

# Hardware Options

## HW-100 HandWheel: Manual Pulse Generator



### Overview

The HW-100 handwheel is an optional but useful component in a Soft Servo system: every general motion control and CNC product provided by Soft Servo Systems includes a Handwheel Mode – a control mode where the handwheel is used to operate one axis of the machine tool at a time. Because Soft Servo Systems' products are so versatile, any handwheel will work in a Soft Servo system that includes a VersioBus II adapter board, but we've found the HW-100 to be comfortable and easy to use.

This handwheel can be easily included in a VersioBus II interface system (utilizing VersioBus II fiber-optic servo and I/O communications networks), which already includes the VersioBus II adapter board that provides the handwheel's connection to the PC. It can also be used with the Panasonic Realtime Express (RTEX), MECHATROLINK interface systems by including an optional VersioBus II adapter board in your Soft Servo system. (This board also provides on-board I/O and fiber-optic transceivers for an I/O network.)

### Functional Specifications

Function/Feature	Specifications
Axis Selection Switch	Axes X, Y, Z, 4, 5
Multiplier Selection Switch	X1, X10, X100, X1000
Emergency Stop Button	E-STOP switch with RESET
Dimensions	170 mm x 79 mm x 69 mm deep

### Description

The HW-100 handwheel is a handheld manual pulse generator with an emergency switch for manual jog operation of the machine or machine tool. It controls five axes, with incremental movements of 1, 10, 100 or 1000 encoder counts per click. It requires a VersioBus II adapter board to connect directly and simply to the host PC.

The HW-100 has a handwheel dial, an axis selection switch, a multiplier selection switch, an Emergency Stop Button, and a green LED which, when lit, indicates that the Emergency Stop has not been activated.

**NOTE:** the Emergency Stop button works in Test Mode, Jog Mode, etc. as well as HandWheel Mode, unless the handwheel is turned off.



# FP-105: VersioBus II Adapter Boards

## Overview

VersioBus II adapter boards are for providing VersioBus II communications. They can be used for a VersioBus II interface system (utilizing VersioBus II fiber-optic servo and I/O communications networks). A VersioBus II adapter board can also be used for an optional VersioBus II I/O network in a Panasonic Realtime Express (RTEX) or MECHATROLINK interface system (with RTEX Ethernet servo communications or MECHATROLINK servo communications).

## Description

VersioBus II adapter board gets plugged into the host PC.

FP105 provides the PC's communication with the servo network and the I/O network in the VersioBus II interface system. The board provides four functions:

- 1) **Servo Network** – provides the fiber optic transceivers for the interface to a VersioBus II servo network for DC-125 servo interface modules
- 2) **I/O Network** – provides the fiber optic transceivers for an I/O network interface
- 3) **On-Board I/O** – 32-point local general I/O connector. The TB37BD breakout box may be used to make these local connections
- 4) **HandWheel** – I/O connector for a handwheel (includes encoder and digital I/O)

## Functional Specifications

Function/Feature	Specifications
<b>Communication</b>	2 half-duplex channels (a servo network and an I/O network) of VersioBus II connections
<b>I/F to DC-125</b>	Up to 4 DC-125s (maximum 16-axis control and 128-point general I/O)
<b>Maximum distance between modules</b>	10 meters (upgradeable to 500 meters with commercial glass fiber optic cable)
<b>On-board I/O interface</b>	I/O connectors for a handwheel (pulse generator), and 32 points of I/O signals
<b>Dimensions (including card edge connectors)</b>	FP-105: 108 mm x 175 mm
<b>Red LED for handwheel status</b>	<p>Status indicators – <u>single-ended</u> handwheel:</p> <ul style="list-style-type: none"> <li>• <u>No LED</u>: no handwheel is connected</li> <li>• <u>Solid LED</u>: a handwheel is connected</li> <li>• <u>Flashing LED</u>: a handwheel is connected, and each flash of the LED corresponds to one click of the handwheel's dial</li> </ul> <p>Status indicators – <u>differential</u> handwheel:</p> <ul style="list-style-type: none"> <li>• <u>No LED</u>: no handwheel is connected OR a handwheel is connected and the "Select Axis" switch is NOT set to "OFF"</li> <li>• <u>Solid LED</u>: a handwheel is connected AND the "Select Axis" switch IS set to "OFF"</li> </ul>



