Bardac drives

PL / PLX Digital DC Drive
Part 4 Default Block Diagram

Part 1
PL / PLX
Digital DC Drive

Part 2
Application Blocks

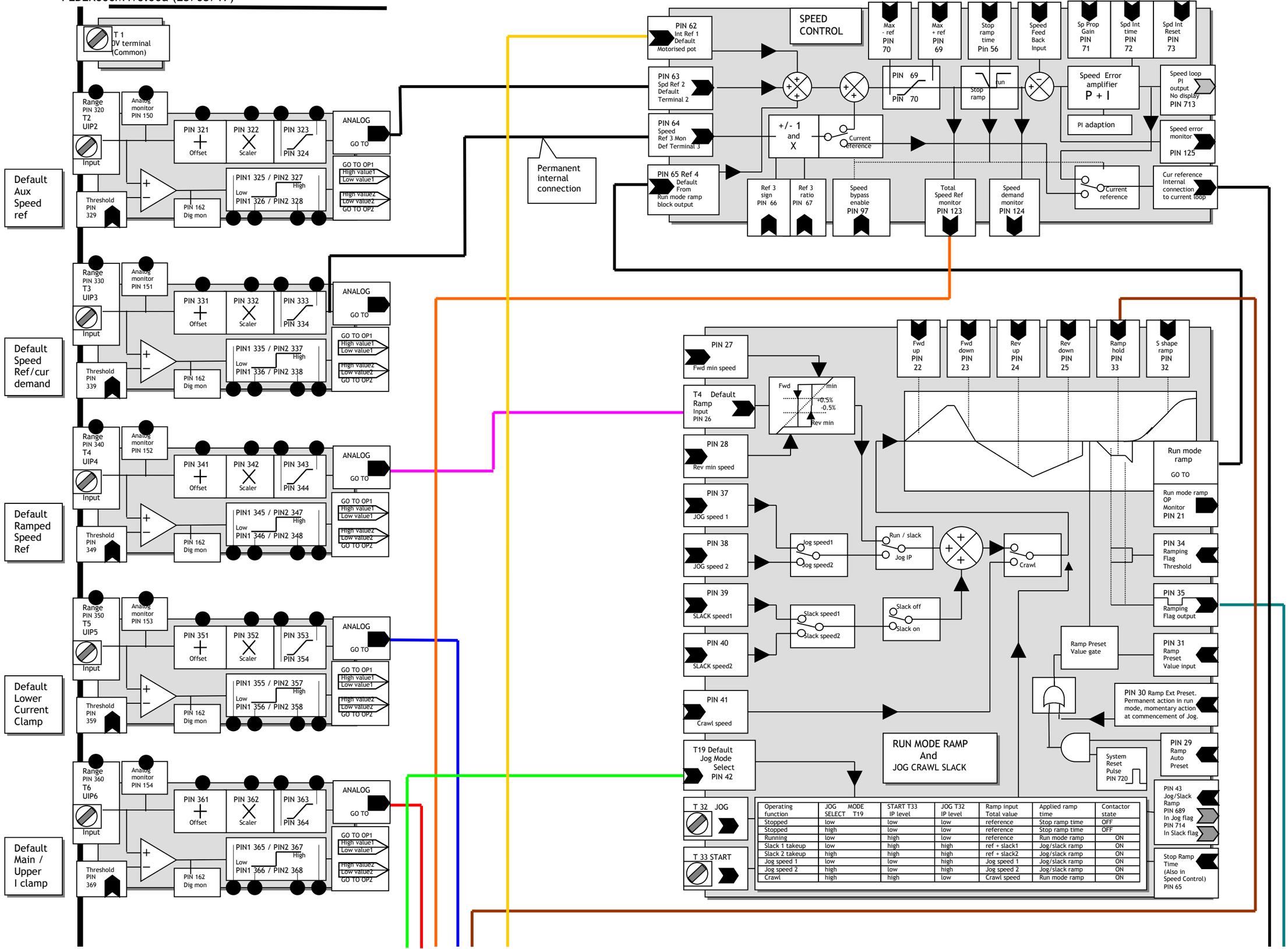
Part 3
High Power Modules
PL / PLX 275 - 980

