PDS

Series

IN THE INFINITE WORLD,
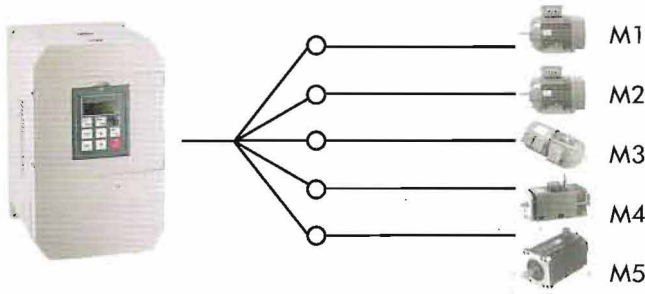## YOUR MOST FLEXIBLE CONTROL CHOICE

UNIVERSAL AC DRIVES

IN THE NEW ERA,
ONLY OUR NEW ADVANCED PDS
UNIVERSAL AC DRIVE CAN SATISFY ALL OF
YOUR REQUIREMENTS

POWERFUL PERFORMANCE

M1	V/F CONTROL	
M2	SENSORLESS VECTOR	
M3	CLOSED LOOP FLUX VECTOR	**ALL IN ONE**
M4	INDUCTION SERVOMOTOR	
M5	BRUSHLESS SEVOMOTOR	

VARIETY CONTROL MODES IN SINGLE DRIVE

· Open Loop V/F or Sensorless Speed Mode
· Close Loop Speed Mode
· Torque Control Mode
· Torque Control with speed override.
· Pulse Command Tracking Mode (digital lock)
· Auto Positioning Mode(Position controller)

MULTI-FUNCTIONED I/O

· 11 programable Digital Inputs (Sink or Source selectable)
· 7 programable Digital Outputs (Sink or Source selectable)
· 3 programable Analog Inputs
· 3 programable Analog Outputs (+/- 10V)
· Encoder Clock Inputs
· Encoder Clock Buffered Outputs
· Pulse Command Clock Inputs

REAL-TIME RESPONSE RECORDER (ELECTRONIC OSCILLOSCOPE)

Embedded easy to use Real-time Response Recording function. Allow the user to monitor the transient behavior of the drive. For example, user can use this function to monitor Step response of speed change, Transient current change, Trip condition, Etc.

The RRR function includes

· Start recording by DIx
· Stop recording by DIx
· Choose recording interval
· Choose recording variable
· Choose single/dual variable

ENHANCED COMMUNICATION
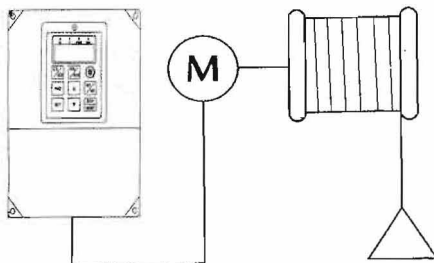
Standard RS485 Communication Port
  Simple and direct protocol embedded for Computer/PLC control.
  Baud Rate up to 4800,9600,19200,38400.
Optional Field Bus Module
  Can select many commonly used fieldbus option board, such as:
· Profibus-DP
· InterBus
· DeviceNet
· ControlNet
· CANopen
*Other systems planned

DIGITAL

32 Bit microprocessor allows total configuration.

FLUX-VECTOR CONTROL

The PDS range provides remarkable performance with full torque down to 0rpm.This has been made possible through a technological breakthrough that is incorporated into the drive.

This Vector mode is unique and allows the PDS range to deliver outstanding performance in both stability and torque at low speeds as well as virtually tripless operation, even with sudden impact loads.

IGBT INVERTER POWER SEMICONDUCTORS

These devices are switched on and off rapidly to generate the required instantaneous motor currents. Insulated gate bipolar transistors (IGBTs) represent the latest technology in power switching devices, combining high speed, high efficiency switching with ease of control and high overload capability.

