



SD300 SINGLE PUMP CONFIGURATION

Firmware V2.12 23.02 and above



Document SD300-2

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Identifying Firmware Version

The devices firmware version is usually marked by a yellow sticker located near the DI terminal rail.

It can also be found in parameters dr.97 and dr.98.



Parameters Firmware V2.12 23.02 and above

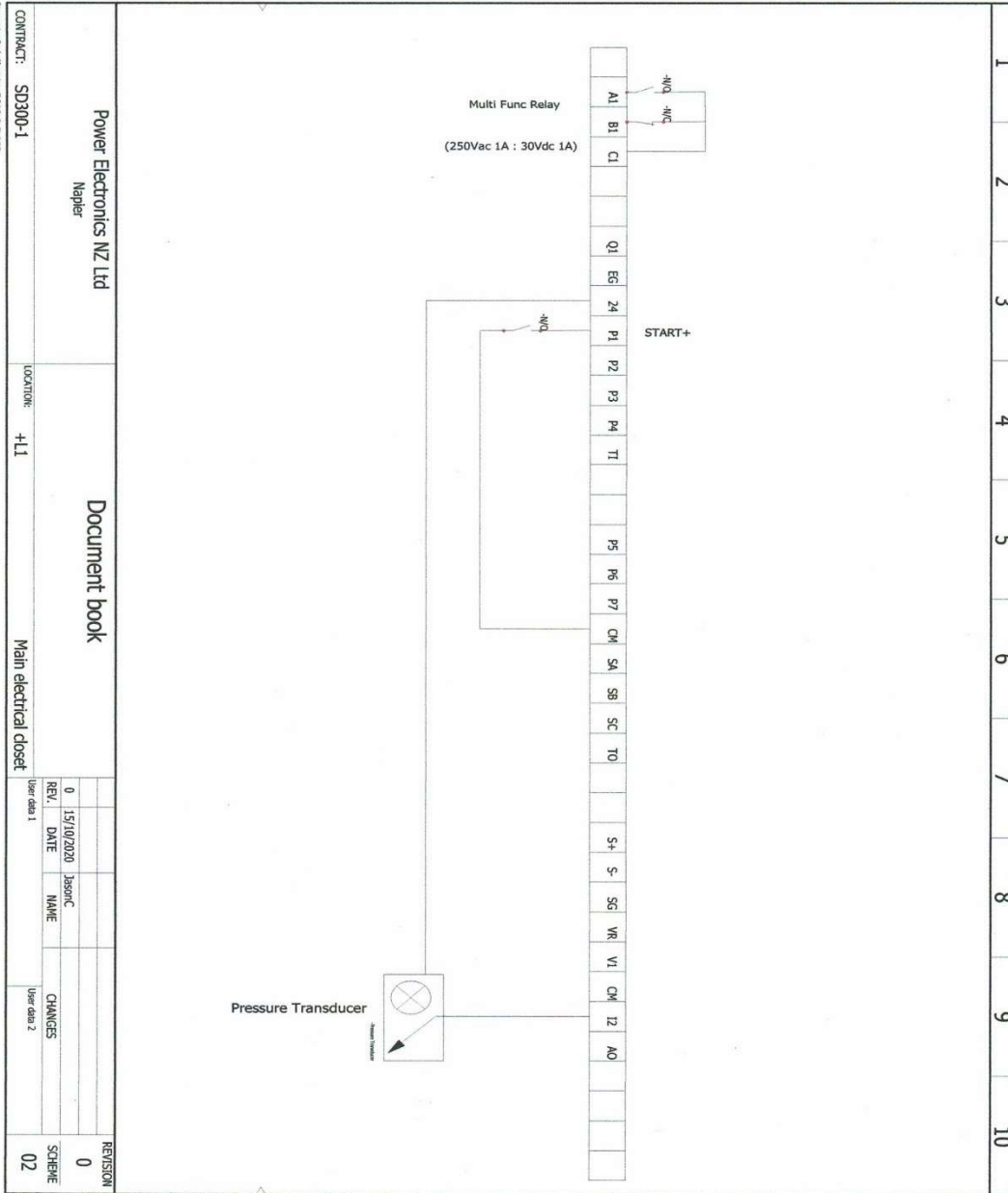
| PARAMETER | DEFAULT | DESCRIPTION | SET VALUE |
|-----------------------------------|---------|-------------------------|---|
| ACC | 20.0sec | Acceleration Time | Adjust accordingly |
| dEC | 30.0sec | Deceleration Time | Adjust accordingly |
| Drv | 1 | Drive Mode | 1: Start/stop by terminals FX-forward or Rx- reverse |
| FUNCTION GROUPS (dr/Ad/bA) | | | |
| dr-14 | xx | Motor power setting | xxkW Set required kW rating |
| dr-15 | 0 | Torque boost select | 0: Man torque 1: Auto torque |
| Ad-24 | 0 | Frequency limits select | 0: No (Limits established by max. freq and start freq) 1: YES (Limits established by Hi and Low freq limits) |
| bA-11 | 4 | Number of motor poles | 4:1500rpm (set accordingly) |
| bA-13 | xx | Motor rated current | xx Amps Set required current motor nameplate |
| bA-15 | xx | Motor rated voltage | xx Volts Set required motor voltage nameplate |
| bA-19 | 380v | Input voltage | 400v supply |
| I/O GROUP (In) 0-20mA Analogue | | | |
| In-53 | 4.0mA | Minimum current of I2 | 4.0mA (Adjust min current accordingly) |
| In-54 | 0.00% | Min frequency for I2 | 0.00% (Adjust min transducer range as required) |
| In-55 | 20.0mA | Maximum current of I2 | 20.0mA Adjust max current accordingly) |
| In-56 | 100.0% | Max frequency for I2 | 100.0% (Adjust max transducer range as required) |
| In-65 | 1 | Config Input P1 | 1: (FX Forward Run Command) |
| PID GROUP (AP) | | | |
| AP-1 | 0 | PID function select | 2 (Proc PID enabled) |
| AP-19 | 50% | PID local set point | Enter desired % pressure set point value |
| AP-20 | 0 | PID set point source | 0 (MREF – local keypad set in screen AP-19) |
| AP-21 | 0 | PID feedback source | 3 (I2 = 4-20mA) |
| AP-22 | 50 | PID proportional gain | Adjust as necessary |
| AP-23 | 10.0 | PID integral gain | Adjust as necessary |
| AP-24 | 0 | PID differential gain | Leave at 0 |
| AP-28 | 0 | PID mode | 1 |
| AP-29 | 50.0 | PID upper speed limit | Adjust as necessary |
| AP-30 | 0.0 | PID lower speed limit | Adjust as necessary |
| AP-34 | 0.00 | Pipe fill speed | Set to frequency to fill empty pipe |
| AP-35 | 0.0 | Pipe fill pressure | Set to pressure pipe is determined to be full |
| AP-36 | 600 | Pipe fill time | Set max time to operate in pipe fill mode |
| AP-37 | 60.0 | Sleep delay time | Adjust as necessary |



