Soft Servo SYSTEMS, INC

Hardware Options

IM-300: General 64-Point I/O Module

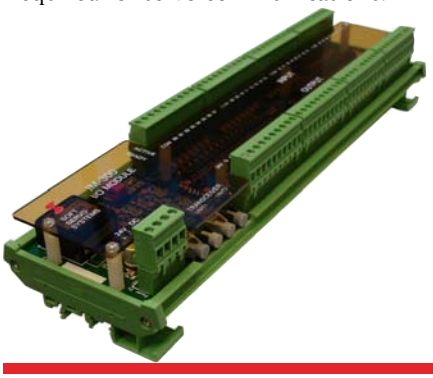
Overview

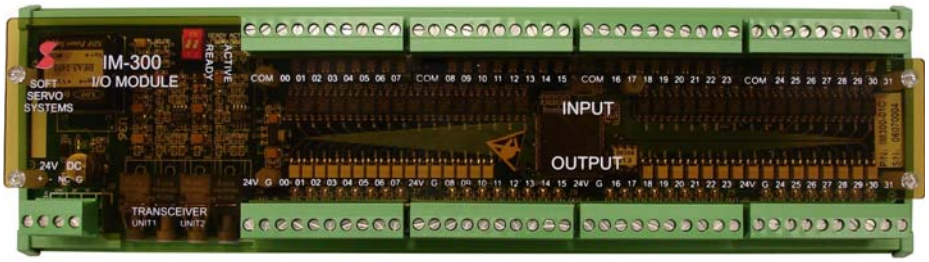
The IM-300 is an optional hardware component that can be used to provide additional I/O to a VersioBus interface system.

Some servo communications platforms provide some general I/O without an IM-300:

- In the VersioBus interface system, the DC-150 servo interface modules each provide 32 points of uncommitted opto-isolated general I/O, and the VersioBus adapter board provides 32 points of local I/O.
- In the MECHATROLINK interface system, MECHATROLINK I/O modules may provide general I/O.

In a Panasonic Realtime Express (RTEX), MECHATROLINK or SSCNET interface system, IM-300 module(s) can be easily included by plugging a VersioBus adapter board into the host PC to provide the fiber-optic transceivers for an I/O network that connects the IM-300(s) to the PC. (The VersioBus adapter board also provides on-board I/O and a handwheel connector.) In a VersioBus interface system (utilizing VersioBus fiber-optic servo and I/O communications networks), the VersioBus adapter board is already required for servo communications.





Description

The IM-300, a 64-point (32-bit input/32-bit output) general I/O module with built-in wire-entry screw terminals and LEDs, extends the I/O capabilities of a Soft Servo system.

Up to four IM-300s can be daisy-chained together for distributed control and multiple nodes with VersioBus fiber optics, to provide as many as 256 additional I/O points (for a maximum of 416 general I/O points with four DC-150s in a VersioBus interface system).

Functional Specifications

Function/Feature	Specifications
Communications	VersioBus (a proprietary 10 Mbps real-time fiber-optic communication protocol) connections
Daisy Chainable	Up to 4 IM-300s (maximum 256 points of additional I/O)
Screw Terminals	8 terminal blocks, 10 screw terminals each (wire entry terminals)
Output Points	32 points, optically isolated
Input Points	32 points, optically isolated
Mounting	DIN Rail
Input Power	24 VDC ±10%, 300 mA maximum
Dimensions	87 mm x 304 mm x 57 mm deep

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 adapter board, but we've found the HW-100 to be comfortable and easy to use.

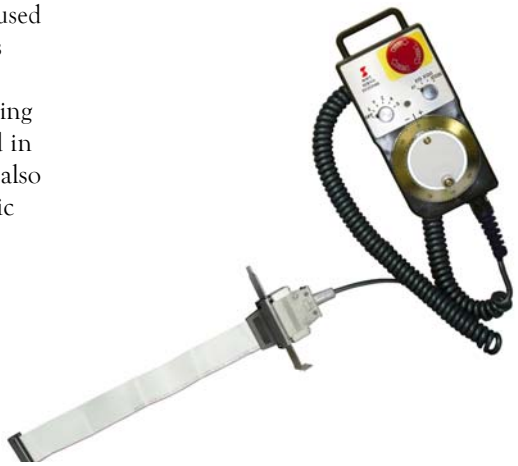
This handwheel can be easily included in a VersioBus interface system (utilizing VersioBus fiber-optic servo and I/O communications networks), which already includes the VersioBus adapter board that provides the handwheel's connection to the PC. It can also be used with the Panasonic Realtime Express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

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 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.