PID REGULATOR

The PDS is equipped with a PID (proportional, integral, derivative) amplifier for feedback control of analogue dimensions.

Selection of the actuation point can be made from the keyboard, the serial port or the terminal board.

Applicative examples: direct dancing roller without added card, pressure sensor without the need for regulator, etc.

POWERFUL PERFORMANCE

Build-in U/D Counter.

The up/down counter in the PDS let the users have more flexible application.

Build-in Timer

Multi-functions timer in the drive let the drive more powerful.

Build-in Flip/Flop

One flip-flop block in the PDS

Auto-restart

After a trip, PDS can be configured to automatically attempt up to restart.

ACCEL/DECEL

Two independently programmable accel and decel times. Each time may be programmed from 0.00~650.00 secretary.

MULTISPEED

Up to 16 different fixed speeds may be predetermined by the operator and the Accel/Decel time is separate for each preset speed.

INTELLIGENT BRAKING MODULE

PDS serves to control direct current on the intermediate inverter circuit and dissipate excess power onto relative external braking resistors, thus enabling control and rapid stoppage of inertia loads. up to 7.5kw BRAKING CHOPPER IS BUILD-IN higher. than 7. 5kw. BRAKING chopper is optional.

OVERLOAD

150%, 1 min for constant torque

PROTECTION FUNCTIONS

Over-voltage,under-voltage
Over-load, over-heat
Pg loss (encoder loss)
Over-current

ELECTRONIC THERMAL LEVEL AND CHARACTERISTIC SELECTION

An electronic thermal relay is incorporated for protecting the motor from overheat. Its level and characteristics are selectable.

Motor I2T protection is separated from the drive power overload feature.

The electronic motor overload operates independently to provide improved protection.

FLYING START

When the motor is rotating in either direction-and at any speed-the drive can be started without tripping or generating large transient torques, thereby protecting motor circuits.

MOTORISED POTENTIOMENTER SIMULATION

THE D/I can perform as the Motorised potentiometer, and make the Multi-places, Remote controller easier.
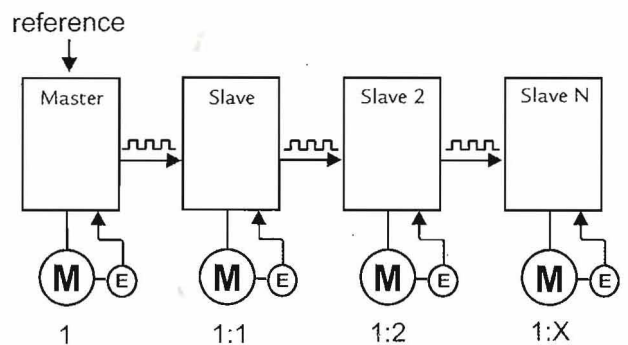
FAULT BUFFER (HISTORIC FAULT MEMORY)

The PDS contains a fault buffer that records the last four faults the drive experience. The buffer stores faults in a first-in first-out manner. Additional diagnostic parameters are listed in the Diagnostic Group.

TRAVERSE FUNCTION
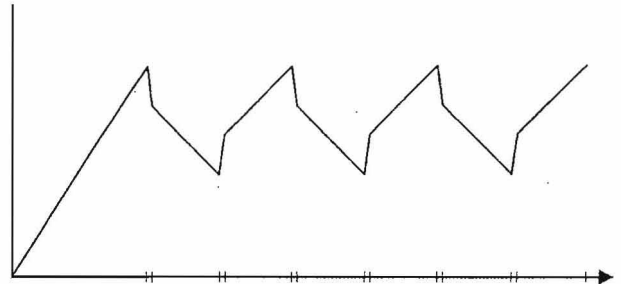
FREQUENCY SLAVING CONTROL

TECHNICAL SPECIFICATIONS

INGRESS PROTECTION (IP) ENCLOSURE

The PDS drive is supplied as a stand-alone unit in a protective casing which is rated as IP20 (NEMA 1)

POWER SUPPLY

Balanced 3-phase 50Hz or 60Hz±5Hz, 220V, 400V, 440V, 460V, ±10%.

