
POLYSPEDE

## The Polyspede digital DC drive is probably the most powerful on the market today

With an extensive range of standard software blocks, it can take control of the most demanding motion tasks.
All models include 40-character alphanumeric backlit display, full set of centre winding blocks and field weakeners for extended speed range.

A high quality product from a world-class company. UL, cUL and CE approved.

Available in 2Q and 4Q versions, the range comprises 3 very compact chassis sizes with models rated from 5 to 265Kw.

Includes FREE SPEDESTER CONFIGURATION AND MONITORING SOFTWARE.

## Key Features

- Friendly easy-to-use menu structure with English language parameter names.
- Extremely flexible block diagram including unique “Configuration Checker”, detects shorting of user programmed block diagram output connection.
- Free speedster drive configuration and monitoring software.
- Failsafe automatic “Revert to AVF” on speed feedback failure.
- Ultra compact sizes offering significant panel space savings over other manufacturers.
- Programming menu is designed for rapid travel to desired parameter using ergonomically designed keys.
- Five feedback transducer options as standard.
- Non-volatile trip alarm memory, even after power-down.
- Real language parameter description eliminates need for look up tables.
- UL, cUL, and CE approved.
- Built in ìOscilloscopeî output for full parameter monitoring.
- Three fully independent, user-programmable drive configurations.
- Extensive, multi-function programmable I/O, with over 36 digital & analogue input/output combinations.
- Full suite of centre-winding macros included.
- Built-in system application blocks with descriptive connection points.
- Unique electronic regenerative stopping facility on most 2Q models.
- In-depth fault monitoring and comprehensive system alarms.
- Serial communications to allow off-site programming and remoter diagnostics.
- In-depth diagnostic facility available from on board display & ìin-built meterî.
- On-board fully controlled field with five operating modes.
- Easy-to-use product manual with display graphics and block diagrams.
- Full suite of built in encoder functions as standard.

# SPEDESTER DRIVE


LARGE 40 CHARACTER BACKLIT ALPHANUMERIC LCD DISPLAY.

FRIENDLY EASY-TO-USE MENU STRUCTURE WITH ENGLISH LANGUAGE PARAMETER NAMES.

5 - 60 HP

75 - 170 HP

200 - 350 HP

## Rating & dimensions

| SPEDESTER 2 QUADRANT | SPEDESTER 4 QUADRANT | HP @460V | kW @460V | Armature Current DC Amps | Field Current DC Amps | Dimension (HxWxD) Inches |
|---|---|---|---|---|---|---|
| D2Q1-50 | D4Q1-50 | 5 | 3.7 | 12 | 8 | 11.4 x 8.5 x 6.9 |
| D2Q1-100 | D4Q1-100 | 10 | 7.5 | 24 | 8 | 11.4 x 8.5 x 6.9 |
| D2Q1-150 | D4Q1-150 | 15 | 11.0 | 30 | 8 | 11.4 x 8.5 x 6.9 |
| D2Q1-200 | D4Q1-200 | 20 | 15.0 | 36 | 8 | 11.4 x 8.5 x 6.9 |
| D2Q1-250 | D4Q1-250 | 25 | 20.0 | 51 | 8 | 11.4 x 8.5 x 6.9 |
| D2Q1-300 | D4Q1-300 | 30 | 22.5 | 67 | 8 | 11.4 x 8.5 x 6.9 |
| D2Q1-400 | D4Q1-400 | 40 | 30.0 | 72 | 8 | 11.4 x 8.5 x 6.9 |
| D2Q1-500 | D4Q1-500 | 50 | 37.0 | 99 | 8 | 11.4 x 8.5 x 6.9 |
| D2Q1-600 | D4Q1-600 | 60 | 45.0 | 123 | 8 | 11.4 x 8.5 x 6.9 |
| D2Q1-750 | D4Q1-750 | 75 | 55.0 | 155 | 16 | 16.1 x 8.5 x 8.6 |
| D2Q1-1000 | D4Q1-1000 | 100 | 75.0 | 205 | 16 | 16.1 x 8.5 x 8.6 |
| D2Q1-1250 | D4Q1-1250 | 125 | 90.0 | 240 | 16 | 16.1 x 8.5 x 8.6 |
| D2Q1-1500 | D4Q1-1500 | 150 | 110.0 | 270 | 16 | 16.1 x 8.5 x 8.6 |
| D2Q1-1750 | D4Q1-1750 | 175 | 132.0 | 330 | 16 | 16.1 x 8.5 x 8.6 |
| D2Q1-2000 | D4Q1-2000 | 200 | 150.0 | 400 | 32 | 19.9 x 8.5 x 11.6 |
| D2Q1-2500 | D4Q1-2500 | 250 | 185.0 | 430 | 32 | 19.9 x 8.5 x 11.6 |
| D2Q1-3000 | D4Q1-3000 | 300 | 225.0 | 530 | 32 | 19.9 x 8.5 x 11.6 |
| D2Q1-3500 | N / A | 350 | 265.0 | 630 | 32 | 19.9 x 8.5 x 11.6 |

