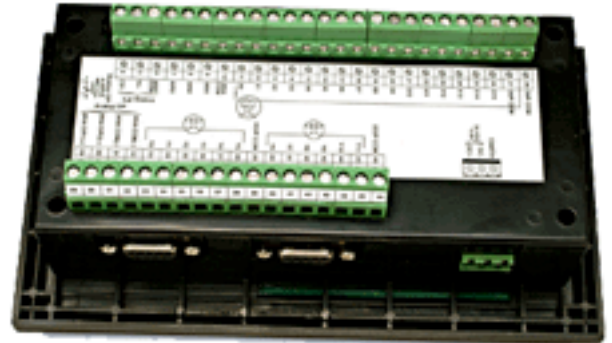




Front View

HIO140



Back View



Back View

HIO005



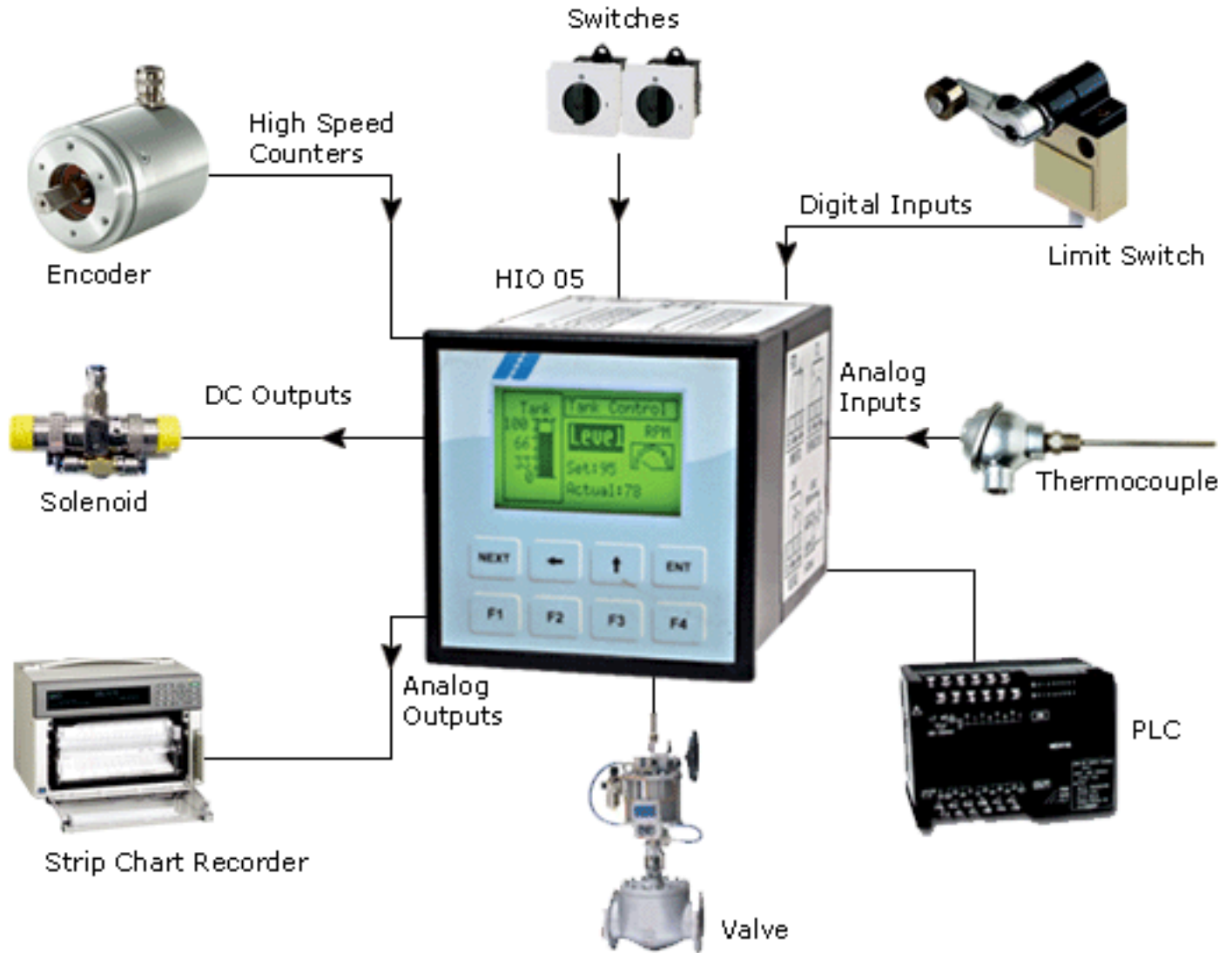
Front View

**Full integrated LCD Operator Interfaces with I/O featuring:**

- ▶ All features of Prizm LCD Operator Interfaces
- ▶ Integrated Digital Inputs and Outputs with optional Analog I/O
- ▶ Digital Inputs and Outputs rated for 24 V DC
- ▶ Analog Inputs for RTD, Thermocouple, mV and mA. Analog Outputs are 4-20 mA
- ▶ Inputs connectable to PLC or used for internal program
- ▶ Support for simple ladder logic and analog control
- ▶ Support for high speed counters and timer
- ▶ Dual Port Support for connecting to a PLC / Printer / SCADA / Drive
- ▶ IP65 design. CE and UL certified
- ▶ Common Programming software for the entire HIO family.....FREE!!

# Possible Applications

HIO units can be used in various different applications across many industries. The typical configurations include the following:

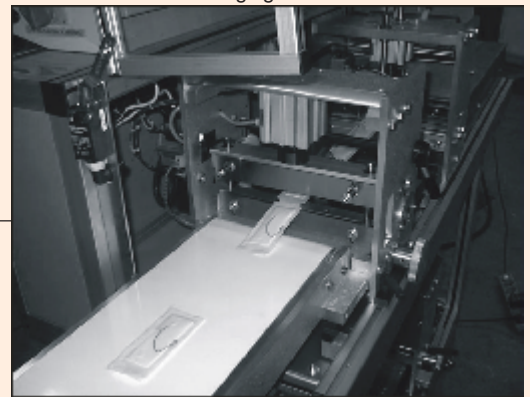


Machine Control Application



HIO140

Packaging Machine



\* Images not to scale.

# Basic HIO Operations

The HIO unit possess both Prizm (Operator interface) as well as programmable logic features. User can implement logic, specific to application using standard Ladder programming. The HIO unit has four High speed Counters (25 KHz.), Timers and Counters, internal Coils, retentive and nonretentive memory and PID functionality. A programming logic task can be programmed for continuous scanning, or only when a specific screen is showing. User can also include Programmable logic task in power on as well as Global task. The HIO operator interface functions revolve around Screens and Tasks that can be assigned to keys, screens and application. The HIO can also display an Alarm condition.

Supported Tasks are listed below:

- |                              |                             |