INVERTER OUTPUT

The three phase balanced output can produce 0~300HZ, Maximum output voltage is the AC supply voltage.

CONTROL MODE

Sine wave PWM of
V/F Control
Sensorless Vector
Closed Loop Flux Vector
Brush-less Servo

ANALOG INPUT

-10VDC~+10VDC (10bits)
4~20mA, (10bits)
ANALOG OUTPUT
-10VDC~+10VDC (10bits), 10mA

DIGITAL INPUT

11 programable D/I.
(Sink or source selectable)

DIGITAL OUTPUT

7 digital programable D/O, sink or source selectable.
1 relay output, dry contact, 1A, 30Vdc

PWM SWITCHING FREQUENCIES (CARRIER FREQUENCY)
8.0kHz

SPEED ADJUSTMENT RANGE:

V/F Control:1:100
Sensorless Vector:1:200
Closed-loop Flux Vector Controc:1:1000
Brushless Servo:1:1000

SPEED ACCURACY:

Closed-loop Vector Control:±1rpm
Brusless Servo:±1rpm

SPEED RESOLUTION:

Analogu I/P:0.1%
Digital I/P:1rpm

STORAGE TEMPERATURE (ALL CONSTRUCTIONS)

-40 to 70 degrees C
(-40 to 158 degrees F).

RELATIVE HUMIDITY

5 to 95% non-condensing.

AMBIENT TEMPERATURE

Ambient temperature range -10℃ to +50℃ Humidity requirements, 20%~95% R.H, non-condensing.

The ambient temperature. The inverter should be installed where its ambient temperature will not be affected by heat from any other apparatus nearby.

POWER AND CURRENT RATING

200V series		400V series	
2.2kw	11A	2.2kw	5.5A
3.75kw	17A	3.75kw	8.5A
5.5kw	24A	5.5kw	12A
7.5kw	33A	7.5kw	17A
11kw	46A	11kw	23A
15kw	61A	15kw	31A
22kw	90A	18.5kw	45A
30kw	114A	22kw	57A
Higher than 30kw corsult the manufacturer.			

APPLICATIONS

The PDS Series of variable frequency drives employ the latest micro-processor and application flexibility and operational reliability enabling their use on the widest range of drive applications including:

- Machine Tools
- Handling Systems
- Wood and Paper Working Machines
- Packaging Machines
- Travelling Gear Drives
- Conveyor Systems
- Cut To Length
- Flying Shears
- Lifts
- Wire Drawing Machines

- Filing Systems
- Printing Machines
- Presses
- Wire Drawing Machines
- Extrusion Machines
- Centrifuges
- Test Benches

- Textile Machines
- Winding and Coiling Machines
- Air-conditioning and Ventilation Systems (pumps, fans, blowers)
- Cranes
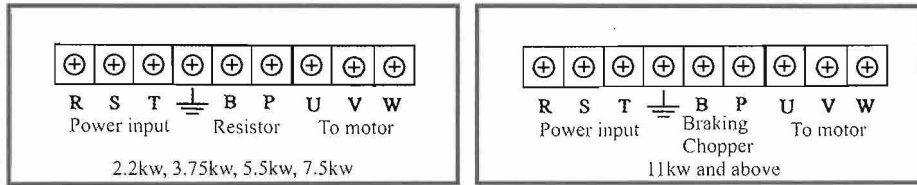- Kneaders
- Mixers
- Agitators
- Pumps

- Packaging Lines
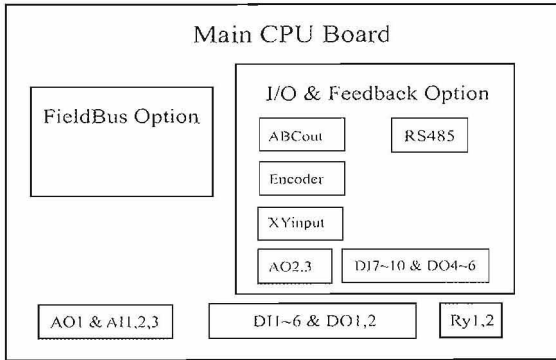- Fiber Lines
- Runout Tables
- Feeders

