

SubDrive75/100/150/300 MonoDrive, MonoDriveXT

Constant pressure controller

**Additional information
for Australia, NZ**

**TOLL FREE HELP
1300 FRANKLIN**

⚠ WARNING

Serious or fatal electrical shock may result from failure to connect the ground terminal to the motor, SubDrive/MonoDrive controller, metal plumbing, or other metal near the motor or cable, using wire no smaller than motor cable wires. To minimize risk of electrical shock, disconnect power before working on or around the SubDrive/MonoDrive system.

CAPACITORS INSIDE THE SUBDRIVE/MONODRIVE CONTROLLER CAN STILL HOLD LETHAL VOLTAGE EVEN AFTER POWER HAS BEEN DISCONNECTED.

ALLOW 5 MINUTES FOR DANGEROUS INTERNAL VOLTAGE TO DISCHARGE BEFORE REMOVING SUBDRIVE COVER.

Do not use motor in swimming areas.

⚠ ATTENTION

This equipment should be installed by technically qualified personnel. Failure to install it in compliance with national and local electrical codes and within Franklin Electric recommendations may result in electrical shock or fire hazard, unsatisfactory performance, or equipment failure. Installation information is available through pump manufacturers and distributors, or directly from Franklin Electric at our toll-free number 1800 FRANKLIN.

⚠ CAUTION

Use SubDrive/MonoDrive only with Franklin Electric 4-inch submersible motors as specified in this manual (pg 8). Use of this unit with any other Franklin Electric motor or with motors from other manufacturers may result in damage to both motor and electronics.

WARRANTY

Thank you for your purchase of Franklin Electric products.

Your SubDrive 75, SubDrive 150 and SubDrive 300 products are covered by a 5 Years from date of installation warranty, not to exceed 6 years from manufacture/dispatch date from Franklin Electric Australia.

Warranty covers failure from manufacturing defects or quality issues in the Submersible Pump, Submersible Motor, SubDrive Inverter/Drive/Controller, Pressure Tank and Pressure Switch. Warranty does not exclude or minimize your rights under any State or Federal consumer laws.

Warranty does not cover issues that may be induced from the site installation, operation or environmental effects outside the control of Franklin Electric.

These site induced issues may include but not limited to: Ingress of water/rain/snow and dust, ingress of insects/bugs or animal pests, power surges, lightning surges, incorrect installation as opposed to those stipulated in the installation Manual, restriction of vents and fans, blocked air filters if fitted, overheating from solar affects, replacement of the motor with a non Franklin Electric motor, connection via orange circular drop cable, incorrect wiring, incorrect cable/wiring sizes, modification to any of the products, wear and tear and inappropriate use.

ENCLOSURES

	INDOOR	OUTDOOR	RATING
SubDrive 75	YES	NO*	IP20 - NEMA 1
SubDrive 150	YES	YES	IP55 - NEMA 4
SubDrive 300	YES	YES	IP55 - NEMA 4

Do not expose a SubDrive75 with IP20 (NEMA 1) enclosure to rain or water spray. IP20 (NEMA 1) enclosures are suitable for indoors application and installation only. i.e. Garden Sheds / Garages / Pump shed.

SubDrive 75 additional Requirements for Outdoor locations*

For IP20 (NEMA 1) systems proposed to be installed in an outdoors location a suitable weather proof enclosure with a minimum IP55 (NEMA 4) is required. The size of the enclosure must also meet the minimum dimensional requirements there should be at least 150 mm (6 inches) of clearance on each side and below the unit to allow room for air flow, please refer to the Installation Manual for details. Use appropriate weather-tight conduit fittings to maintain IP rating.

An IP55 SubDrive 75 outdoor enclosure is available. Part No: 305 701 123

ENCLOSURES – INTERNAL AREAS

Periodic inspections of the internal circuitry maybe required if the unit is exposed to high levels of dust or susceptible to insect or pest infestation.