Part 4
Default Block Diagram

HG102635 V6.00a

1 Default Block Diagram

PLBLK600M4v6.00a (23/03/17)



Operating function	JOG MODE SELECT T19	START T33 IP level	JOG T32 IP level	Ramp input Total value	Applied ramp time	Contactor state
Stopped	low	low	low	reference	Stop ramp time	OFF
Stopped	high	low	low	reference	Stop ramp time	OFF
Running	low	high	low	reference	Run mode ramp	ON
Slack 1 takeup	low	high	high	ref + slack1	Jog/slack ramp	ON
Slack 2 takeup	high	high	high	ref + slack2	Jog/slack ramp	ON
Jog speed 1	low	low	high	Jog speed 1	Jog/slack ramp	ON
Jog speed 2	high	low	high	Jog speed 2	Jog/slack ramp	ON
Crawl	high	high	low	Crawl speed	Run mode ramp	ON

Default block diagram 2

Default MP Preset Enable

Range PIN 370 T7 UIP7 — Input — Threshold PIN 379 — Analog monitor PIN 155 — PIN 162 Dig mon

PIN 371 Offset — PIN 372 Scaler — PIN 373 — PIN 374

PIN1 375 / PIN2 377 — Low PIN1 376 / PIN2 378 — High

ANALOG GO TO — GO TO OP1 — High value1 — Low value1 — High value2 — Low value2 — GO TO OP2

Default MP UP Input

Range PIN 380 T8 UIP8 — Input — Threshold PIN 389 — Analog monitor PIN 156 — PIN 162 Dig mon

PIN 381 Offset — PIN 382 Scaler — PIN 383 — PIN 384

PIN1 385 / PIN2 387 — Low PIN1 386 / PIN2 388 — High

ANALOG GO TO — GO TO OP1 — High value1 — Low value1 — High value2 — Low value2 — GO TO OP2

Default MP DOWN Input

Range PIN 390 T9 UIP9 — Input — Threshold PIN 399 — Analog monitor PIN 157 — PIN 162 Dig mon

PIN 391 Offset — PIN 392 Scaler — PIN 393 — PIN 394

PIN1 395 / PIN2 397 — Low PIN1 396 / PIN2 398 — High

ANALOG GO TO — GO TO OP1 — High value1 — Low value1 — High value2 — Low value2 — GO TO OP2

Default Speed F'back output

T 10 — AOP1 — PIN 159 OP monitor — PIN 253 Rect/Bipolar — PIN 252 Offset — PIN 251 — AOP1 GET FROM

Default Total Speed Ref OP

T 11 — AOP2 — PIN 160 OP monitor — PIN 256 Rect/Bipolar — PIN 255 Offset — PIN 254 — AOP2 GET FROM

Default Total Current demand

T 12 — AOP3 — PIN 161 OP monitor — PIN 259 Rect/Bipolar — PIN 258 Offset — PIN 257 — AOP3 GET FROM

T 13 0V terminal (Common)

PIN 53 Preset Value

PIN 52 Preset Enable Default T 7

PIN 48 Up Command Default T 8

PIN 49 Down Command Default T 9

Memory boot up 1) Preset (disabled) 2) Retain (enabled) PIN 54

Up time PIN 46 — Down time PIN 47

MOTORISED POT RAMP

Motorised potentiometer GO TO — Motorised Pot Output PIN 45

+300% — -300% — PIN 50 — PIN 51

Min clamp PIN 51 — Max clamp PIN 50

TRANSMIT. (This is initiated by the drive when in MASTER mode, and initiated by data receive when in SLAVE mode).

Getfrom — Master Monitor PIN 192 — RS232 PORT 1

RS232 Port1 FCC68 socket

RECEIVE (This is active when in MASTER mode, and initiates a data transmit when in SLAVE mode).

