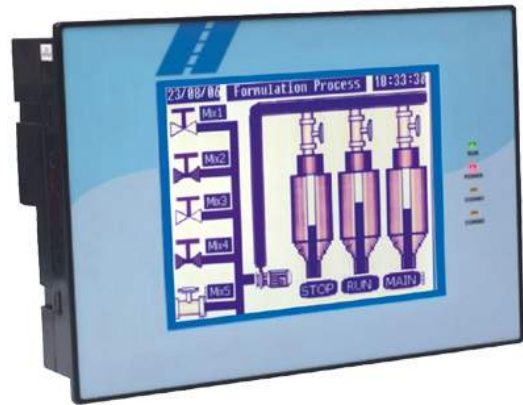


HIO 545 Front View



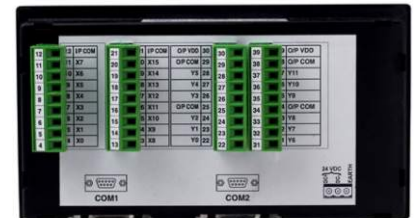
HIO 285 Front View



HIO 230 Front View



HIO 545/ 285 Back View



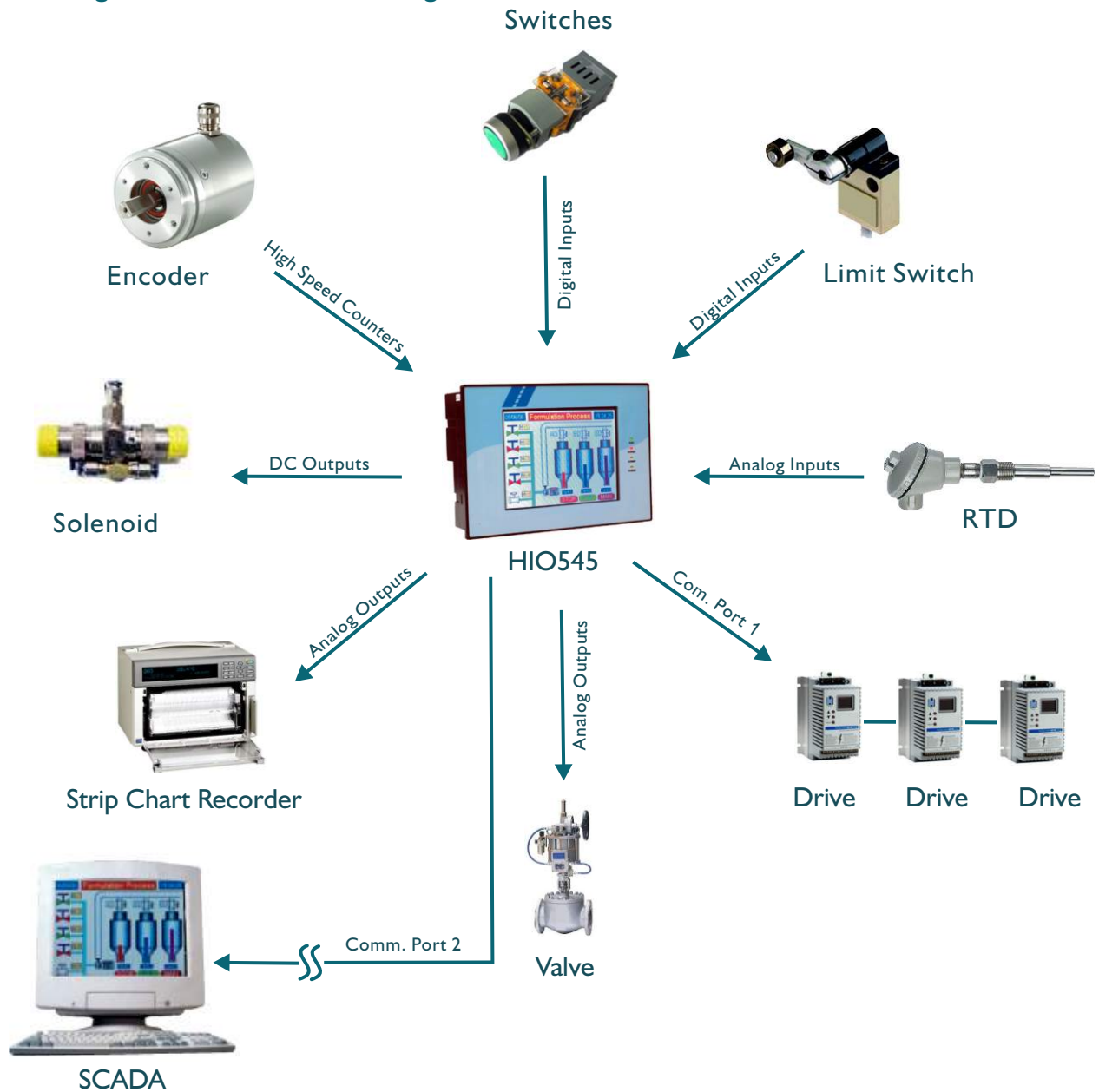
HIO 230 Back View

### Full integrated Touch Screen HMIs with I/O featuring :

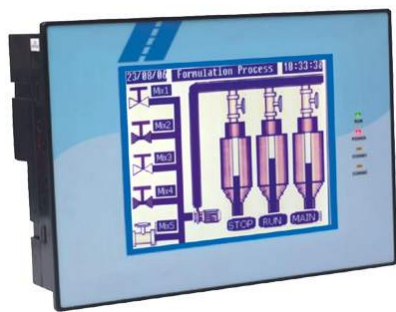
- All features of Prizm Touch Screen Operator Interfaces
- Integrated Digital Inputs and Outputs with optional Analog I/O
- Digital Inputs and Outputs rated for 24 V DC
- Analog Inputs for RTD, mV and mA.  
Analog Outputs are 4-20 mA / 0-10 VDC
- Inputs connectable to PLC or used for internal program
- Support for Ladder Logic and Analog control
- High Speed Counters and Timers
- Two Communication Ports: Universal serial ports to connect PLC / Printer / Programming Port
- Data Logging, Trending (Real Time & Historical), Alarms (Real Time & Historical)
- Built-in PID, PWM functionality, Multilanguage (Unicode) support with true type Windows® fonts
- IP65 design. CE and UL certified
- Common Programming software for the entire HIO family.....FREE!!

## Possible Applications :

HIO controllers can be used in applications across many industries. Typical configurations include the following :



## Machine Control Application :



HIO285



Chemical Process

# Basic HIO Operations :

The HIO units possess both Prizm (Operator interface) as well as programmable logic features. The user can implement logic, specific to application using standard Ladder programming. The HIO unit has four 32-bit High Speed Counters High Speed Counters(Normal and Quadrature Mode), Rate measurement capability (max. up to 25kHz), Timers and Counters, Internal Coils, retentive and non-retentive memory and PID