Pump Control Panels

The DAYLIFF range of pump control panels have been specially designed to provide effective protection and reliable control of all electric pumps. Standard panels are available for one and two pump installation in all sizes up to 90kW for both manual and automatic installations operation. In addition various optional accessories are offered so panels can be customised to suit site requirements. Panels for multi pump, large motors and specialised control applications can also be supplied, these being individually designed to suit the particular installation.

All panels utilise quality components and are supplied completely pre-wired with terminals for control accessories (where applicable) as well as incoming and outgoing power connections. Comprehensive wiring diagrams are provided with all panels.
Enclosures are manufactured of mild steel and finished with a hard baked non-chip dry powder epoxy finish. The degree of ingress protection is IP54 or higher. As a standard, the enclosures are wall mounted type with hinged lockable door fronts. Free standing enclosures can be provided on order.

All panels are manufactured to exacting standards and are quality products which complement the wide range of pumps available from DAVIS & SHIRTLIFF to provide cost effective, reliable and efficient water installations.

STANDARD PANELS
Standard panels are categorized based on the Starting Methods of the motor. Motor Manufacturers usually specify the starting methods and voltage on the motor name plates.

Generally panels are fitted with quality Schneider components though other premium brands including Lovato, Siemens and ABB are available on request.

Type 1PM (one pump) and 2PM (two pumps):
Manual panel for small single-phase pumps. Specification includes Incoming isolator, MCB, 'ON' indicator and (motor sizes> 1.1kW), Relay and Auto/Hand selector switch. Two pump panels have paired component sets with a 102 Changeover switch. These are suitable for use with single phase borehole motors where control box is provided complete with capacitors.

Type 1PD (one pump) and 2PD (two pumps):
Standard panels for Direct-On-Line (DOL) start. Specification includes Incoming Isolator, individual pump MCB's, DOL Starter (Contactor & Overload relay), 'On' and 'Trip' indicators and Auto-Off-Hand Selector Switch. Two pump panels have paired component sets and a 102 Changeover when CCA (Auto Cycle & Auto Trip Changeover) is specified and individual Auto-Off-Hand Selector Switches when independent pump operation is specified.

Type 1PY (one pump) and 2PY (two pumps):
Standard panels for Star-Delta start. Specification is as for type 1&2PD with the alternative fitting of a Star-Delta Starter(s) with three Contactors, Overload Relay and Timer.

Type 1PS (one pump) and 2PS (two pumps):
Standard panels for Soft starters. Specification includes Incoming Isolator, individual pump MCB's, SOFT-STARTER, Line and Bypass Contactors, 'On' and 'Trip' indicators, Start-Stop push button, Reset push button and Auto-Off-Hand Selector Switch. The advantage of these panels is that they reduce mechanical stress on the motor and shafts for extended motor life. They also lower starting current and system electrical load reduce water hammer effect and check valve slamming.

Type 1PV (one pump) and 2PV (two pumps):
Standard control panels for Variable Frequency Drive (VFD) starters using premium Schneider Electric Altivar Process Drives. Altivar process drives have advanced application functions dedicated for water pumping in industrial and commercial applications, embedded services such as energy and pump efficiency monitoring dashboards without additional softwares and integral Modbust/Ethernet protocol connectivity interfaces allowing seamless integration to BMS systems.

Control panel specification includes incoming isolator, individual pump fuses/breakers, ATV630 VFD starters, enclosure thermal management fans and thermostat, 'On' and 'Trip' indicators, Start-Stop push button, emergency push button and Auto-Off-Hand Selector Switch.

Main advantages is that the drives modulate actual motor speed according to demand providing energy cost savings particularly in applications with less than 50% static head, reduce mechanical stress on the motor and shaft, lower starting (in rush) current, reduce water hammer effect and check valve slamming.

NOMENCLATURE
Panels are referenced as follows:
1 or 2: No of pumps
P: Pump Control Panel
M, D, Y, S, V: Starting specification
1xx, 3xx : Rating

Example: 1PDS304 – One pump, DOL start Standard panel, three phase 4kW
2PYP345 – Two pump, YD start, Premium panel, three phase 45kW

PANEL SIZES

	TYPE	PREFIX	RATING	MOTOR
SINGLE PHASE	M	1	1	0.37 - 0.75kW
	M or D	1	2	1.1 - 1.5kW
	D	1	3	2.2kW
THREE PHASE	D|Y|S|V	3	4	1.1 - 4kW
		3	6	5.5kW
		3	8	7.5kW
		3	11	9.2 - 11kW
		3	15	13 - 15kW
		3	18	18.5kW
		3	22	22kW
		3	30	26 - 30kW
		3	45	37 - 45kW
		3	55	55kW
		3	75	75kW

STANDARD OPTIONS
Analog Ammeter (MA): Indication of current on one phase. As an option, a phase selection switch can be provided for three phase control panels.
Analog Voltmeter (PV): Indication of voltage on one phase and all phases for single-phase and three-phase respectively. A phase selection switch is included for three phase control panels.
Voltage Relay (PP): Protects against over/under voltage, phase sequence, phase asymmetry and phase failure.
Surge Protection Device (SPD): Protects equipment against indirect power surges.
Lightning & Surge Protection Device (LSPD): Protects equipment against high current surges arising from lightning strikes in addition to indirect power surges. Required for protection of equipment in buildings with Lightning Protection System.
Liquid Level Control (CL): For control of low water levels using electrodes.
Analog Frequency Meter (FF): Indication of power frequency.
Analog Hour meter (MH): Indication of running hours.
Digital Multi-Function Monitor (MD): Includes selectable amps, volts, cos φ
Timer (CT): Delay timer for automatic control, especially when using pressure switches.
Timer Switch (CS): 24hrs time switch to set the desired time for pump operation.
Level Alarm (CA): Activates an alarm to indicate high or low water levels. The alarm can be Audio (Siren) or Visual (Flasher) which should be specified during order placement.
Grundfos MP204 Controller (MP204): Includes the Grundfos MP204 integral pump controller unit and necessary fuse protection. The MP204 controller digitally monitors current consumption and asymmetry, supply voltage, phase sequence, motor temperature and insulating resistance and protects installation against dry running, mechanical motor defects and high temperature.
Note: Temperature monitoring and protection is only available for Grundfos motors with tempcon.
Auto Cycle & Auto Trip Changeover (CCA): For two pump Duty Standby operation only. Balances operating time through alternating the duty pump at each call of pressure switch/floatswitch.
Duty-Standby-Assist configuration is also available and should be specified during order placement.
Power Factor Correction Capacitors (PFC): For Reactive Energy Management, capacitors are used to improve the power factor (PF) hence power quality. Size (kvar) depends on motor load (kW), existing PF and desired PF.

Note: SPD , LSPD and PFC options are provided in separate enclosures. The can also be fitted in the pump control panel. This should be specified during order placement.