PL/PLX

SPRINT ELECTRIC
3 PHASE DIGITAL DC DRIVES

SPRINT ELECTRIC

The Sprint Electric 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 alpha-numeric back-lit display, full set of centre winding blocks and a field weakener for extended speed range. A high quality product from a world beating company. UL, cUL and CE approved.

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

INCLUDES FREE PL PILOT
CONFIGURATION AND MONITORING SOFTWARE

The brains behind the digital drive

Aris Potamianos (pictured) has been responsible for the design and engineering of Sprint Electric's range of 3 phase DC Digital Drives type PL & PLX.

Dr Potamianos has a wealth of experience gained from working with companies like Anderson Strathclyde where he pioneered a switched reluctance motor application, Cegelec Industrial Controls, SR Drives and Eurotherm Drives where he was key in the design of their 590 range of digital drives.

Dr Potamianos is an effervescent, enthusiastic and solution focused man. He is regarded as one of the foremost designers of digital drives today.

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 connections.

Free "PL PILOT" 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 "Oscilloscope" 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 remote diagnostics.

In depth diagnostic facility available from on board display & "in-built meter".

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.

PL/PLX THE DRIVE

21)RAMP OP MONITOR
0.00 %

LARGE 40 CHARACTER BACKLIT ALPHANUMERIC LCD DISPLAY

FRIENDLY EASY TO USE MENU STRUCTURE WITH ENGLISH LANGUAGE PARAMETER NAMES

Rating & dimensions

5-50Kw   65-145Kw   185-265Kw

PL 2 QUADRANT PLX 4 QUADRANT		Kw @ 460V	HP @460V	Armature Current DC Amps	Field Amps	Frame Size (H x W x Dmm)
PL and PLX	5	5	6.6	12	8	
PL and PLX	10	10	13.3	24	8	
PL and PLX	15	15	20	36	8	
PL and PLX	20	20	26.6	51	8	289 x 216 x 174
PL and PLX	30	30	40	72	8	
PL and PLX	40	40	53.3	99	8	
PL and PLX	50	50	66.6	123	8	
PL and PLX	65	65	90	155	16	
PL and PLX	85	85	115	205	16	
PL and PLX	115	115	155	270	16	410 x 216 x 218
PL and PLX	145	145	190	330	16	
PL and PLX	185	185	250	430	32	
PL and PLX	225	225	300	530	32	505 x 216 x 294
PL only	265	265	350	630	32	

The PL PILOT is a PC based graphical configuration and diagnostic tool for use with the range of PL and PLX digital DC drives. It greatly simplifies drive programming, installation and commissioning.

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 PL PILOT can also be used to monitor and adjust the drive parameters.

The PC running the PL PILOT 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 PL PILOT 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.

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 SET UP

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
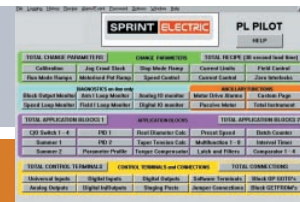
DIAGNOSTIC MONITORING IN ENGINEERING UNITS (VOLTS, AMPS, Kw, RPM, Hz) AND PERCENTAGES FOR ALL TERMINALS AND BLOCK OUTPUTS

EXTENSIVE COLOUR DYNAMICS TO ASSIST IN THE DETECTION OF IMPORTANT CONDITIONS
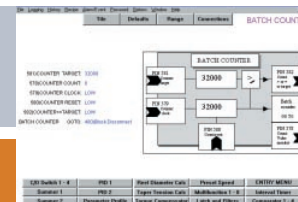
BUILT IN INTERACTIVE HELP PAGES

INTUITIVE TO USE

PLPILOT CONFIGURATION & DIAGNOSTIC SOFTWARE

The PL PILOT 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 drive's control strategy to exactly meet the demands of the process or application. It is these abilities which further strengthens Sprint Electric's commitment to providing 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 PL PILOT entry page. These are:

Change parameters

Diagnostics and ancillary functions

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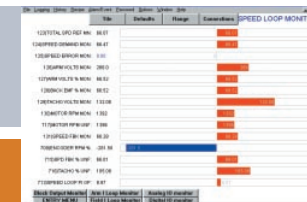
Diagnostic and monitoring in engineering units (volts, amps, Kilowatts, rpm, Hz) and percentages for all terminals and block diagram outputs can be shown in bar graph or panel meter format.

Specification

RATINGS

POWER CONFIGURATION
PLX Four Quadrant Regenerative
PL 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 synchronisation 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 utilised 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 temp and
over voltage protected
All configurable

## STANDARD SOFTWARE FUNCTIONS
Full suite of centre winding macros
Motorised 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
Draw control
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 current (amps)
Motor field current (amps)
Motor armature volts
Output power
AC supply volts
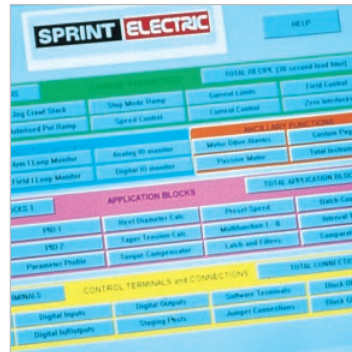
FIELD CONFIGURATIONS
Fixed current
Fixed voltage
Field weakening
Delayed quenching
Standby field value
Field economy

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

SPRINT ELECTRIC Reliability fitted as standard

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PL/PLX

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