

# Programmable digital valve controller, type PDVC-50

for control of proportional and on/off valves

## 1. General information

### 1.1 Brief description

The PDVC-50 is a microprocessor-based controller incorporating built-in application software for “plug and play” compatibility with HAWE PSL/V(F) proportional directional control valves. The programmable valve driver module can also be configured for use with directional control valves, pressure control valves, flow control valves, and certain proportional pump controls.



Fully potted, the unit's design is well-suited to withstand the harsh impact of a mobile environment.

### 1.2 Main features

- Plug and play compatibility with default settings designed for several HAWE product type codes
- Packaged in a small, rugged enclosure with sealed connectors and an encapsulated module with solid potting designed to withstand extreme conditions and harsh mobile applications
- LED indicators for inputs, outputs, error, and communication for easy trouble shooting
- E-stop (pull low), to disable outputs in 10 ms
- Auto-detection and self-tuning features to assure fast, simple, low cost implementation (installer needs very little electronics experience)
- Auto-calibration of input signals to assure optimized performance, exact centering, and best resolution
- Set-up (when required) can be executed via programming pendant
- Loss of signal (command) disables outputs in case of wire harness or input device failure, or incorrect installation
- User selectable valve and solenoid types, ramping (on and off), and minimum and maximum current (via loader/monitor and pendant)
- On-board 5 VDC power supply for input devices

### 1.3 Example valve configurations

- Three (3) section PSL/V(F) Size 2, 3, or 5 assembly (2 proportional, 1 on/off)
- Three (3) section PSL/V(F) combination assembly (2 proportional, 1 on/off)
- Six (6) independent coils - 4 proportional, 2 on/off  
(4 acting simultaneously: 2 proportional, and 2 on/off)

### 1.4 Possible inputs

- Potentiometers
  - Single or dual axis joysticks
  - Self-powered joystick
  - 4...20 mA signal
  - 0 - 5 VDC
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## 2. Available versions

### 2.1 Characteristic data

Part number	PDVC-50
Design	Composite body, fully-potted electronics
Mounting	Two through holes on opposite sides, 4" c-c, 0.325" diameter (see dimensions, Section 4)
Installation positioning	Arbitrary
Temperature	-40 to + 85° C (operation/storage)
Power supply	9 to 32 VDC
Mass	23 oz.
Protection rating	Enclosure - IP67 Properly assembled connectors - IP67
CANbus ready	J1939
Input options	0 - 5 VDC (default), 4 ... 20 mA (optional)

