Industrial Devices Corporation

i**M**pulse

microstepping drive

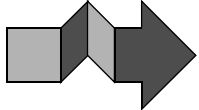*The Only Microstepping Drive with:*

Open Loop Stall Detect™ (OLSD™)

Multi-Stepping™

Dynamic Smoothing™

Xtreme Smoothness™

Motion Node

Quick

Setup

& Reference Guide

1. Install Application Developer™ Software on Windows 95/98/NT/ME/2000

1. Place the IDC CD in your CD-ROM drive and click on the **Start** button.
2. Click on **Run**.
3. Type the following in the **Command Line** box that appears (replace "x" with your CD drive letter): **x:\App_Dev\Setupex.exe**
4. Click OK and follow the onscreen instructions.
5. Restart Windows (recommended).

2. Connect Your PC/Host to Impulse COM PORT (RS232/485)

- Refer to drawings below when making connections.
- Use IDC cable P/N SS-RS232 for making trouble-free RS-232 connections.
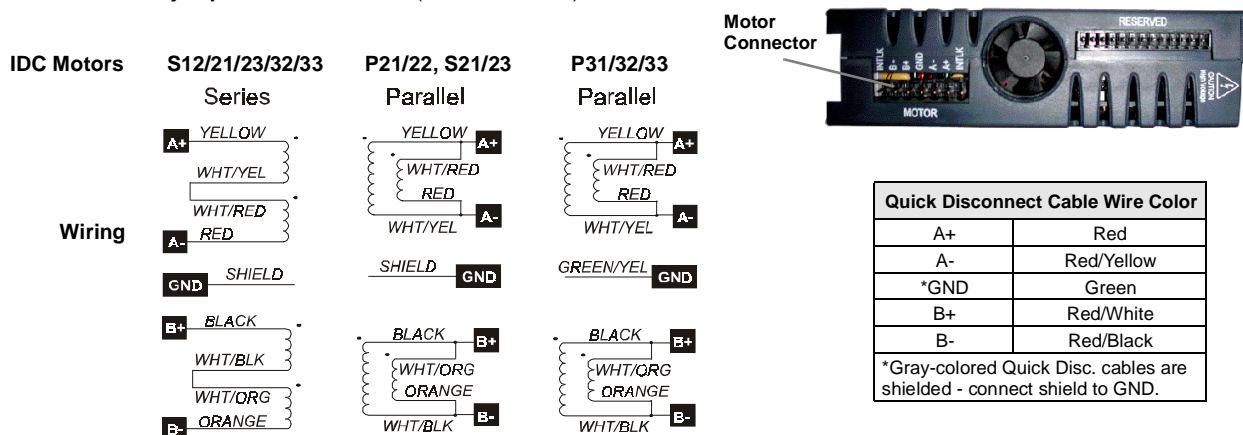
IDC P/N SS-RS232

COM PORT

9-Pin Connector

3 (TX) — RX
2 (RX) — TX
5 (COM) — COM
— SHIELD
5V

RS-232C

COM PORT

RS-485 Host

TX- — 5V
TX+ — RX
RX- — TX
RX+ — COM
COM — SHIELD

RS-485

COM PORT

Comm Port Settings RS-232C/RS-485	
Baud Rate	19200 (fixed)
Stop Bits	1
Data Bits	8
Parity	None
XON/XOFF	Yes
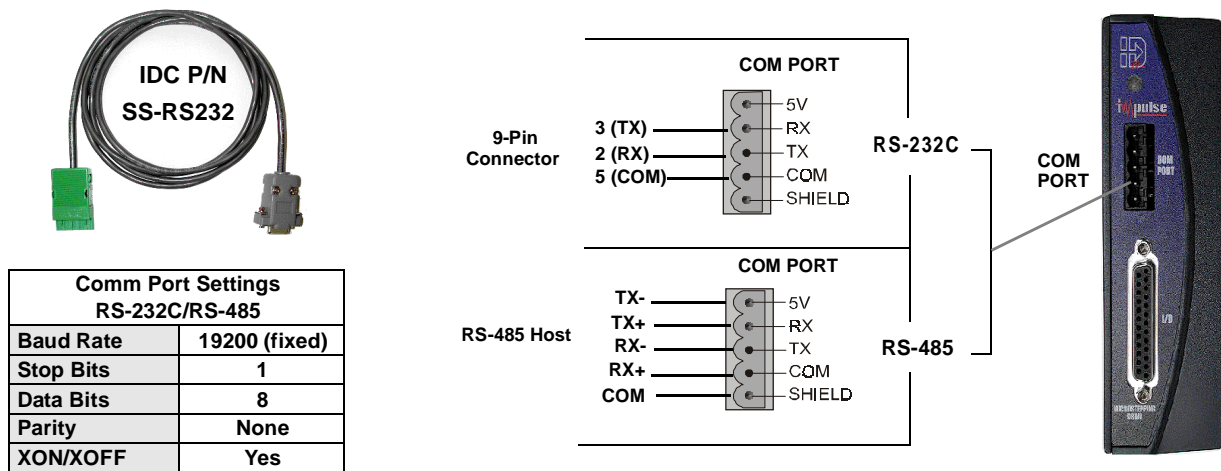
3. Connect Your Motor