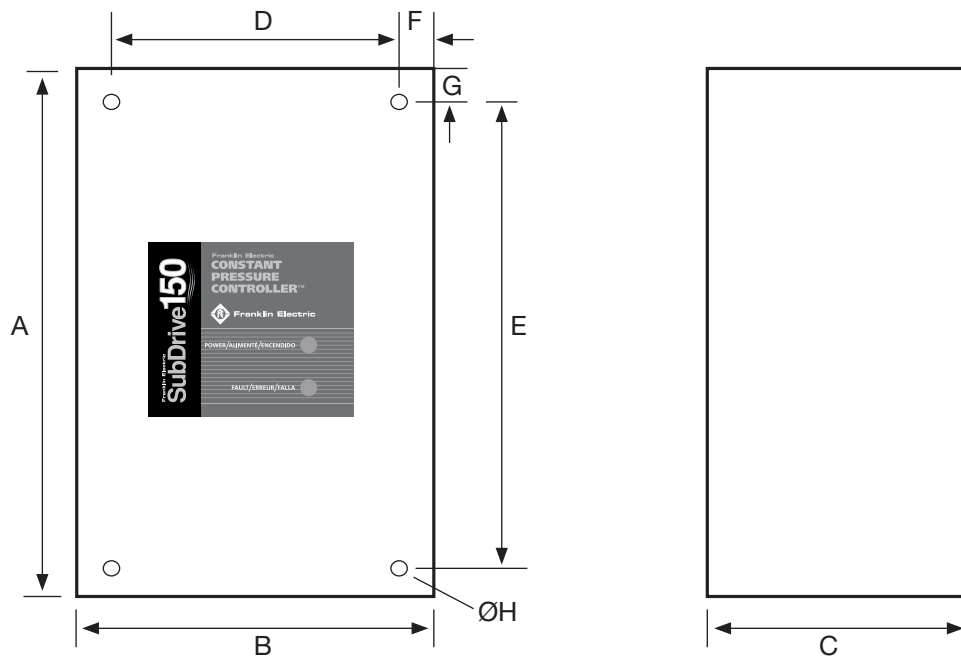
It may be necessary to apply a pest control surface spray onto the external surfaces of the enclosure to minimize insect and bug nesting and to reapply at regular intervals. The adjacent mounting area and surfaces of the drive may also be considered fro insect/bug/ant treatment with regular reapplication.

Any insect treatment should not be applied to any inside surface of the Drive or the circuitry.

CAUTION

The Drive should not be powered up when applying any pest control treatments.

MOUNTING DIMENSIONS* for outdoor enclosures



Dimensions in millimetres

	A	B	C	D	E	F	G	H
SubDrive 75	500	500	205	455	455	22	22	8
SubDrive 150	800	550	175	465	720	40	35	10
SubDrive 300	1000	700	257	628	928	36	36	10

* specification subject to change without notice

WIRING

CAUTION

All wiring is to comply to Australian and New Zealand local and state regulations and with AS/NZS 3000 and revisions

SUBMERSIBLE MOTORS

All SubDrive submersible motors are 60Hz and sized and matched specifically for use in the SubDrive system. The power supply into the SubDrive controller is the standard 50Hz supply and transformed within the controller to provide the correct voltage and frequency to the 60Hz motor.

Use of the SubDrive controller with any other Franklin Electric motor or with motors from other manufacturers may result in damage to both motor and electronics and will void warranty.

RESIDUAL CURRENT DEVICES

To avoid nuisance tripping it is recommended to have the SubDrive wired into its own non RCD Protected circuit.

The use of Type AC RCD's is widespread in domestic sites. It is possible that the installation of a SubDrive will cause an RCD to nuisance trip due to residual pulse DC current. A new Type A RCD may be required to be fitted as various brands react in different times within the stipulated trip range.

FAULT CURRENT SENSITIVITY

Semi-conductor devices are now incorporated in equipment used throughout industry, commerce and in the home. Typically, the purpose of these semi-conductor devices is for monitoring and controlling industrial equipment, eg speed controls for small motors and temperature controls, along with extensive use in computers, VDUs, printers, washing machines, etc.

As the equipment is fed from the mains electrical supply, in the event of an earth fault the presence of semi-conductors may result in the normal ac waveform being replaced by a non-sinusoidal fault current. In some cases the waveform may be rectified or chopped. These waveforms are said to contain a pulsating dc component which can either partially desensitise or totally disable a standard Type AC RCD. New International standards IEC 1008 (RCCBs) and IEC 1009 (RCBOs) divide RCDs into two performance classes:

Type AC

RCDs for which tripping is ensured for residual sinusoidal alternating currents, whether suddenly applied or slowly arising.

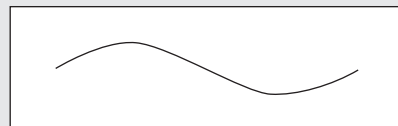
Type A

RCDs for which tripping is ensured for residual sinusoidal alternating current and residual pulsating direct currents, whether suddenly applied or slowly arising.