|------------------------------|-----------------------------|
| 1. Go to Screen              | 10. Swap Tag A and Tag B    |
| 2. Go to Next Screen         | 11. Print Data              |
| 3. Go to Previous Screen     | 12. Set RTC                 |
| 4. Add Tag B to Tag A        | 13. Copy Tag to STR         |
| 5. Subtract Tag B from Tag A | 14. Copy Tag to LED         |
| 6. Turn Bit On               | 15. Delay                   |
| 7. Turn Bit Off              | 16. Wait                    |
| 8. Toggle Bit                | 17. Execute PLC Logic Block |
| 9. Copy Tag B to Tag A       |                             |

## Digital I/O

The HIO series can have up to 16 digital inputs and up to 12 digital outputs. Digital inputs are high impedance 24 V DC and outputs are either relay (Only NO), open collector or combination of both. Digital I/O capability of HIO units can be expanded using external add on I/O Modules.

## Analog I/O

HIO series supports up to 4 analog inputs and up to 2 analog outputs. Analog inputs are mA, mV, Thermocouple and RTD. Analog outputs are 4-20 mA. Analog I/O capability of HIO units can be expanded using external add on I/O Modules.

## PID

PID controller can process 12 independent inputs irrespective of Analog inputs of the unit. The input to PID is a data register, which can hold an analog input or any other value.

## Keys Task

Keys in HIO can be assigned Tasks for three instances: when key is pressed once, while key is pressed and when key is released. Multiple tasks can be assigned to a key. Also different screens can have different key definitions. In addition to above-mentioned tasks, Key's specific tasks can be defined for keys. These include tasks for data entry, alarm management etc. These definitions allow complete flexibility in cursor control and key operations when changing data.