Slave monitor PIN 191 — Ratio PIN 189 — +/-Sign PIN 190 — Ref exch Slave Goto

CURRENT CONTROL (Clamps)

PIN 91 Extra Current reference

PIN 3 Current Limit % Calibration Menu

PIN 82 Overload % target

PIN 84 Dynamic profile Enable — PIN 87 Dynamic profile Low I%

PIN 89 Upper cur clamp — Scaler PIN 81

Inverter -1

I limit% — +/- clamps

Scaled user +ve Clamp PIN 136 — Prevailing +ve Clamp PIN 138 — To current Error amp — Scaled user -ve Clamp PIN 137 — Prevailing -ve Clamp PIN 139 — At limit flag PIN 141

Current reference Input Connected from speed control

PIN 83 Overload Ramp time — PIN 140 Overload Limit monitor

PIN 86 Dyn profile Low I spd break point — PIN 85 Dyn profile High I spd break point

PIN 90 Lower current clamp — Scaler PIN 81

PIN 88 — Dual cur Clamp Enable

PIN 96 4Q mode (Regen only if model allows)

Current demand PIN 718 Unfiltered — PIN 133

PIN 93 Prop Gain — PIN 94 Integral Gain — PIN 678 Max curr Response

Current Loop off Warning Hidden PIN 704

Current Demand Input from current control clamps

Q2 -v / -I — Q1 +v / -I — Q4 / -I — Q3

Current error amp P + I

Armature Stack Firing Angle output

CURRENT CONTROL (P + I)

Arm mon Amps PIN 135 — % PIN 134

Armature Current Feedback

PIN 92 Autotune enable — PIN 95 Discontinuous Current point

+ Armature Bridge Flag PIN 165

A+ — L1 — L2 — L3 — A-

EL1/2/3 RMS MON PIN 169

ARMATURE BRIDGE (4Q or 2Q)

Default block diagram 3

Default Spare Digital Input
T 14
DIP monitor PIN 163
Encoder blocks
PIN 310
PIN 311
DIP1
High value
Low value
GO TO

Default Marker Input
T 15
DIP monitor PIN 163
Encoder blocks
PIN 312
PIN 313
DIP2
High value
Low value
GO TO

Default B train Or sign
T 16
DIP monitor PIN 163
Encoder blocks
PIN 314
PIN 315
DIP3
High value
Low value
GO TO

Default encoder A train
T 17
DIP monitor PIN 163
Encoder blocks
PIN 316
PIN 317
DIP4
High value
Low value
GO TO

Default Zero ref Interlock Input
T 18
PIN 271
OP mode en
PIN 685
PIN 274
PIN 272
Rect/Bipolar
DIO1
GET FROM
PIN 273 Threshold
DIO1 Digital IO
DIO Monitor PIN 163
PIN 275
PIN 276
DIO1
High value
Low value
GO TO

Default Jog mode Select
T 19
PIN 277
OP mode en
PIN 686
PIN 280
PIN 278
Rect/Bipolar
DIO2
GET FROM
PIN 279 Threshold
DIO2 Digital IO
DIO Monitor PIN 163
PIN 281
PIN 282
DIO2
High value
Low value
GO TO

Default Ramp Hold Input
T 20
PIN 283
OP mode en
PIN 687
PIN 286
PIN 284
Rect/Bipolar
DIO3
GET FROM
PIN 285 Threshold
DIO3 Digital IO
DIO Monitor PIN 163
PIN 287
PIN 288
DIO3
High value
Low value
GO TO

Default Dual I Clamp Enable
T 21
PIN 289
OP mode en
PIN 688
PIN 292
PIN 290
Rect/Bipolar
DIO4
GET FROM
PIN 291 Threshold
DIO4 Digital IO
DIO Monitor PIN 163
PIN 293
PIN 294
DIO4
High value
Low value
GO TO