FP-85



FP-105



FP-114A



FP-114B

# TB36A, TB36B and TB37BD: Breakout Boxes

## Overview

TB36A and TB36B breakout boxes, optional hardware components for the VersioBus II interface system, are for making connections from the DC-125 universal servo interface module to servo drives, or from the DC-125 to I/O devices. Since the DC-125 is only required for the VersioBus II interface system (utilizing VersioBus II fiber-optic servo and I/O communications networks), these optional breakout boxes are only useful for the VersioBus II interface system.

The TB37BD breakout box is an optional hardware component that can be used with the VersioBus II interface system, or with any other interface system (such as the Panasonic Realtime Express (RTEX) or MECHATROLINK, if optional VersioBus II I/O is included in that interface system. VersioBus II I/O requires a VersioBus II adapter board to be plugged into the host PC, providing 32 points of on-board I/O. The TB37BD is useful for making connections between this adapter board and local I/O devices. (These boards also provide a handwheel connector and fiber-optic transceivers for an optional I/O network.)

## Functional Specifications

Function/Feature	Specifications
Screw Terminals	TB36A: 2 terminal blocks, 18 screw terminals each TB36B: 1 terminal block, 36 screw terminals TB37BD: 1 terminal block, 37 screw terminals (male D-sub connector)
Mounting	DIN Rail
Dimensions	TB36A: 93 mm x 80 mm x 56 mm deep TB36B: 93 mm x 80 mm x 50 mm deep TB37BD: 77 mm x 102 mm x 57 mm deep

## Descriptions

### TB36A & TB36B Breakout Boxes for the DC-125 Servo Interface Module

36-pin breakout boxes with screw terminal blocks and 36-pin MDR connectors, for making connections between the I/O devices and the servo interface module (DC-125), and/or the servo drives and the servo interface module (in lieu of using a properly configured cable with the correct pin assignments for both connectors of the cable).

The TB36A and the TB36B each serve the same purpose, differing only in the size and the style of the screw terminals, to suit user preferences:

TB36A – two terminal blocks for spade terminals.

TB36B – a single terminal block for wire entry screw terminals.

### TB37BD Breakout Boxes for Local I/O Connections

37-pin breakout boxes with a screw terminal block and a 37-pin on-board male D-sub connector, for making connections between the PC (specifically, the VersioBus II adapter board) and local I/O devices. These breakout boxes provide an easy way to connect I/O points to the operator's panel of a machine tool.



TB36A



TB36B



TB37BD

# Cables

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## VersioBus II Fiber-Optic Cable

Fiber-optic cable required for connecting the hardware components of a VersioBus II servo network or a VersioBus II I/O network. Required for DC-125 servo modules in the VersioBus II interface system.



# DX Modules

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## DX110A : Spindle and CNC Interface Module

The DX-110A is a spindle and CNC interface module that provides an interface to control one spindle drive, one hand-wheel, and 16 points of inputs and 16 points of outputs.



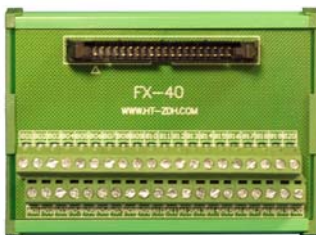
## IX320: 32/32 Point I/O Module

The IX-320 is an I/O module that provides 32 points of inputs and 32 points of outputs. Extremely fast, it can control the 32 servo axes with cycle time as fast as 0.5 m/s.



# Breakout Box

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## IX40A : DXP Platform Breakout Box

IX40A [FX40] is a breakout box for the DXP platform.

