 5.7") with background illumination - 24 V_{DC}, 550 mA - 2 serial interfaces (RS232 & RS422) - IP65 membrane keypad with navigation keys, numeric keypad and 16 function keys - 16 LEDs (two colors; red/green) - 2 expansion slots - 400 Kbytes Flash EEPROM 	
DOP11A-50	<ul style="list-style-type: none"> - 640x480 pixels, VGA touch display (256 colors, TFT, 10.4") with background illumination - 100-240 V_{AC}, 350 mA - 2 serial interfaces (RS232 & RS422) - IP65 - 2 expansion slots - 1600 Kbytes Flash EEPROM 	
<p>Optional fieldbus interfaces (except DOP11A-10)</p> <ul style="list-style-type: none"> - PFE11A ETHERNET interface - PFP11A Profibus DP 		

Numerous functions – simple handling

Recipe management



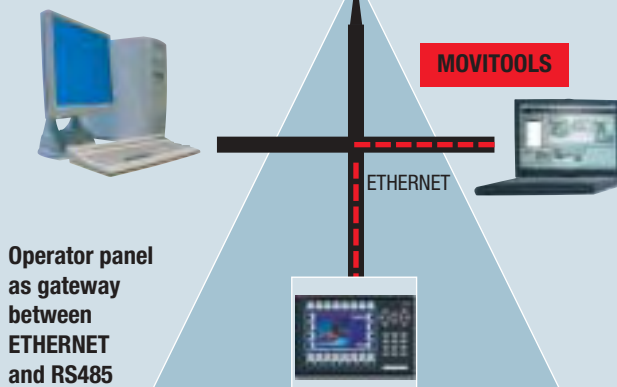
Use recipe management to save all dynamic data and parameters of the machine in the operator panel. The operator can transmit the data at the push of a button to the connected drive inverters that will process the read values.

You can reuse comprehensive parameter configurations with the help of the recipe management function. Users can set up a recipe directory with files offering different parameter settings. This function makes for an efficient design of production runs with

tight schedules that require a fast product change, such as in the production of identical products in different colors.

Dual driver function

You can activate two different communication protocols in the operator panel. That lets the Drive Operator Panel communicate with the SEW-EURODRIVE drive electronics, such as the MOVIDRIVE® drive inverters and a connected PLC.



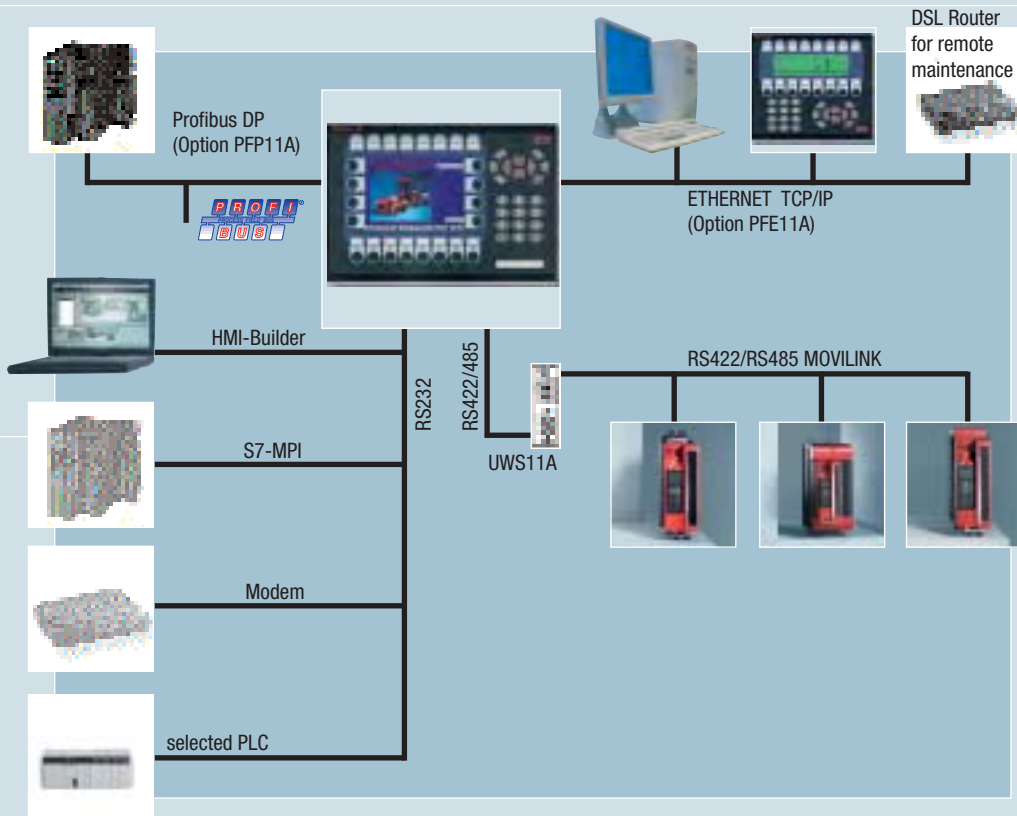
Operator panel as gateway between ETHERNET and RS485