functionality. A PLC logic task can be programmed for continuous scanning, or only when a specific screen is showing. The HIO operator interface functions revolve around Screens and Tasks that can be assigned to screens and application. The HIO can also display an Alarm conditions.

### Supported Tasks are listed below:

- Go to Screen
- Go to Next Screen
- Go to Previous Screen
- Write value to Tag
- Add a constant value to Tag
- Subtract a constant value form Tag
- Add Tag B to Tag A
- Subtract Tag B to Tag A
- Turn Bit On
- Turn Bit Off
- Toggle Bit
- Copy Tag B to Tag A
- Swap Tag A and Tag B
- Print Data
- Set RTC
- Copy Tag to STR
- Copy Tag to LED
- Delay
- Wait
- Copy Prizm block to Prizm/PLC block
- Copy Prizm/PLC block to Prizm block
- Copy RTC to PLC block
- Execute PLC Logic block

### Digital I/O

HIO Touch Screens can have up to 28 digital inputs and 16 digital outputs on the unit. Digital inputs are high impedance 24 VDC and outputs are relay (NO), transistor outputs or a combination of both. The Digital I/O capability of HIO units can be expanded using external add on I/O Modules.

### Analog I/O

The HIO controllers can have up to 4 universal analog inputs and 2 analog outputs. Analog inputs are mA, mV and RTD. The Analog outputs are 4-20 mA or 0-10 VDC. Analog I/O capability of HIO units can be expanded using external add on I/O Modules.

### PID

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

### High Speed Counters

HIO Touch Screens support High Speed Counter inputs. These High Speed Counter inputs can be used for applications such as Rate Measurement, Speed Measurement, Totalizer, etc. The user can define upto 4 High Speed inputs. HIO units also support Quadrature Pulse input.