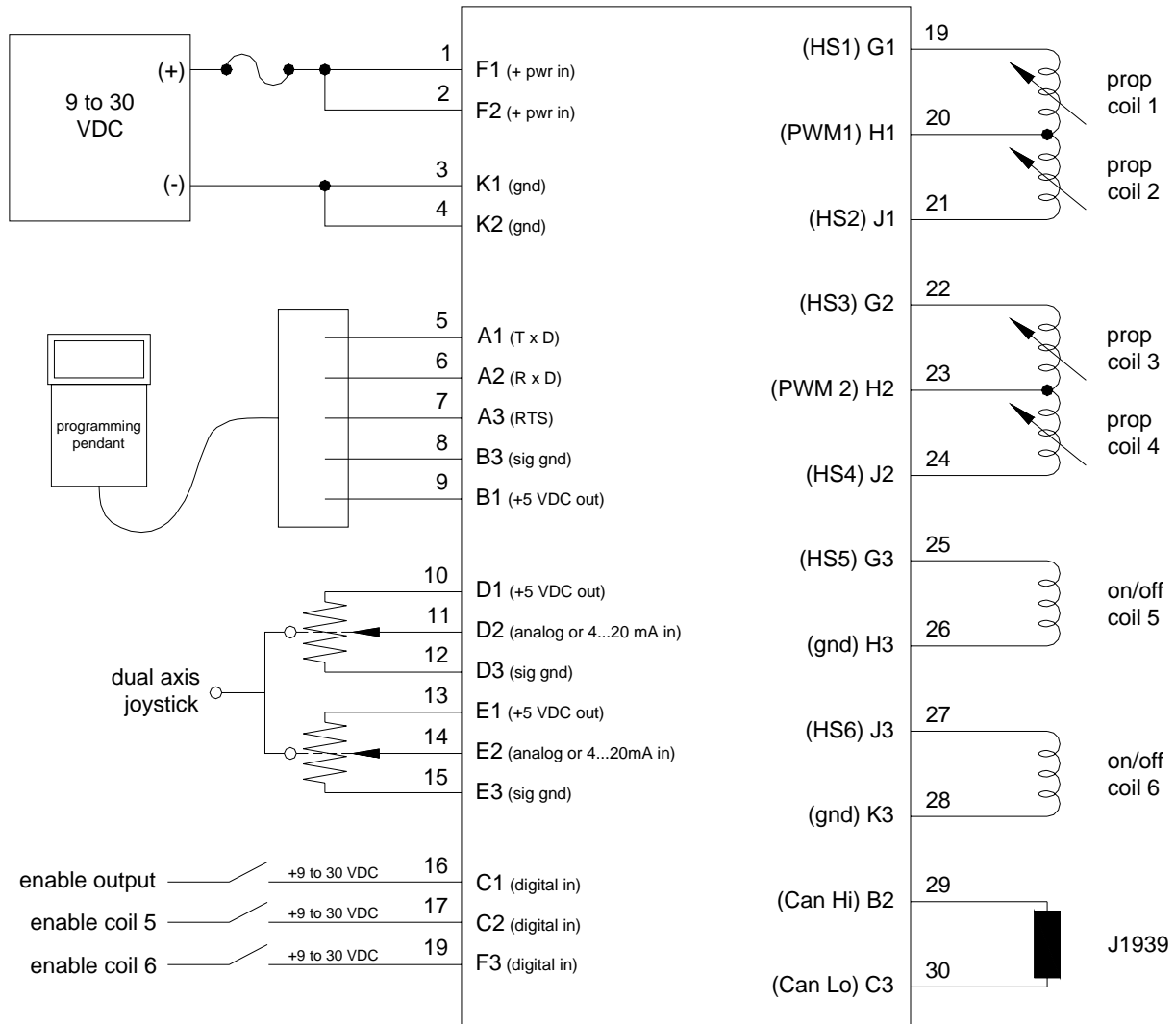
## 2.2 Default parameters

Voltage	9 - 30 VDC (auto-detect for 12 or 24 VDC)
Valve type	Size 3/5 (selectable: Size 2)
Input type	0 - 5 VDC (factory option: 4 ... 20 mA)
Min	12 VDC: 550 mA, 24 VDC: 275 mA
Max	12 VDC: 1,250 mA, 24 VDC: 600 mA
Ramps	X-axis on/off: 10 ms, Y-axis on/of: 10 ms
Range	Up to 6 seconds

## 2.3 Selectable parameters

Default	Selectable
Twin coils	Single coils
Input high: coil energized	Input low (no voltage): coil energized as desired
Pendant: contrast = 80%, backlight = 20%	selectable on special request
Dither: frequency = 55 Hz, amplitude = 20%	enabled
on/off coils #5 and #6: disabled	

## 2.4 Pin assignments (with example configuration)



### 3. Software, programming, diagnosis

#### 3.1 Software

Includes:

- Operating system with integrated CAN-functionality
- Functionality of proportional outputs 1 - 4 and on/off outputs 5 and 6
- Initialization functions for all outputs
- Diagnosis software

#### 3.2 Programming

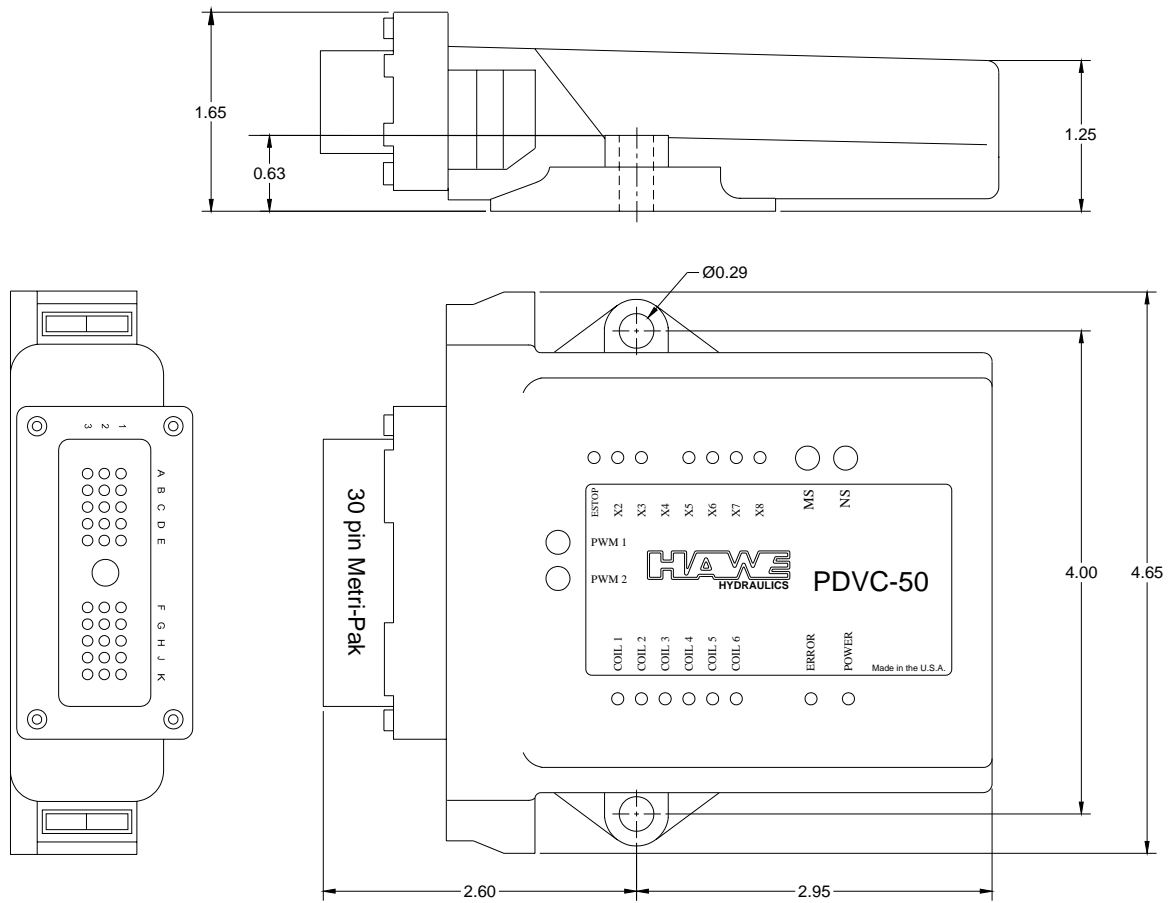
The PDVC-50 is pre-programmed for full, plug-and-play compatibility with HAWE Size 3 and Size 5 PSL/PSV and PSLF/PSVF solenoids. Standard settings can be adjusted using a parameterization pendant, or a laptop.