- An **Interlock jumper** must be installed (INTLK to INTLK).

Motor Connector

IDC Motors

Wiring

S12/21/23/32/33 Series	P21/22, S21/23 Parallel	P31/32/33 Parallel
A+ YELLOW	YELLOW A+	YELLOW A+
WHT/YEL	WHT/RED	WHT/RED
WHT/RED	RED	RED
A- RED	WHT/YEL A-	WHT/YEL A-
GND SHIELD	SHIELD GND	GREEN/YEL GND
B+ BLACK	BLACK B+	BLACK B+
WHT/BLK	WHT/ORG	WHT/ORG
WHT/ORG	ORANGE	ORANGE
B- ORANGE	WHT/BLK B-	WHT/BLK B-

Quick Disconnect Cable Wire Color	
A+	Red
A-	Red/Yellow
*GND	Green
B+	Red/White
B-	Red/Black
*Gray-colored Quick Disc. cables are shielded - connect shield to GND.	

4. Apply Power

- There is no ON/OFF switch on the Impulse.
- Input voltage must be in the range of 120 VAC ± 10%, single phase, 50/60 Hz, 500 VA max @ 4 Amps. Operation outside these specifications will result in reduced performance, cause drive faults, or permanently damage the drive.
- Apply AC power by plugging the power cord (included) into the connector on top of the Impulse and into the power source.
- When power is applied, the LED on front of the drive should turn steady red and remain that way until the motor is PROBED in Application Developer Project Wizard. If flashing red lights are present see Diagnostic LED Indications below.

AC Power

5. Use Application Developer Project Wizard

- Start **Application Developer.**
- Select **Project Wizard.**
- Follow the **Project Wizard** through the entire setup procedure until you have clicked on the **Finish** button.
- You should now see a **solid green LED** indicator on the front panel of the Impulse, and the motor should have torque.

6. Axis Setup - Advanced Features

- See the Impulse User's Manual for configuring **X-Smoothness**, **Multi-Stepping**, **Dynamic Smoothing**, **Open Loop Stall Detect**, and **Motion Node**.
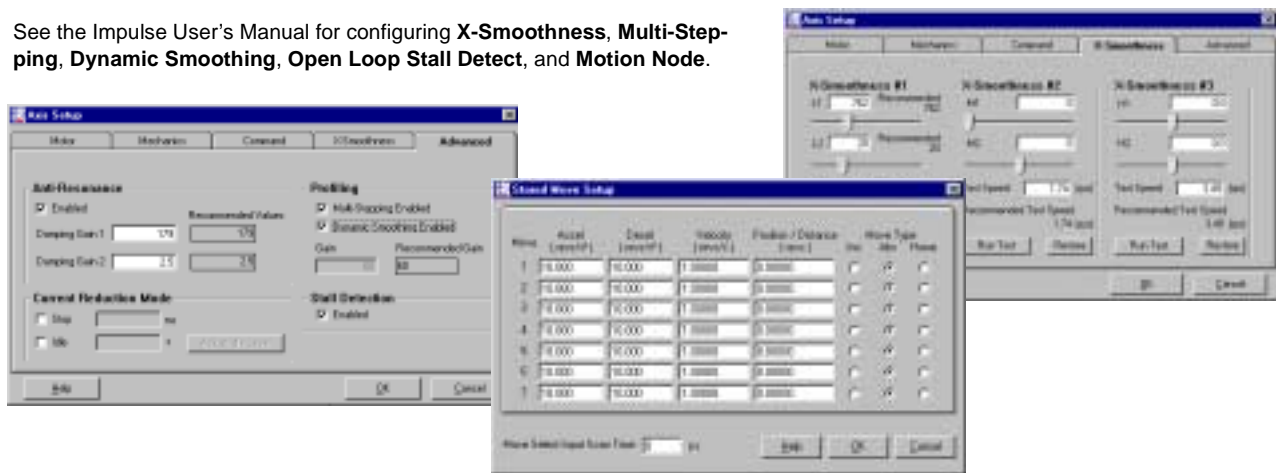
7. Using an IDC FP100 or FP220 Keypad

- If you are using an IDC Keypad to configure your Impulse, see the Impulse User's Manual for details and menu descriptions.