| | | | |
|-------|--------|-------------------------------|--|
| AP-38 | 0.00 | Sleep speed | Set sleep below which SD300 will go to sleep |
| AP-39 | 35% | Wake up pressure | Set % pressure level to wake up at |
| AP-40 | 0 | Wake up mode | Set to either 0-Actual 2-Diff (AP-39) |
| AP-42 | 0 | PID engineering units | Select desired engineering units |
| AP-47 | 0 | Overpressure feedback mode | 0- None 1- Warning 2- Free Spin 3- Decel Ramp |
| AP-48 | 100s | Overpressure feedback delay | Adjust to suit |
| AP-49 | 90% | Overpressure feedback level | Adjust to suit (Value is % range of PID input not setpoint) |
| AP-50 | 0 | Under pressure feedback mode | 0- None 1- Warning 2- Free Run 3- Decel |
| AP-51 | 20.00s | Under Pressure delay | Adjust to suit |
| AP-52 | 1.0 | Under pressure feedback level | Adjust to suit (Value is % range of PID input not setpoint) |
| AP-53 | 0 | PID sleep mode | 0- Sleep disabled 1- Freq/rpm 2- Output current 3- Freq and Current |
| AP-54 | 0.00 A | PID Sleep current level | Adjust to suit |
| | | | denotes minimum necessary adjustments. |

Connection Diagram

DesignSpark Electrical



Terminal Numbers

Terminals CM / P1 : Start+ (NO contact) Pump Start/Stop
 Terminals 24 / I2 : 24VDC supply/4-20mA Input Pressure Transducer

NOTE: the remote I/O control cables must be screened



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Notes/explanations of parameters

Note all scaling of the SD300 equates to a percentage value %.

Example- Pressure Transducer 0-10Bar (4-20mA) Scaling is already 0-100%, so if you wanted to maintain a set point pressure of 5 Bar in parameter AP-19 set the value to 50.

On starting the SD300 - if pipe fill AP.35 is set >0 the pipe fill parameters will be followed. Once the pressure reaches the pipe fill setpoint the drive will regulate using PID control to maintain the pressure setpoint set in AP-19.

[AP.53 PID Sleep Mode]

This parameter selects the variable to monitor for the sleep mode. The possible values are:

0-None: sleep mode is disabled.

1-Out Freq: sleep mode is only activated by frequency. [Adjusted in AP-38]

2-Output Current: sleep mode is only activated by current. [Adjusted in Ap-54]

3-Freq or Current: sleep mode is activated by either frequency or current.

Sleep mode 1 freq:

If all the water outlets are closed while the VSD is running the VSD will ramp down under PID control until it reaches the Sleep speed (AP-38), at which point the VSD will turn off after the delay time (AP-37) and enter "Sleep Mode".

Sleep mode 2 current:

If all the water outlets are closed while the VSD is running the VSD will ramp down under PID control until it reaches the Sleep current (AP-54), at which point the VSD will turn off after the delay time (AP-37) and enter "Sleep Mode".

Note: Sleep mode will only work if the hydraulic system is fitted with a non-return valve, permitting the trapping of water under pressure within the pipe work. The pressure transducer must be mounted on the outlet side of the non-return valve.

Once in "Sleep Mode" the VSD continues to monitor the pressure feedback from the transducer. Should a water outlet be opened the system pressure will drop, and once it drops to the "Wake" pressure level the drive will start and PID ramp back to the operational setpoint.

It is necessary to experiment with the "Sleep" and "Wake" levels to ensure a stable system.