#### 3.3 Diagnostics

Power LED	Blinks if the power supply voltage is above 30 VDC; turns off is the power supply voltage drops below 8 VDC
Status LED	This LED is programmable and is commonly used for error status or blink codes
Digital input status	Turns on when the corresponding input is activated; inputs can be programmed as active high or low
High-side output status	Turns on when corresponding high-side output is activated; blinks once per second for an open circuit; blinks four times per second for a short circuit
PWM output driver status	Displays duty-cycle status for corresponding PWM output; the LED will display from red to green as the duty-cycle changes from 0% to 100% (50% displaying yellow)
Module status (MS)	<ul style="list-style-type: none"> <li>• Off: no power to module</li> <li>• On Green: module is operating normally</li> <li>• Flashing Green: standby state; may need commissioning</li> <li>• Flashing Red: recoverable fault</li> <li>• On Red: unrecoverable fault</li> <li>• Flashing Red/Green: self-test mode</li> </ul>
Network status (NS)	<ul style="list-style-type: none"> <li>• Off: no J1939 device in the project</li> <li>• Flashing Green: J1939 device in project, but communication has not been established.</li> <li>• On Green: J1939 communication has been established</li> <li>• Flashing Red: J1939 communication is in a timed-out state</li> <li>• On Red: device has detected an error that has rendered it incapable of communicating on the network</li> </ul>

## 4. Dimensions

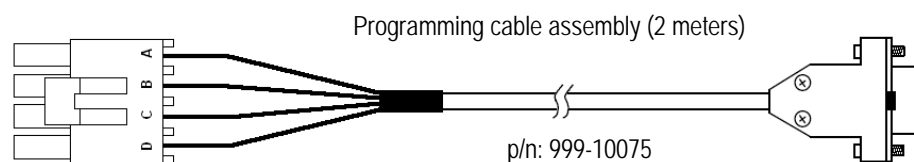
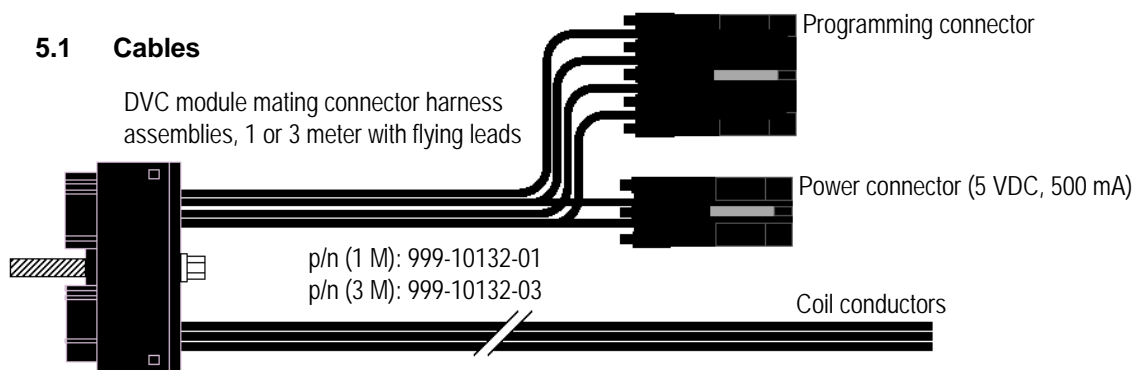
### 4.1 Basic unit