To ensure the correct level of protection, check for the following symbols:

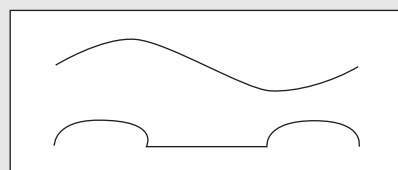
Type AC

normal ac sensitivity



Type A

pulsating dc sensitivity



DROP CABLE and CABLE SHIELDING

Shielded electrical cable must be installed from the output terminal of the SubDrive enclosure to the bore head for SubDrive 150 and SubDrive 300. This is optional but recommended for the SubDrive 75.

It is also recommended that SubDrive 150 and SubDrive 300 be installed on a dedicated electrical circuit.

CAUTION

Orange circular drop cable is not approved for use with submersible pump applications. Orange circular cable is hydroscopic and will allow water to ingress into the conductors over time and under pressure. This may lead to failure of the motor and system. Properly rated submersible drop cable must be used with a minimum of 300 metres submergence rating. Use of orange circular drop cable down the well/bore will void warranty.

EMC (Electro Magnetic Compatibility)

The SubDrive family is C Tick approved.

SubDrive 75, SubDrive 150 and SubDrive 300 comply with Category C2 limit requirements of AS/NZS61800-3:2005, adjustable speed electrical power drive systems. Part 3: EMC requirements and specific test methods.

SubDrive 75, SubDrive 150 and SubDrive 300 are categorized as a C2 devices, rated voltage less than 1000V, is neither a plug nor a movable device and when used in a first environment, is intended to be installed and commissioned by a professional.

WARNING

In a domestic environment, the SubDrive 75, SubDrive 150 and SubDrive 300 may cause radio interference, in which case supplementary mitigation measures may be required. If required these items are at additional costs. Franklin Electric can offer a range of filters to assist.

CABLE SELECTION & CIRCUIT PROTECTION

Circuit Breaker and Maximum Input Cable Lengths - Power supply to Controller(metres)														
AWG Copper Wire Sizes, 167°F/75°C Insulation Unless Otherwise Noted														
Model Family	Breaker Amps	Nominal Input Voltage	AWG	14	12	10	8	6	4	3	2	1	1/0	2/0
			mm ²	2.5	4	6	10	16	25	35	35	50	70	95
MonoDrive	15	208		20	35	60	95	150	240	295	390	495		
	15	230		25	45	75	115	185	295	365	480	610		
SubDrive 75	15	208		20	30	55	85	165	215	265	350	445		
	15	230		25	40	65	105	165	260	325	430	545		
MonoDrive XT	20	208			25	40	65	105	165	205	270	345		
	20	230			30	50	80	125	200	250	330	420		
SubDrive 100	25	208				35	55	85	135	165	220	280		
	20	230			25	40	65	105	165	205	270	340		
SubDrive 150	30	208				25	40	70	110	140	180	230		
	25	230				35	55	85	135	170	225	285		
SubDrive 300	40	208						45	70	90	115	145	185	220
	40	230					35	55	85	110	140	180	225	270
XX	BOLD Numbers denote wire with 194°F/90°C insulation only.													

Maximum Motor Cable Length (Metres)											
	HP	kW	14	12	10	8	6	4	AWG		
			2.5	4	6	10	16	25	mm ²		
SubDrive 75	234 514 xxxx	1.5	1.1	130	200	320	500				
SubDrive 100	234 315 xxxx	2	1.5	95	155	245	390	610			
SubDrive 150	234 316 xxxx	3	2.2	70	115	185	300	465			
SubDrive 300	234 317 xxxx	5	3.7		70	110	180	280	435		
MonoDrive	214 505 xxxx	0.5	0.37	120	195	310	490				
	214 507 xxxx	0.75	0.55	90	145	230	365	565			
	214 508 xxxx	1	0.75	75	120	190	300	465			
MonoDrive XT	224 300 xxxx	1.5	1.1	55	90	145	230	365	565		
	224 301 xxxx	2	1.5	45	75	115	185	295	465		

A - 3.3 metre (10 ft) section of cable is provided with the Subdrive/MonoDrive to connect the pressure sensor. (If additional cable is required a "0.3mm²" (22 AWG) x 30 metres)

Maximum allowable wire lengths are measured between the controller and motor

Aluminum wires should not be used with the SubDrive/MonoDrive.

Orange circular drop – electrical cable is not rated for submersible use. Warranty void if used.

All wiring to comply with AS/NSZ3000 and National Electrical Codes and /or local codes.

MonoDrive minimum breaker amps may be lower than 50 Hz AIM Manual specifications for the motors listed due to the soft-starting characteristic of the MonoDrive controller.

SubDrive minimum breaker amps may appear to exceed 50 Hz AIM Manual specifications for the motors listed because SubDrive controllers are supplied from a single-phase service rather than three phase.