This is a highly intuitive 'windows' based software package which requires no previous knowledge of any programming language.

The package can be used in 2 operating modes:

Off-line without a drive connected, the user can create recipes of drive parameters and block connections

On-line with a drive connected, the SPEDESTER can also be used to monitor and adjust the drive parameters.

The PC running the SPEDESTER software is connected to the drive via the PC's standard serial port. The package is designed for ease of use and provides a clear, defined and understandable method for accessing all levels of the drives extensive built-in functionality.

This makes complete system configurations very straightforward and quick.

There are 3 levels of recipe creation and functionality available in SPEDESTER to suit all requirements. They are:

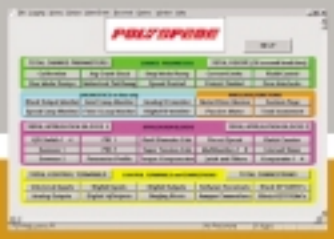
Total recipe (top level) - used to manipulate the entire range of parameters.

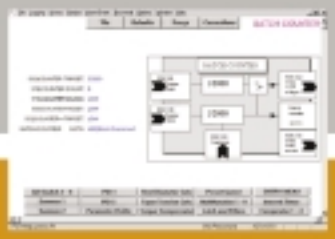
Bar sub-menus (2nd level) - used to manipulate each main sub-set of parameters.

Block pages (lowest level) - used to manipulate parameters of individual blocks within the drive. The recipes and sections of recipes may be cut and pasted or printed out.

## Key Features

- MINIMISES DRIVE SET-UP AND COMMISSIONING TIME
- ALLOWS ON-LINE AND OFF-LINE DRIVE CONFIGURATION
- EASY TO USE 'WINDOWS' BASED SOFTWARE PACKAGE
- CONFIGURES DRIVE APPLICATION, BLOCK DIAGRAM AND SET-UP PARAMETERS
- ALLOWS REAL TIME PARAMETER DIAGNOSTICS AND MONITORING
- ALLOWS "COPY AND PASTE" OF ENTIRE RECIPES OR SECTIONS OF RECIPES TO IMPROVE SPEED AND EASE OF DRIVE SETUP
- CUSTOM PAGE ALLOWS USERS TO SELECT UP TO 16 PARAMETERS DISPLAYED IN BAR GRAPH OR PANEL METER FORMAT
- TILE AND ZOOM FACILITY ALLOWS USER TO VIEW AND ARRANGE ANY NUMBER OF SCREENS SIMULTANEOUSLY
- UNIQUE "CONFIGURATION CHECKER" AUTOMATICALLY SCANS FOR USER PROGRAMMED CONNECTION FAULTS AND HIGHLIGHTS THE CONFLICTS
- THE LAYOUT OF THE DIAGRAM PAGES AND SOFT BUTTONS MIMIC THE DRIVES MENU STRUCTURE
- DIAGNOSTIC MONITORING IN ENGINEERING UNITS (VOLTS, AMPS, Kw, RPM, Hz) AND PERCENTAGES FOR ALL TERMINALS AND BLOCK OUTPUTS
- EXTENSIVE COLOR DYNAMICS TO ASSIST IN THE DETECTION OF IMPORTANT CONDITIONS
- BUILT-IN INTERACTIVE HELP PAGES
- INTUITIVE TO USE





The software is included free of charge on a CDROM with every digital drive. It makes interconnecting the drive's application blocks a simple task and allows the user to tailor the demands of the process or application. These abilities further strengthen Polyspede's commitment to provide the user with cost effective and easy to use DC drive products.

THE BAR SUB-MENUS 2ND LEVEL shows the 4 main menu bars on the Spedester entry page. These are:

Change parameters

Diagnostics and ancillary functions

Applicaiton blocks

Control terminals

Each bar has buttons that allow access to a drive block page.