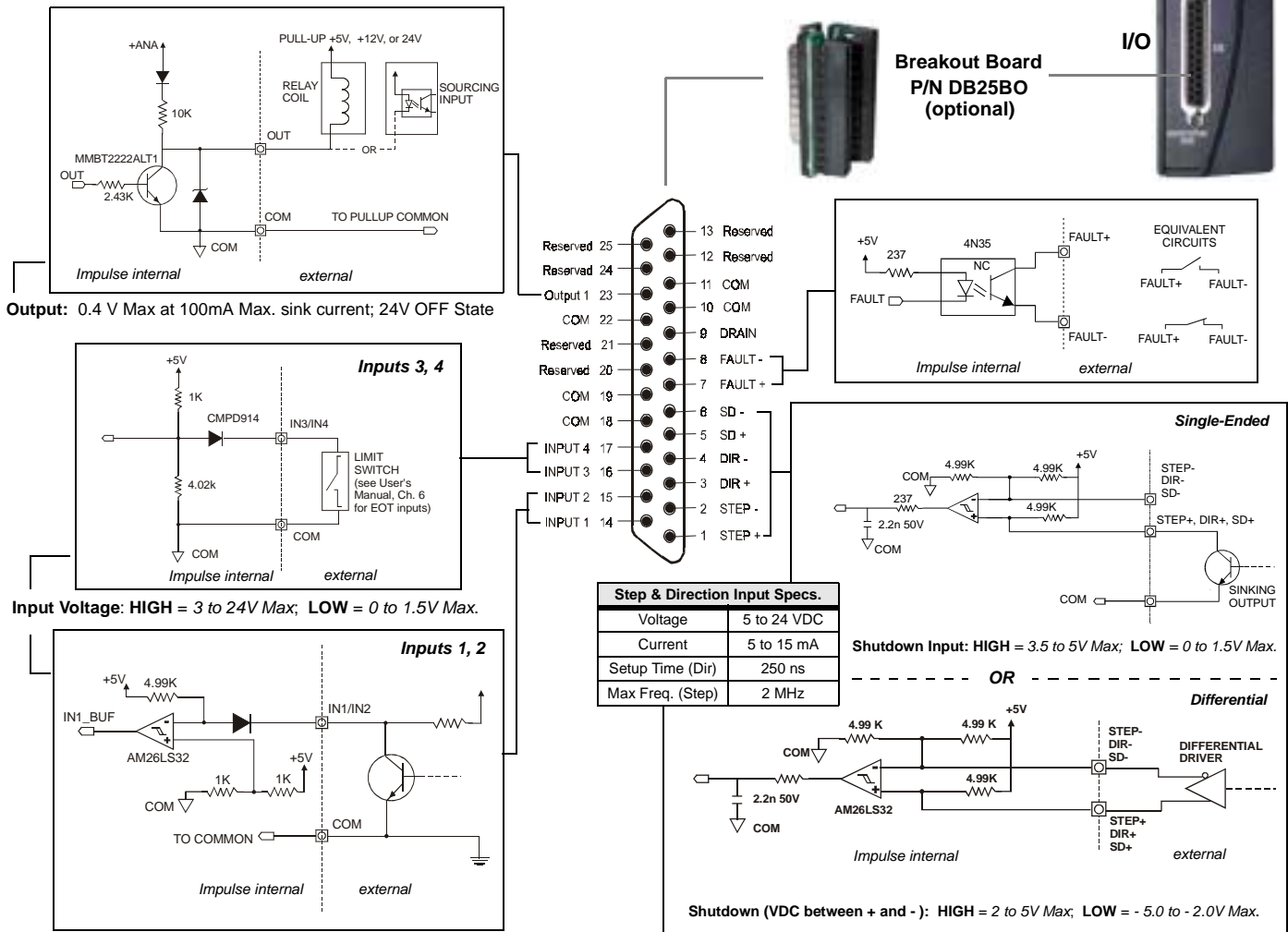## 8. Reference (see Impulse User's Manual for details)

Environmental & Mounting Specifications
Operating Ambient Temperature: 0 to 50º C @ 4 Amps
Storage Temperature: -40 to 80º C
Not intended for use in humidity above 95% (non-condensing), or at altitudes greater than 3,048 meters [10,000 ft.].
Heat Dissipation @ 4 A (typical): 32 W
Leave 6 in. above and below drives for airflow and wiring.
Leave 0.1 in. between drives for easier mounting.
Air supplied to the Impulse must be uncontaminated.