SPECIFICATION: MOTORS & PUMPS*

SubDrive Motors - Electrical Details												
Size		kW	HP	Volts	Hz	S.F	Full Load		Max- S.F load		Line to Line Resistance Ohms	Locked Rotor Amps
							Amps	Watts	Amps	Watts		
4"	SubDrive 75	1.1	1,5	230	60	1.3	5	1460	5.9	1890	3.2 - 4.0	33.2
	SubDrive 150	2.2	3			1.15	9.5	2980	10.9	3420	1.8 - 2.2	61.9
	SubDrive 300	3.7	5				15.9	5050	17.8	5810	1.0 - 1.2	106

Model	Pump (HP) / kW	Motor (HP) / kW	Nominal Flow in LPM	Head Nom in M	No. Stages	Pump Length in mm	Motor Length in mm	Total Length in mm	Outlet Sizing "BSP"
SDQP75 25-160	(0.75) /0.55	(1.5) /1.1	25	160	10	386.6	298.5	685.1	1 1/4"
SDQP75 30-135			30	135	8	359.2		657.7	
SDQP75 45-105			45	105	6	314.7		613.2	
SDQP75 60-83			60	83	5	332.7		631.2	
SDQP75 70-82	(1) /0.75		70	82	6	364.0		662.5	2"
SDQP75 100-55			100	55	6	381.0	679.5		

SDQP150 25-300	(1.5) /1.1	(3) /2.2	25	300	18	553.7	513.1	1066.8	1 1/4"
SDQP150 30-245			30	245	15	520.2		1033.3	
SDQP150 45-195			45	195	11	428.0		941.1	
SDQP150 60-155			60	155	9	456.9		970.0	
SDQP150 65-137			65	137	8	426.0		939.1	
SDQP150 100-94			100	94	8	444.5		957.6	2"
SDQP150 150-65			150	65	6	533.4		1046.5	

SDQP300 30-400	(3) /2.2	(5) /3.7	30	400	24	779.8	589.3	1369.1	1 1/4"
SDQP300 45-335			45	335	19	664.7		1254.0	
SDQP300 60-265			60	265	16	674.4		1263.7	
SDQP300 70-240			70	240	14	612.4		1201.7	
SDQP300 100-165			100	165	14	635.0		1224.3	2"
SDQP300 150-118			150	118	11	819.2		1408.5	
SDQP300 200-82			200	82	8	647.7		1237.0	
SDQP300 270-60			270	60	7	725.4		1314.7	

* specification subject to change without prior notice

SUBDRIVE DIP SWITCH SETTINGS

Order No.	SubDrive Wet End	dip.sw No1	dip.sw No 2	dip.sw No 3	dip.sw No 4
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SDQP 75 Series

SDQP 75 25-160	93870708	OFF	OFF	ON	ON
SDQP 75 30-135	93871008	OFF	OFF	ON	ON
SDQP 75 45-105	93871508	OFF	OFF	ON	ON
SDQP 75 60-83	93872008	OFF	OFF	ON	ON
SDQP 75 70-82	93872511	OFF	ON	ON	ON
SDQP 75 100-55	93873511	OFF	ON	ON	ON

SDQP 150 Series

SDQP 150 25-300	93870716	OFF	OFF	ON	ON
SDQP 150 30-245	93871016	OFF	OFF	ON	ON
SDQP 150 45-195	93871516	OFF	OFF	ON	ON
SDQP 150 60-155	93872016	OFF	OFF	ON	ON
SDQP 150 65-137	93872516	OFF	OFF	ON	ON
SDQP 150 100-94	93873516	OFF	OFF	ON	ON
SDQP 150 150-65	93874516	OFF	OFF	ON	ON

SDQP 300 Series

SDQP 300 30-400	93871031	OFF	OFF	OFF	ON
SDQP 300 45-335	93871531	OFF	OFF	OFF	ON
SDQP 300 60-265	93872031	OFF	OFF	OFF	ON
SDQP 300 70-240	93872531	OFF	OFF	OFF	ON
SDQP 300 100-165	93873531	OFF	OFF	OFF	ON
SDQP 300 150-118	93874531	OFF	OFF	OFF	ON
SDQP 300 200-82	93876031	OFF	OFF	OFF	ON
SDQP 300 270-60	93879031	OFF	OFF	OFF	ON

SubDrive controller dip switch settings are per set prior to shipment on all new SubDrive Quick Pak systems. Please refer to US manual for explanations on dip switch settings.

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Franklin Electric

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