THE BLOCK PAGES LOWEST LEVEL
Each block has its own page which details its default values (shown in blue text) and any altered values (shown in black text) with its own block diagram. In most cases this alleviates the need for a hard copy of the technical manual - an excellent plus point when commissioning on site!

Diagnostic and monitoring in engineering units (volts, amps, Kilowatts, rpm, Hz) and percentages for all terminals and block diagram outputs can be shown in bar graph or panel meter format.

# Specification

## RATINGS

POWER CONFIGURATION
Four Quadrant Regenerative
Two Quadrant Non-Regenerative
(some PL models have electronic regenerative stopping facility)

Fully controlled variable field supply

ARMATURE VOLTAGE
V armature = Vac x 1.2

ARMATURE CURRENT RATINGS (Adc)
12, 24, 36, 51, 72, 99, 123, 155, 205, 270, 330, 430, 530, 630
Overload 150% for 25 seconds

FIELD CURRENT
8A (12-123A ratings)
16A (155-330A ratings)
32A (430-630A ratings)

FIELD VOLTAGE
V field = 0 to 0.9 x Auxiliary AC Supply

AC SUPPLY VOLTAGE (VAC)
Main 3 phase 50-60Hz :-
12 to 480Vac +/- 10%
for armature power
Auxiliary 3 phase 50-60Hz :-
100 to 480Vac +/- 10%
for field power
Control 1 phase 50-60Hz :-
110 to 240Vac +/- 10%
for control power


## PROTECTION

Interline device networks
High energy MOV's
Instantaneous over-current
Field failure & over-current
Motor over-temperature
Thyristor stack over-temperature
Mains supply phase loss
Mains synchronization loss
Armature over-volts
Speed feedback failure
Stall protection
Standstill logic
Thyristor "trigger" failure
Digital output short circuit


## INPUTS/OUTPUTS

ANALOGUE INPUTS
(8 Total - resolution 5mV+sign)
All configurable
All have programmable thresholds and 4 voltage ranges
+/_ 5/10/20/30V
All inputs are over-voltage protected (can also be utilized as digital i/p's)

ANALOGUE OUTPUTS
(4 Total - resolution 2.5mV+sign)
1 armature current output
3 configurable
All outputs are short circuit protected

DIGITAL INPUTS
(17 Total)
All configurable

DIGITAL OUTPUTS
(7 Total - max 32V - 350mA total)
Short circuit protected
Over-temperature and over-voltage protected
All configurable

## STANDARD SOFTWARE FUNCTIONS

Full suite of center winding macros
Motorized pot simulator with memory
2x PID's (undedicated)
2x Summers (undedicated)
2x Filters (undedicated)
Delay timer
Current Profiling
Spindle Orientation
Jog/Crawl functions
Dual motor swap
Latch
Linear or S ramp
Slack take up
Batch counter
Auto self-tune current loop
3 user programmable drive configurations

## ALARM STATUS

First fault latched and automatically displayed.
Fault automatically saved at power off.

## MONITORING

All analogue input voltages
All digital input states
All analogue output voltages
All digital output states
Tachogenerator voltage
Motor armature volts
Output power
AC supply volts


## FIELD CONFIGURATIONS

Fixed current
Fixed voltage
Field weakening
Delayed quenching
Standby field value
Field economy

## ENVIRONMENT

Ambient Operating Temperature
0-50C (all ratings)
-25 to +55C storage

## STEADY STATE ACCURACY

0.01% Encoder feedback with digital reference.
0.1% Analogue tachogenerator feedback.
2% Armature voltage feedback.
0.01% Encoder + tacho encoder + AVF or encoder-only feedback.
Maximum encoder frequency 100KHz

## STANDARDS

CE marked to EN50178 (low voltage directive)

EN50082-2 : 1995
immunity industrial environment

EN50082-1 : 1997
immunity residential commercial and light industry

EN50081-2 : 1993
emissions industrial environment (EN55011 Class A)

EN50081-1 : 1992
emissions industrial environment (EN55022 Class B)

UL and cUL listed

POLYSPEDE Reliability fitted as standard

Polyspede Electronics Corporation
6770 Twin Hills Avenue Phone: 214-363-7245
Dallas, TX. 75231 Fax: 214-363-6361
www.polyspede.com