Diagnostic LED Indications	
LED Signal	**Indication**
Green (steady)	Normal Operation
Green - Slow Flash	Shutdown
Green - Quick Flash	Regen Dump
Flashing Green	Drive Disabled
Red (steady)	Motor Not Probed
1 Flash Red	Stalled
2 Flashes Red	Undervoltage Fault
3 Flashes Red	Overvoltage Fault
4 Flashes Red	Overcurrent Fault
5 Flashes Red	Interlock Fault
6 Flashes Red	Overtemperature Fault
7 Flashes Red	EEPROM Checksum Fault

Connecting Digital I/O, Step/Direction/Shutdown Inputs, and Fault Outputs

Application Notes

1. If using IDC P/N SS-I/O or SS-I/O-6 cable, cut one end of the cable if necessary (see table below for SS-I/O cable color-code). If you are making your own cable, or are using a non-IDC indexer, refer to the Impulse I/O Schematics and the 25-pin Connector drawing below.

2. Use a shielded cable, and **connect the shield only at the Impulse**. Pin 9 is provided for the SHIELD connection.

3. IDC offers a 25-pin screw-terminal breakout board (P/N DB25BO shown below) to add convenience and flexibility to your application. Terminals on the breakout board match the pins of the 25-pin connector on the Impulse.

4. When wiring TTL signals to other manufacturer's indexers, the Step TTL command signal from the controller should be wired to **Step +**, the Direction signal to **Dir +**, and the Shutdown signal to **SD + (Step -**, **Dir -,** and **SD -** should not be connected). Remember, drive and controller **COMMONS** must be connected.

5. Activating the **Shutdown** input disables the drive amplifier and de-energizes the motor. When this input is **OFF** the drive is enabled and the motor is energized.

6. The open collector **Fault Output** turns **ON** when any one of the LED-indicated conditions occur (see LED Indications table on next page). The output stays ON while the LED flashes.

7. **Step & Direction Input Voltage**: External current-limiting resistor required for 12 and 24 V power supply connections (560 ohm, 1/4 W for 12 V; 1.3 K for 24 V supply).

I/O

Breakout Board P/N DB25BO (optional)

Output: 0.4 V Max at 100mA Max. sink current; 24V OFF State

Input Voltage: **HIGH** = *3 to 24V Max*; **LOW** = *0 to 1.5V Max*.

Step & Direction Input Specs.	
Voltage	5 to 24 VDC
Current	5 to 15 mA
Setup Time (Dir)	250 ns
Max Freq. (Step)	2 MHz

Shutdown Input: HIGH = *3.5 to 5V Max*; **LOW** = *0 to 1.5V Max*.

— — — — — — **OR** — — — — — —

Shutdown (VDC between + and -): HIGH = *2 to 5V Max*; **LOW** = *- 5.0 to - 2.0V Max.*

IDC Cable P/N: SS-IO/SS-IO-6								
Pin	Impulse Signal	Wire Color	Pin	Impulse Signal	Wire Color	Pin	Impulse Signal	Wire Color
1	STEP +	Brown	10	COM	Gray	19	COM	Black/White
2	STEP -	Red	11	COM	White	20	Reserved	Red/Black
3	DIR +	Orange	12	Reserved	Black	21	Reserved	Orange/Black
4	DIR -	Pink	13	Reserved	Brown/White	22	COM	Yellow/Black
5	SD +	Yellow	14	INPUT 1	Red/White	23	Output 1	Green/Black
6	SD -	Green	15	INPUT 2	Orange/White	24	Reserved	Gray/Black
7	FAULT +	Light Green	16	INPUT 3	Green/White	25	Reserved	Pink/Black
8	FAULT -	Blue	17	INPUT 4	Blue/White			
9	Drain	Violet	18	COM	Violet/White	**Note:** Cable SHIELD is internally connected to the DB25 metal housing.		