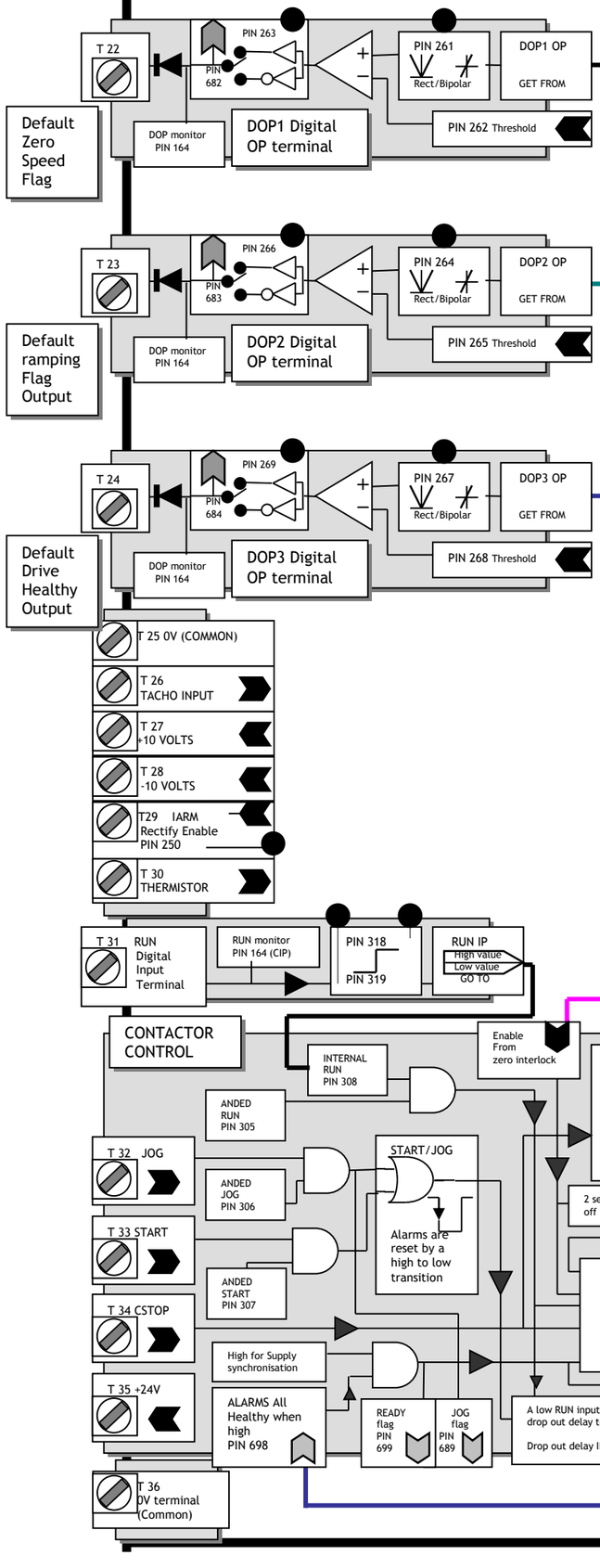
Encoder pulses
Tacho voltage
Tachogenerator And/or encoder
DC shunt wound motor
Data Plate
TACHO DATAPLATE
Volts / 1000 RPM
Type:Bipolar/Rectified/AC/DC
ENCODER DATAPLATE
Lines per revolution
MOTOR DATAPLATE
Max rated arm amps
Max rated arm volts
Max rated field amps
Max rated field volts
Base rated RPM
Isolated sensors for arm current and PL/X A+ / A- terminal V AV I A
Internal isolated sensors for field current
Rated field Amps PIN 4
PIN 143 Field Amps % Feedback
PIN 144 Field Amps Feedback
CALIBRATION
Max Tacho Volts PIN 8
T 26
T17 A
T16 B
T41 T43
AV sensing inputs only used with DC side contactors
IR comp PIN 14
Rated Armature Amps PIN 2
X
Arm Cur fb mon AMPS PIN 135
% PIN 134
Unfiltered % PIN 719
DC Kwatts PIN 170
PIN 129 Tacho Volts. Unfiltered % Tacho mon PIN 716
Input pulse sign detector and freq measurement
+/- and X
PIN 131 Speed Fb Monitor. Unfiltered PIN 715 (RPM Pins 130/717)
PIN 132 Encoder Rpm Monitor. Unfiltered
Quadrature enable PIN 10
Encoder lines PIN 11
Mot/Enc Speed Ratio PIN 12
Encoder sign PIN 13
Speed Fb Type PIN 9
Base rated RPM PIN 5
Desired MAX RPM PIN 6
Zero speed offset PIN 7