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

FP-80, FP-95 & FP-104: VersioBus Adapter Boards

Overview

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

Description

One of these dual-link VersioBus adapter boards gets plugged into the host PC. The FP-80 is for an ISA slot, the FP-95 is for a PCI slot, and the FP-104 has a PC104 stacking connector. (Only one of these three is required, depending on whether an ISA, PCI or PC104 connection is desired.)

There are two types of FP-104 (FP-104A and FP-104B), with the transceivers at different locations.

These boards provide the PC's communication with the servo network and the I/O network in the VersioBus interface system. Each board provides four functions:

1) **Servo Network** – provides the fiber optic transceivers for the interface to a VersioBus servo network for DC-150 servo interface modules

2) **I/O Network** – provides the fiber optic transceivers for the interface to an optional VersioBus I/O network for IM-300 modules

3) **On-Board I/O** – 32-point local general I/O connector. The TB37BD breakout box may be used to make these local connections

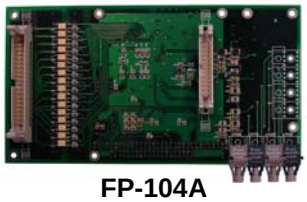
4) **HandWheel** – I/O connector for a handwheel (includes encoder and digital I/O)

Functional Specifications

Function/Feature	Specifications
Communication	2 half-duplex channels (a servo network and an I/O network) of VersioBus connections
I/F to DC-150	Up to 4 DC-150s (maximum 16-axis control and 128-point general I/O)
I/F to IM-300	Up to 4 IM-300s (maximum 256 points of additional general I/O)
Maximum distance between modules	10 meters (upgradeable to 500 meters with commercial glass fiber optic cable)
On-board I/O interface	I/O connectors for a handwheel (pulse generator), and 32 points of I/O signals
Dimensions (including card edge connectors)	FP-80: 104 mm x 160 mm FP-95: 108 mm x 175 mm FP-104: 96 mm x 178 mm
Red LED for handwheel status (FP-95 only)	Status indicators – single-ended handwheel: • No LED: no handwheel is connected • Solid LED: a handwheel is connected • Flashing LED: a handwheel is connected, and each flash of the LED corresponds to one click of the handwheel's dial Status indicators – differential handwheel: • No LED: no handwheel is connected OR a handwheel is connected and the "Select Axis" switch is NOT set to "OFF" • Solid LED: a handwheel is connected AND the "Select Axis" switch IS set to "OFF"


FP-80


FP-95


FP-104A


FP-104B

TB36A, TB36B and TB37BD: Breakout Boxes

Overview

TB36A and TB36B breakout boxes, optional hardware components for the VersioBus interface system, are for making connections from the DC-150 universal servo interface module to servo drives, or from the DC-150 to I/O devices. Since the DC-150 is only required for the VersioBus interface system (utilizing VersioBus fiber-optic servo and I/O communications networks), these optional breakout boxes are only useful for the VersioBus interface system.

The TB37BD breakout box is an optional hardware component that can be used with the VersioBus interface system, or with any other interface system (such as the Panasonic Realtime Express (RTEX), MECHATROLINK or SSCNET interface systems), if optional VersioBus I/O is included in that interface system. VersioBus I/O requires a VersioBus 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-150 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-150), 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.

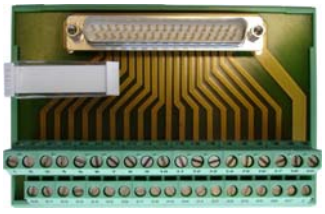
TB36B — a single terminal block for wire entry screw terminals.

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 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

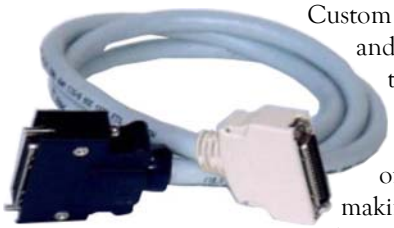
TB36B



TB37BD

Cables

Servo Drive and I/O Cables for DC-150 Connections (VersioBus Platform Only)



Custom ordered servo drive cables and/or general I/O cables that are preconfigured with the correct pin assignments for your servo drives and/or your I/O devices, for making connections between the DC-150 and the servo drives or between the DC-150 and the I/O devices. The DC-150 servo interface module is only required for the VersioBus interface system, therefore these optional cables are only useful for the VersioBus interface system.

VersioBus Fiber-Optic Cable

Fiber-optic cable required for connecting the hardware components of a VersioBus servo network or a VersioBus I/O network. Required for IM-300 I/O modules in any interface system, or for DC-150 servo modules in the VersioBus interface system.