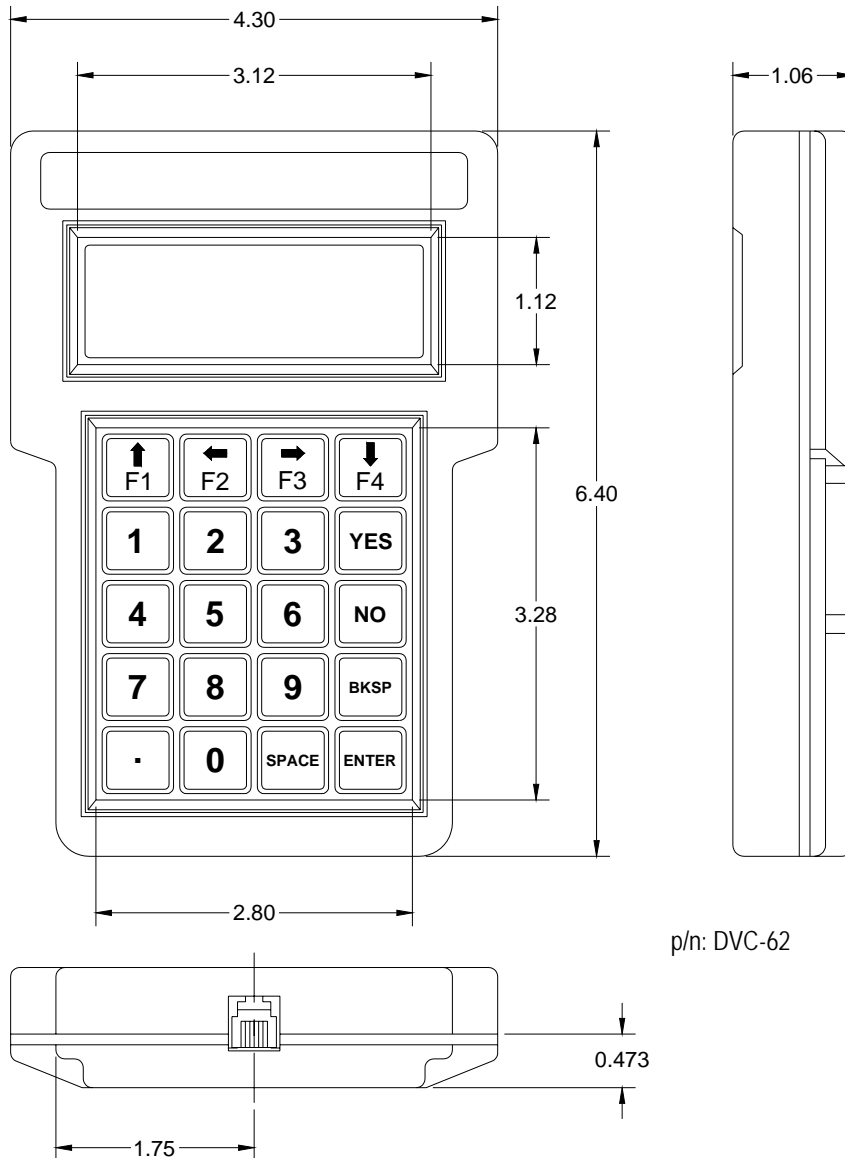
## 5. Accessories

### 5.1 Cables

DVC module mating connector harness assemblies, 1 or 3 meter with flying leads



## 5.2 Programming pendant



p/n: DVC-62

### Scrolling Options

- F1: scroll backward to previous item
- F2: display previous screen
- F3: display next screen
- F4: scroll forward to next item
- BKSP: scroll to previous field
- Enter: scroll to the next field

### Data Entry Options

- 0, 1, 2,...9: rightmost digit in field
- Yes: increases field value by 1
- No: decreases field value by 1
- Space: clears the field
- Period: not used

### Selectable

Hit any Data Entry key to select ( "S" character will appear in the right margin for the selected item).

### True/False

Hit any Data Entry key to toggle ("T" or "F" character will appear in the right margin).

### Numeric

Hit any Data Entry key to enter a digit or increment the field's value (note the new field value will be displayed unless the entry exceeds the maximum allowed and, in this case, the maximum value is displayed).