



## APPLICATIONS

- > Protect borehole pumps against dry running without using level electrodes
- > Borehole Pump Control application
- > Can be used for surface pumps in some cases



## Davey Borehole Motor Protection Control Panels

Model Numbers:  
CBM2, CBM3, CBT1, CBT2, CBT5

Davey Fanox Control Panels protect pumps against dry running without using level sensors or probes. Protections: Dry running, overload, overvoltage, phase loss, incorrect phase sequence on the CBT1, CBT2 and CBT5. Maximum protection without level electrodes or level relays.

## WHY CHOOSE THE DAVEY FANOX PROTECTION CONTROL PANELS?

Davey's Fanox Protection Control Panels offer a comprehensive solution for single and three-phase control and protection of submersible pumps in domestic, industrial and agricultural installations.

Single phase models monitor current and voltage to ensure motors are protected from:

- Overload
- Underload
- Dry running

Three phase models add phase angle measurement to provide even more accurate protection in closed head or dry run circumstances.

Three phase models also include:

- Phase loss or imbalance protection
- Incorrect phase sequence (direction of rotation) protection

## SINGLE PHASE PANELS – CBM2 & CBM3

### Main Advantages:

- Thermal memory that memorises heating and cooling cycles of the motor
- Automatic reset, adjustable from 2 to 240 minutes
- Indication of tripping cause
- Control point for pressure switch, float switch, etc.
- Includes: circuit breaker 1P+N, PS electronic relay, contactor, LED's and on/off switch

### Protection against:

- Dry running by monitoring undercurrent
- Overload with thermal memory
- Overvoltage (+ 15%)
- Short-circuit

Models	IP Rating	Approx. motor current (Amps)	Power of single-phase 230V motor		Adjustable well filling time (minutes)	Protections				Dimensions (mm)	Suit Davey Borehole Motors
			HP	kW		I <	I >	U >	I >>		
CBM2	54	3 – 11	0.5 – 1.5	0.37 – 1.1	2 – 70	✓	✓	✓	✓	230 x 250 x 150	DM1037W2, DME1037W2, DM1037, DME1037, DM1055W2, DME1055W2, DM1075, DME1075, DM1110W2, DM1110, DME1110
CBM3	54	11 - 16	2.0 – 3.0	1.5 – 2.2	2 – 240	✓	✓	✓	✓	230 x 250 x 150	DM1150, DME1150, DM1220, DME1220

## THREE PHASE PANELS – CBT1, CBT2 & CBT5

### Main Advantages:

- Thermal memory that memorises heating and cooling cycles of the motor.
- Automatic reset for well filling and adjustable from 2 to 75 minutes.
- Indication of tripping cause.
- Control point for pressure switch, float, switch, etc.
- Includes: circuit breaker 3P or 3P+N, PF electronic relay, contactor, LED's and on/off switch.

### Protection against:

- Dry running by monitoring cos  $\phi$
- Overload with thermal memory
- Phase loss/imbalance
- Incorrect phase sequence
- Short-circuit

Models	IPR Rating	Approx. motor current (Amps)	Power of three-phase 400V motor		Adjustable well filling time (minutes)	Protections					Dimensions (mm)	Suit Davey Borehole
			HP	kW		cos $\phi$	I >			I >>		
CBT1	54	1.1 - 2	0.5 - 1.0	0.37 - 0.75	2 – 75	✓	✓	✓	✓	✓	230 x 250 x 150	DM3037, DME3037, DM3055, DME3055, DM3075, DME3075
CBT2	54	2.8 - 3.8	1.5 - 2.0	1.1 - 1.5	2 – 75	✓	✓	✓	✓	✓	230 x 250 x 150	DM3110, DME3110, DM3150, DME3150
CBT5	54	5.5 - 9.5	3.0 - 5.5	3.0 – 4.0	2 - 75	✓	✓	✓	✓	✓	230 x 250 x 150	DM3220, DME3220, DM3400, DME3400

### PROTECTION DEFINITIONS

I <	Dry running by monitoring undercurrent
I >	Overload with thermal memory
U >	Overvoltage (+15%)
cos $\phi$	Dry running by monitoring the phase angle (cos $\phi$ )
	Phase loss/imbalance
	Incorrect phase sequence
I >>	Short-circuit