## Screens

Up to 65535 screens can be defined in HIO. Screen Tasks can be assigned before showing a screen, while showing a screen and after hiding a screen. Various types of objects such as plain text objects, Data display (coil status, register value, register dependent text), Data entry objects, Alarm objects can be defined on screen. Two screens can be associated to avoid duplication of screens and objects. Data entry objects can have limits and math associated. Various types of data formats are available which help user to edit data easily. Float data entry is also possible.

## Alarms

Alarms can be defined in HIO. Alarms can either be consecutive or discrete. User-friendly alarm object can be defined on the display. Optional Alarm logging along with on / off timers is also available. Keys can be assigned to acknowledge alarm, view next / previous alarm etc.

## Dual Port Support

HIO units (except HIO010) have two communication ports. Both the ports can be configured as RS232, RS485 / RS422, programming port or to connect a Printer / PLC / SCADA / Drive etc. Drivers can be downloaded in HIO units for Dual Port application

## Configuration Software

HIO unit has to be configured before its use in any system.

Complete configuration consists of defining:

1. HIO Settings
2. PLC node
3. Tag Database
4. Global Keys
5. Alarms
6. Global and Power-on Task list
7. Screens and Screens Task-List, Screen keys, if required.

The complete configuration is stored as an Application. This application is downloaded in HIO.

Prizm Setup Software is a compact, Windows® based software to configure the HIO Series Interfaces. Prizm Setup Software tools and easy approach can help you create your applications quickly and easily. By using Prizm Setup Software features, you can be more effective in what you need. Whether you need a small application to monitor data or a bigger application for both monitoring and changing data in your PLC, Prizm Setup Software has it all.



HIO user should follow the given procedure to configure and use HIO units:

1. Create an application.
2. Connect IBM cable.
3. Download Firmware.
4. Download application.

## Other Items required for HIO configuration

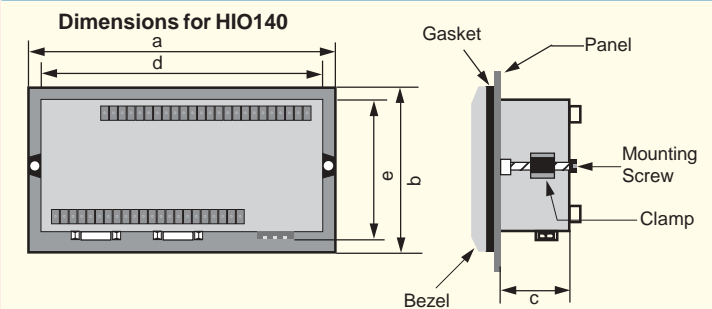
To get started with HIO you need:

1. HIO unit
2. Prizm Setup Software
3. IBM Cable (Part codes: IBM 0909-1-00 or IBM 0925-1-00)

## System requirements for Prizm Setup Software are:

|                      |                                   |
|----------------------|-----------------------------------|
| Windows Version :    | Microsoft Windows® 2000 or above  |
| Processor :          | PENTIUM or higher                 |
| Mouse :              | Required                          |
| RAM :                | 64 MB or more                     |
| Display resolution : | 800 x 600 (VGA) or better         |
| Display colors :     | 256 colors or more                |
| Serial Port :        | 1 serial port for HIO programming |

# Dimensions



Refer to table for dimensional details for other products on the next page.

# Specifications

Power : 24V DC  $\pm$ 10%  
 Bezel : IP 65 rated keypad  
 Operating Temperature : 0° to 50°C  
 Storage Temperature : -20° to 80°C  
 Humidity : 10% to 90% (Non condensing)  
 Communication Ports : Two communication ports.  
 (User configurable)  
 Immunity to ESD : Level 3 as per IEC1000-4-2  
 Immunity to Transients : Level 3 as per IEC1000-4-4  
 Radiated Susceptibility : Level 3 as per IEC1000-4-3  
 Emissions : EN55011 CISPR A