Pass-through mode

Use the “pass-through” mode function to set the operator panel so that there is a communication between the MOVITOOLS operating software and the connected drive inverters via the operator panel.

When using the optional ETHERNET interface of the DOP, you can operate MOVITOOLS on any PC within the company network and have the software communicate with the drive inverters connected to the DOP. An operator panel on which communication in pass-through mode takes place will be locked for the operator and only show an empty screen with a reference made to pass-through mode.

Communication paths



The operator panels of the DOP series come equipped with two serial interfaces as standard. Both interfaces can operate at the same time and can be configured to different functions:

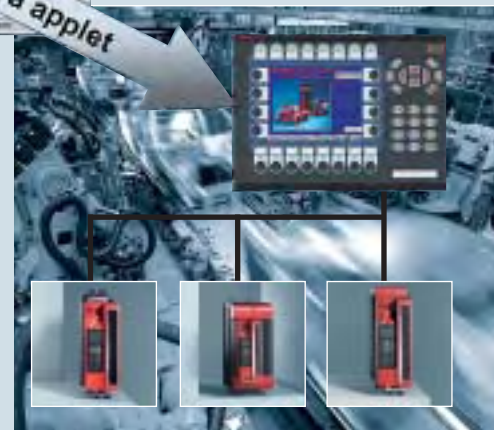
- Communication with drive electronics
- Programming interface
- Modem interface
- Communication with selected PLCs

The operator panels can be integrated into a fieldbus or network topology via PROFIBUS or ETHERNET interface.

Integrated WEB server

Use the web server in the DOP to display websites that were generated in-house; these give operators information on the current status of the system. You can now use your regular Internet Explorer to "surf" the DOP without additional, unit-specific software. This setup makes the displayed data available at any time throughout the entire company.

You also have the option to load the "terminal emulation" function into the web server. This step will mirror an image of the operator panel on site and in the system in the Internet Explorer. The visualization menu of the DOP is now accessible. You move to a new display page on site by using a function key; in the Internet Explorer you do so with a mouse click.



Quick and easy programming with the HMI-Builder operating software



What you see is what you get

The visualization must be adapted to the system to display the different states and data of the system in the operator panel. Programming of the DOP takes place with the HMI-Builder operating software that works on the "WYSIWYG" principle. The operator can actually tell during programming what any subsequent operators will later see in the visualization.

Toolbox

The HMI-Builder offers an object library with a large selection of static and dynamic objects. These objects are represented by simple and illustrative symbols. Users simply select and edit the objects to create their own individual screen display.