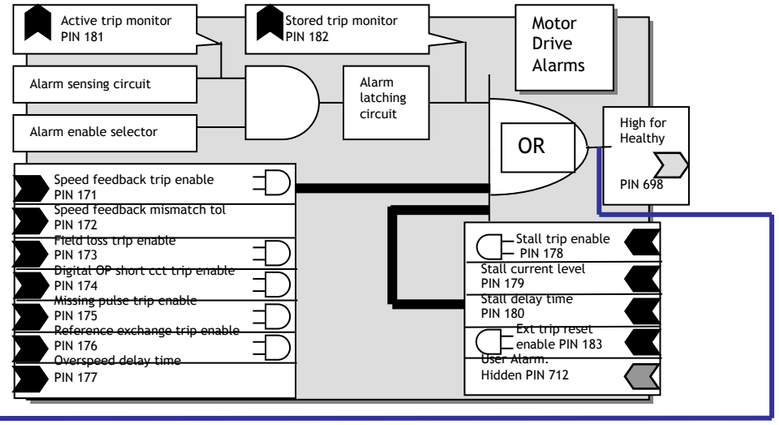
ANALOG POST1 PIN 300
DIGITAL POST1 PIN 296
ANALOG POST2 PIN 301
DIGITAL POST2 PIN 297
ANALOG POST3 PIN 302
DIGITAL POST3 PIN 298
ANALOG POST4 PIN 303
DIGITAL POST4 PIN 299
0.00%
HIGH
LOW

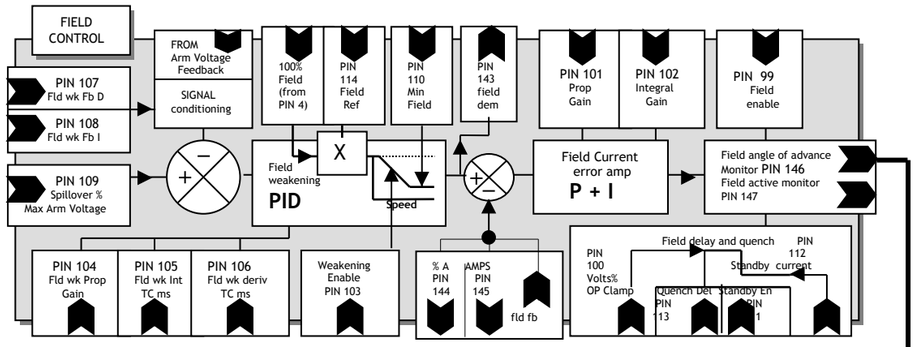
Total speed Ref + ref prior to the Run Mode Ramp
PIN 131 Speed Feedback
PIN 123 Total Speed Reference
Rect
PIN 120 Zero speed flag
PIN 116 Zero ref Start enable
Zero ref start control logic
To current control logic
ZERO Interlock
PIN 118 ZI current level
Standstill and position lock control logic
PIN 121 At S'still flag To firing ccts
PIN 117 Zero interlocks Speed level
PIN 119 Zero ref flag
PIN 115 Standstill enable
PIN 122 Zero speed lock

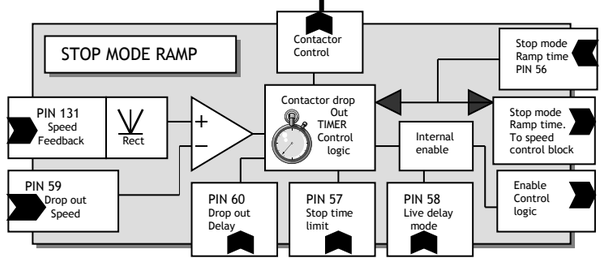
PIN 240 Marker Enable
Below Zero Interlock Speed % (PIN 117) Threshold
PIN 241 MARKER OFFSET (One shot)
SPINDLE ORIENTATE
T 15
T15 MARK PULSE
PIN 243 Marker Freq OP
T 16
Terminal 16 FB PULSE B
BIDIRECTIONAL PULSE COUNTER
Shaft position feedback count
Output To position Control loop
T 17
Terminal 17 FB PULSE A
PIN 244 IN Position FLAG
PIN 242 Position Ref
PIN 122 ZERO SPEED LOCK