### PWM

HIO Touch Screens support Pulse Width Modulation output. PWM is used for applications such as Motion Control. The user can control the fixed number of Pulses that are to be sent to drives.

### Touch Keys Task

Touch Keys in HIO units can be assigned Tasks for three instances: when the key is pressed, while the key is pressed and when the key is released. Multiple tasks can be assigned to a key. In addition to above, tasks for data entry, alarm management etc. can be defined. These definitions allow complete flexibility in cursor control and key operations when changing data.

### Alarms

Real time and historical alarms can be defined in HIO Touch Screens. User-friendly alarm object can be defined on the display. Alarms can be real time or historical. Keys can be assigned to acknowledge alarm, view and scroll.

### Screens

Up to 65535 screens can be defined in HIO Touch Screens. 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 and Alarm objects etc can be defined. Data entry objects can have limits and math associated. Floating point data entry is supported.

### Multilanguage / Unicode Support

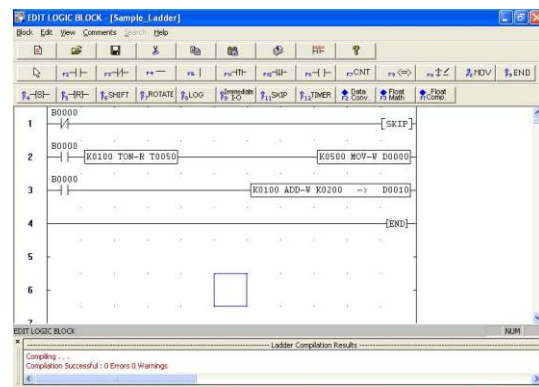
All the languages are supported in the HIO Touch Screens. The user can now display messages, alarms in any regional language. All Windows® fonts can also be used in an application.

### Communication Ports:

RS232 - RS422 / RS485 / CMOS Ports: HIO Touch Screens have two serial communication ports. Both the ports can be used for programming of HIO unit, printing screens, connecting to third party serial devices (barcode readers, printers etc.) or to connect to a PLC or drive. User can connect two masters simultaneously on these ports.

### Configuration Software:

Prizm Setup Software is a compact, Windows® based software to configure the HIO Series Interfaces. Prizm configuration tools and easy approach, can help you create your applications quickly and easily. Whether you need a small application to monitor data or a bigger application for both monitoring and control, Prizm Setup Software has it all.



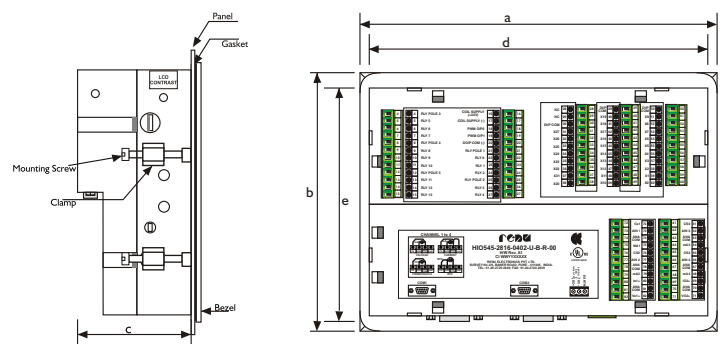
### To get started with HIO you need:

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          | : 266 MHz PENTIUM or higher         |
| Mouse              | : Required                          |
| RAM                | : 64 MB or more                     |
| Display resolution | : 800 x 600 (VGA) or better         |
| Display colors     | : 256 colors minimum                |
| Serial Port        | : 1 serial port for HIO programming |
| Keyboard           | : Required                          |

## Dimensions



All dimensions are in mm.

## Specifications :

Power	: + 24V DC $\pm$ 10%
Bezel	: IP 65 rated Touch Screen
Operating Temperature	: 0° to 50°C
Storage Temperature	: -20° to 80°C
Humidity	: 10% to 85% (Non condensing)
Communication Ports	: Two serial ports (RS232 / RS422 / RS485 / CMOS levels supported)
Immunity to ESD	: as per IEC61000-4-2
Immunity to Fast Transients	: as per IEC61000-4-4
Immunity to Radiated electromagnetic field	: as per IEC61000-4-3
Immunity to Conducted disturbances	: as per IEC61000-4-6
Surge	: as per IEC61000-4-5
Radiated emission	: as per EN61000-6-4