## Digital Inputs

### Rated Input Voltage

|                     | For Normal Input      | For High Speed        |
|---------------------|-----------------------|-----------------------|
| Rated Input Voltage | 24 VDC (Max is 28VDC) | 24 VDC (Max is 28VDC) |
| Input Impedance     | 4.7 k                 | 2.3 k                 |

Logic '0' Voltage : 0 to 5V  
 Logic '1' Voltage : 14 to 28V

## Rated Input Current at (24VDC)

|                     | For Normal Input | For High Speed |
|---------------------|------------------|----------------|
| Rated Input Current | 10mA             | 10mA           |

## Digital Outputs (Open Collector)

Maximum Load current : 300mA  
 Voltage drop at ON : 0.4V or less

## Digital Outputs (Relay)

Relay Rating : 230V AC, 2 Amp. (max.)

## Analog Inputs

Voltage : 0-100 mV, 0-50 mV  
 Current : 0-20 mA, 4-20 mA  
 RTD : 3-wire RTD (Alpha1, Alpha2)  
 T/C : Type B, R, S, E, J, K, N and T

## Analog Outputs

Current : 4-20 mA

# Product Comparison

| Model   | Display                 | Keys / LED's | Digital Inputs | Digital Outputs | Analog Inputs | Analog Outputs | Numeric Keys | Dimensions in mm |          | Part Number               |
|---------|-------------------------|--------------|----------------|-----------------|---------------|----------------|--------------|------------------|----------|---------------------------|
|         |                         |              |                |                 |               |                |              | (a x b x c)      | (d x e)  |                           |
| HIO 005 | 128 x 64 px. (1.25" g*) | 8 / 0        | 8              | 8               | 0             | 0              | No           | 48 x 48 x 76     | 45 x 45  | HIO005-0808-0000-B-C-00   |
| HIO 005 | 128 x 64 px. (1.25" g*) | 8 / 0        | 6              | 6               | 1             | 1              | No           | 48 x 48 x 76     | 45 x 45  | HIO005-0606-0101-U-B-C-00 |
| HIO 010 | 16 x 2 (Text)           | 6 / 2        | 8              | 8               | 0             | 0              | No           | 108 x 61 x 27    | 92 x 45  | HIO010-0808-0000-B-C-00   |
| HIO 010 | 16 x 2 (Text)           | 6 / 2        | 8              | 8               | 2             | 1              | No           | 108 x 61 x 27    | 92 x 45  | HIO010-0808-0201-U-B-C-00 |
| HIO 050 | 20 x 4 (Text)           | 20 / 8       | 16             | 12              | 0             | 0              | Yes          | 183 x 101 x 37   | 162 x 79 | HIO050-1612-0000-B-C-00   |
| HIO 050 | 20 x 4 (Text)           | 20 / 8       | 16             | 12              | 0             | 0              | Yes          | 183 x 101 x 37   | 162 x 79 | HIO050-1612-0000-B-R-00   |
| HIO 050 | 20 x 4 (Text)           | 20 / 8       | 16             | 12              | 4             | 2              | Yes          | 183 x 101 x 37   | 162 x 79 | HIO050-1612-0402-U-B-C-00 |
| HIO 050 | 20 x 4 (Text)           | 20 / 8       | 16             | 12              | 4             | 2              | Yes          | 183 x 101 x 37   | 162 x 79 | HIO050-1612-0402-U-B-R-00 |
| HIO 140 | 128 x 64 px. (3" g*)    | 18 / 4       | 16             | 12              | 0             | 0              | Yes          | 183 x 101 x 37   | 162 x 79 | HIO140-1612-0000-B-C-00   |
| HIO 140 | 128 x 64 px. (3" g*)    | 18 / 4       | 16             | 12              | 0             | 0              | Yes          | 183 x 101 x 37   | 162 x 79 | HIO140-1612-0000-B-R-00   |
| HIO 140 | 128 x 64 px. (3" g*)    | 18 / 4       | 16             | 12              | 4             | 2              | Yes          | 183 x 101 x 37   | 162 x 79 | HIO140-1612-0402-U-B-C-00 |
| HIO 140 | 128 x 64 px. (3" g*)    | 18 / 4       | 16             | 12              | 4             | 2              | Yes          | 183 x 101 x 37   | 162 x 79 | HIO140-1612-0402-U-B-R-00 |



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