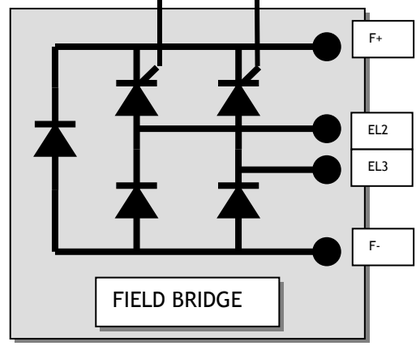
Default block diagram 4

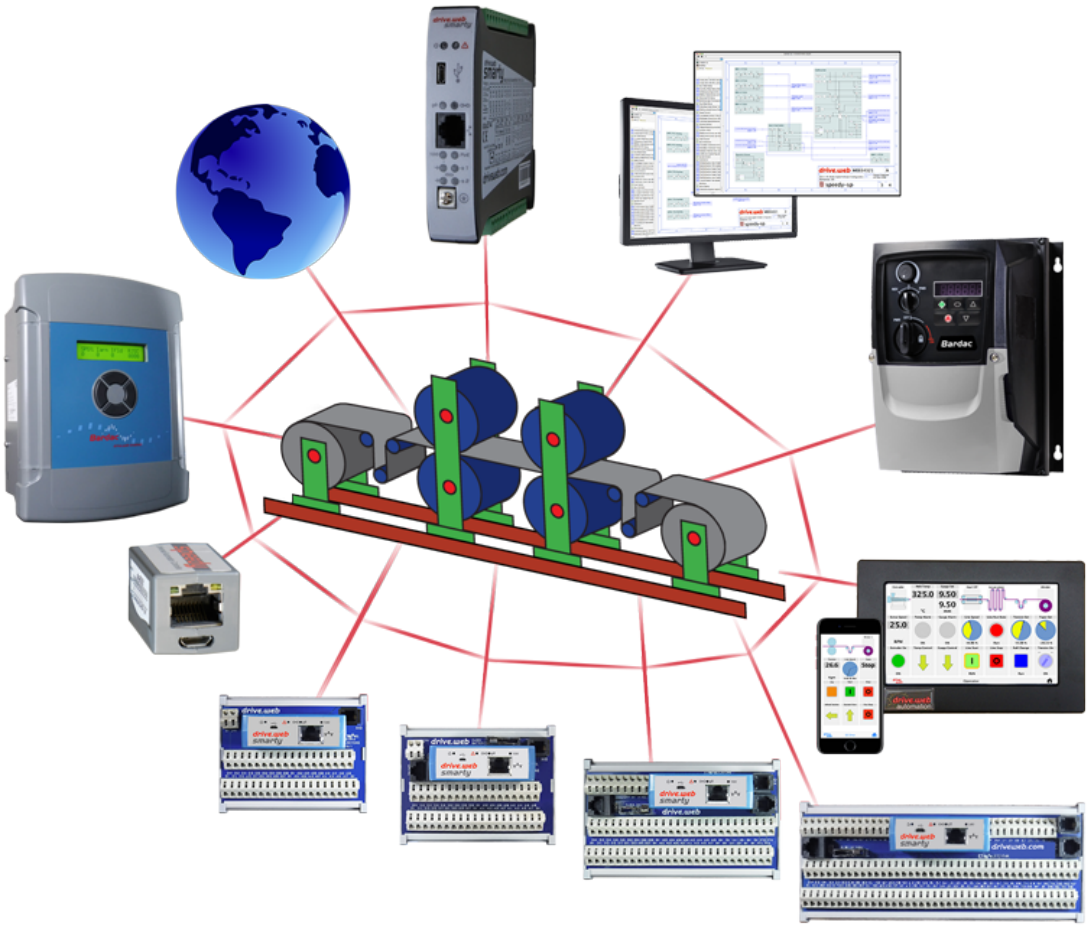












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