Function keys



H10 → Start_filling
H10 = 1

The function keys make navigation through the menu very convenient and quick for the user. It is possible to execute several commands per function key with the help of macros.

```

Mainfunction (IPOS start function)
main ()
{
  if (start_filling == 1)
  {
    fcn_filling()
  }
}
  
```

Passwords for protection of selected system parts from unauthorized access

Protection of

- objects
- function keys
- system parameters
- project changes, etc.
- 8 protection levels can be defined



Overview of advantages of the HMI-Builder project planning and programming software:

- Operation and observation
- Project display according to WYSIWYG
- Structuring project according to menu tree
- Object selection window (tool box) with comprehensive object library
- Several projects can be opened at the same time
- Configuration of periphery and network functions
- Simple activation of predefined functions via function keys
- Full Windows support: copy/paste etc.
- Operation with Windows 95, 98, NT, 2000, ME and XP

Flexibility and efficiency in every system – with the intelligent drive inverter: MOVIDRIVE®

Manufacturers of machine and system solutions using MOVIDRIVE® drive inverters benefit from an intelligent drive inverter that meets the most exacting requirements in terms of both dynamics and control quality. In either asynchronous AC drives or synchronous servo drives – the MOVIDRIVE® drive inverters control all types of drive systems.



Furthermore, the intelligent IPOS^{plus}® positioning and sequence control system is integrated as standard. For all applications, IPOS^{plus}® makes no compromises when it comes to precision because it uses the exact and highly-dynamic control properties of the MOVIDRIVE® drive inverter. The user can set the programming to either windows programming or high language. It is also possible to use the preconfigured control programs, the application modules. The direct access to all internal inverter parameters makes IPOS^{plus}® fast and flexible. This allows for diverse movement controls, which can be tailored to meet the individual requirements of the system. The variety of options available in MOVIDRIVE® means that the system can be extended at any time in accordance with the modular concept. MOVIDRIVE® drive inverters are available as

standard and application versions. MOVIDRIVE® in application version offers additional functions:

- technology functions
- electronic cam and
- electronic synchronous operation

or

access to preconfigured control programs, the application modules. The technology functions enable MOVIDRIVE® to take over the function of a position controller, flying saw or other application solutions. Fast parameter setting instead of time-consuming programming: Simply enter the mechanical data and load the program in the drive inverter, and it is ready for operation!

MOVIDRIVE® 230 V units



Supply voltage [V _{ac}]	3 x 200 ... 240 ± 10 % for 50 ... 60 ± 5 %
Power range [kW]	0.55 ... 132.0 kW
Motor control process	VFC, CFC
Optional fieldbus interfaces	PROFIBUS, DP, INTERBUS, INTERBUS LWL, CAN, CANopen, DeviceNet

MOVIDRIVE® 400 V units



Supply voltage [V _{ac}]	3 x 380 ... 500 ± 10 % für 50 ... 60 ± 5 %
Power range [kW]	0.55 ... 132.0 kW
Motor control process	VFC, CFC
Optional fieldbus interfaces	PROFIBUS, DP, INTERBUS, INTERBUS LWL, CAN, CANopen, DeviceNet

Small but smart

MOVITRAC® 07 – the first choice when it comes to doing things quickly and easily. All the essential features and functions for uncomplicated, economical motor control are combined in the MOVITRAC® 07. And the best thing about it: It can be started up and operated in the simplest way. The integrated operator panel makes the MOVITRAC® 07 ready for operation in no time: simply enter

the electrical characteristics of the drive – ready. For further ease of operation and diagnostics of status messages, the MOVITOOLS software comes free of charge. Even the functional connection technology of the MOVITRAC® 07 is perfect: The EMC-compliant wiring of the motor and control leads is optimally protected by the integrated shield connections.

MOVITRAC® 07 was conceived for simple applications in conveyor or metering systems, in agitators, ventilators or pumps, in rotary tables or roller conveyors and many more. This convincing concept makes the MOVITRAC® 07 a particularly interesting and economical choice for such areas.



MOVITRAC® 230 V units



Supply voltage [V _{ac}]	1 x 200 ... 240 ± 10 % for 50 ... 60 ± 5 % 3 x 200 ... 240 ± 10 % for 50 ... 60 ± 5 %
Speed range [min ⁻¹]	up to max. 5,500
Power range [kW]	
single phase	0.37 ... 3.0
three phase	0.37 ... 37.0

MOVITRAC® 400 V units



Supply voltage [V _{ac}]	3 x 380 ... 500 ± 10 % für 50 ... 60 ± 5 %
Speed range [min ⁻¹]	up to max. 5,500
Power range [kW]	0.55 ... 55.0

Expansion of power range up to 132 kW is in preparation