CONNECTIONS & TERMINALS

POWER TERMINAL

⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
R	S	T	⏚	B	P	U	V	W

Power input   Resistor   To motor

2.2kw, 3.75kw, 5.5kw, 7.5kw

⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
R	S	T	⏚	B	P	U	V	W

Power input   Braking Chopper   To motor

11kw and above

CONTROL INPUT & OUTPUT CONFIGURATION

Main CPU Board

- FieldBus Option
- I/O & Feedback Option
  - ABCout
  - RS485
  - Encoder
  - XYinput
  - AO2.3
  - DI7~10 & DO4~6
- AO1 & AI1,2,3
- DI1~6 & DO1,2
- Ry1,2

AI:ANALOG INPUT
AO:ANALOG OUTPUT
DI:DIGITAL INPUT
DO:DIGITAL OUTPUT
ACOM:COMMON POINT OF AI,AO
DCOM:COMMON POINT OF DI,DO

The control terminals on the Main CPU board are separated into three groups.

Basic Analog I/O signals:

AO1	Ai1	Ai2	Ai3	5V	ACOM

Basic Digital I/O signals:

DI1	Di2	Di3	Di4	Di5	Di6	RST	DO1	DO2	24V	DCOM

Basic 'Ia' normal open Relay output (equicalent to Do3):

RY1	RY2

Additional control terminals on Feedback I/O board:

AO2	AO3	ACOM	DI7	DI8	DI9	DI10	DO4	DO5	DO6

CON3: Encoder Feedback from Motor.

15pin D-sub Male connrctor		
Pin number	Pin name	Description
Pin 1	A	· Pin1~Pin6 are used for both induction and brushless motor
Pin 2	/A	· Pin7~Pin12 used for brushless motor only
Pin 3	B	
Pin 4	/B	
Pin 5	C	· Encoder output should be line driver type
Pin 6	/C	· A, B are quadrature signals
Pin 7	U	· Uf, Vf, Wf used for indicating the magnetic pole position of brushless motor
Pin 8	/U	
Pin 9	W	
Pin 10	/W	
Pin 11	V	
Pin 12	/V	
Pin 13	+5V	
Pin 14	0V	
Pin 15	0V	
Case	shield	

CON4: XY pulse command input port.

9pin D-sub Female connector	
Pin number	Pin name
Pin 1	X
Pin 2	/X
Pin 3	Y
Pin 4	/Y
Pin 5	N.C.
Pin 6	N.C.
Pin 7	+5V
Pin 8	0V
Pin 9	N.C.
Case	Shield

*JP2 & JP3 select line-driver input or open-collector input

CON5: Buffered A,B,C output port.

9pin D-sub Female connector	
Pin number	Pin name
Pin 1	Aout
Pin 2	/Aout
Pin 3	Bout
Pin 4	/Bout
Pin 5	Cout
Pin 6	/Cout
Pin 7	N.C.
Pin 8	0V
Pin 9	N.C.
Case	Shield

*outputs are line-driver type.

OPTIONS

- Line Chokes
- EMC Filters
- HRC Fuses
- Potentionmeters (Standard)
- Potentionmeters (10 turns)
- Bypass Contact
- Transformers
- Harmonic Filters
- Braking Modules
- Braking Resistors
- External Frequency Meters (Digital)
- External Frequency Meters (Analogue)
- External Current Meters (Digital)
- External Current Meters (Analogue)
- Operators Remote Keypad and Display
- PCB (Cards) for:

  Porfibus-DP

  InterBus

  DeviceNet

  ControlNet

  CAN open

  Resolver Feedback card .etc