### Digital Inputs

#### Rated Input Voltage

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

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

### Rated Input Current at (24 VDC)

	For Normal Input	For High Speed
Rated Input Current	4.89 mA	10 mA

### Digital Outputs (Open Collector)

Maximum Load current	: 300 mA (for NPN) and 500 mA (for PNP)
Voltage drop at ON	: 0.4 V or less

### Digital Outputs (Relay)

Relay Rating	: 230 V AC, 2 Amp. (Max)
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### Analog Inputs

Voltage	: 0-100 mV, 0-50 mV
Current	: 0-20 mA, 4-20 mA
RTD	: 3-wire RTD (Alpha1, Alpha2)

### Analog Outputs

Current/Voltage	: 4-20 mA, 0-10V
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## Product Comparison :

Model	Display	Keys/ LED's	Digital Inputs	Digital Outputs	Analog Inputs	Analog Outputs	No. of Ports	Dimensions in mm		Part Number
								(aXbXc)	(dXe)	
HIO230	192 X 64 (4.1")	Touch Screen	16	12	0	0	2 (232/485)	140 x 77 x 35	132x68	HIO230-1612-0000-B-C-00
HIO230	192 X 64 (4.1")	Touch Screen	16	12	4	0	2 (232/485)	140 x 77 x 35	132x68	HIO230-1612-0400-I-B-C-00-S2
HIO230	192 X 64 (4.1")	Touch Screen	16	12	4	0	2 (232/485)	140 x 77 x 35	132x68	HIO230-1612-0400-V-B-C-00-S2
HIO230	192 X 64 (4.1")	Touch Screen	12	08	06#	01	2 (232/485)	140 x 77 x 35	132x68	HIO230-1208-0601-U-B-C-00
HIO285	320 X 240 (5.7" Mono)	Touch Screen	28	16	0	0	2 (232/485)	193 x 136 x 58	184x126	HIO285-2816-0000-B-C-00
HIO285	320 X 240 (5.7" Mono)	Touch Screen	28	16	0	0	2 (232/485)	193 x 136 x 58	184x126	HIO285-2816-0000-B-R-00*
HIO285	320 X 240 (5.7" Mono)	Touch Screen	28	16	4	2	2 (232/485)	193 x 136 x 58	184x126	HIO285-2816-0402-U-B-C-00
HIO285	320 X 240 (5.7" Mono)	Touch Screen	28	16	4	2	2 (232/485)	193 x 136 x 58	184x126	HIO285-2816-0402-U-B-R-00*
HIO545	320 X 240 (5.7" Color)	Touch Screen	28	16	0	0	2 (232/485)	193 x 136 x 58	184x126	HIO545-2816-0000-B-C-00
HIO545	320 X 240 (5.7" Color)	Touch Screen	28	16	0	0	2 (232/485)	193 x 136 x 58	184x126	HIO545-2816-0000-B-R-00*
HIO545	320 X 240 (5.7" Color)	Touch Screen	28	16	4	2	2 (232/485)	193 x 136 x 58	184x126	HIO545-2816-0402-U-B-C-00
HIO545	320 X 240 (5.7" Color)	Touch Screen	28	16	4	2	2 (232/485)	193 x 136 x 58	184x126	HIO545-2816-0402-U-B-R-00*

#### Example : HIOXXX-YYZZ-LLMM-U-B-C/R-00

**XXX:** Model, **YYZZ:** Digital inputs and Digital outputs

**LLMM:** Analog inputs and outputs,

**U:** Universal analog inputs (Software selectable)

**I:** Only mA inputs (0-20/4-20, Software selectable)

**V:** Only 0-10 VDC inputs (10 bit resolution)

**#:** 2 Universal, 4 nos. 4-20 mA (10 bit resolution)

**C:** Transistor o/p (NPN 300 mA) for PNP (500 mA) o/p replace 'C' by 'P' HIO 285 & 545 are also available with relay o/p (maximum 14 relays and 2 transistor o/p) replace 'C' by 'R' in unit part no. for relay o/p

**R:** Relay\*

**S2:** 10 bit resolution for analog input

**B:** Black Case (Units are also available with Gray case. Replace 'B' by 'G' in part no. for Gray case.)

\* Note : {14 Relays (NO type) + 2 Open Collector}

New PLC drivers are constantly added. Please contact factory for more information. We welcome an opportunity to develop new, custom drivers and customized units. Data logging is not supported in 230 Models.



**RENU**  
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An ISO 9001 : 2008 and ISO 14001 : 2004 certified company