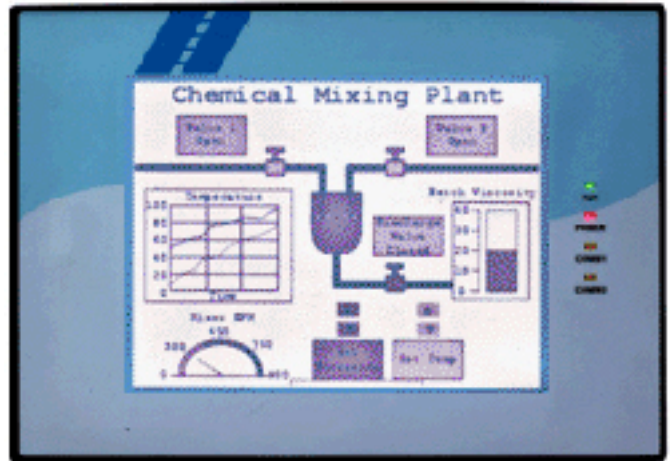HIO545 Front View

HIO285 Front View

HIO285 / 545 Back View

HIO230 Front View

HIO230 Back View
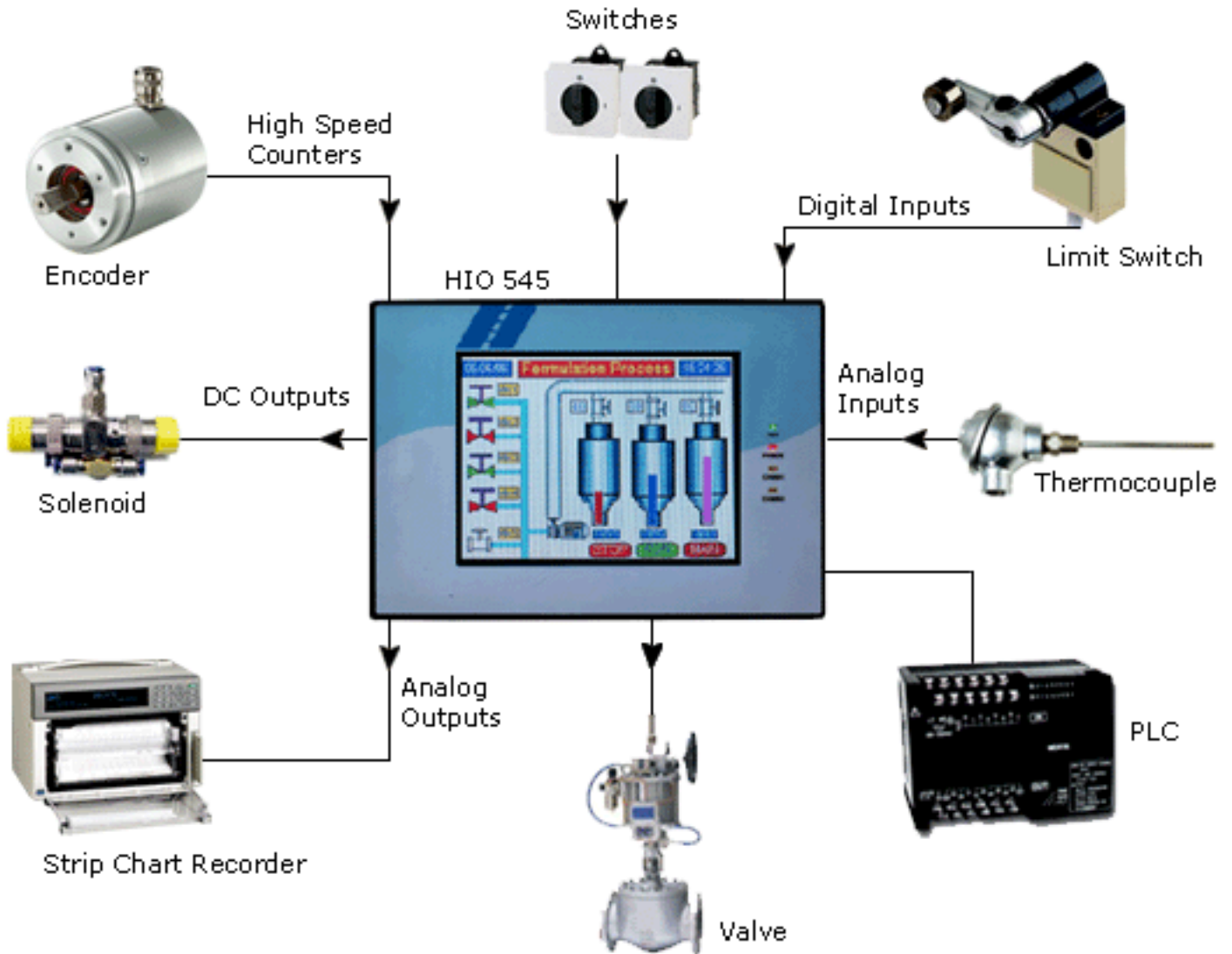
Full integrated Touch Screen Operator Interfaces with I/O featuring:

▶ 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, Thermocouple, mV and mA. Analog Outputs are 4-20 mA / 0-10 VDC

▶ Inputs connectable to PLC or used for internal program

▶ Support for simple ladder logic and analog control

▶ Support for high speed Counters and Timers

▶ Three Communication Ports: Two universal serial ports to connect PLC / Printer / Programming Port
One Ethernet port to connect PLC / Programming Port / Remote monitoring*

▶ 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

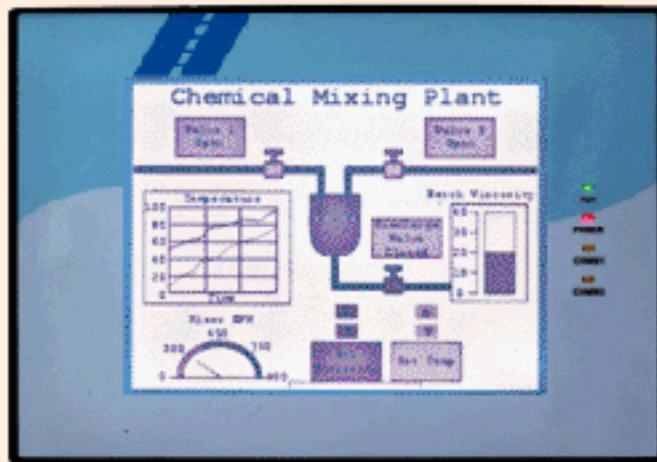▶ Common Programming software for the entire HIO family.........FREE!!

* Coming soon

● Possible Applications

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

Switches

High Speed
Counters

Digital Inputs

Limit Switch

Encoder

HIO 545

Analog
Inputs

DC Outputs

Thermocouple

Solenoid

Analog
Outputs

PLC

Strip Chart Recorder

Valve

Machine Control Application

HIO285

Chemical Process

* Images not to scale.

● Basic HIO Operations

The HIO units 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. 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 condition. Supported Tasks are listed below:

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

Digital I/O
HIO Touch Screens can have up to 28 digital inputs and up to 16 digital outputs. Digital inputs are high impedence 24 VDC and outputs are relay (Only NO), transistor outputs 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 Touch Screens support up to 4 universal analog inputs and up to 2 analog outputs. Analog inputs are mA, mV, Thermocouple and RTD. 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
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.

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. 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. 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 key is pressed once, while key is pressed and when 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. Optional Alarm logging along with on / off timers is also available. Keys can be assigned to acknowledge alarm, view next / previous alarm etc.

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, Alarm objects etc can be defined. Data entry objects can have limits and math associated. Float data entry is also possible.

Multilanguage / Unicode Support
All the languages are supported in the HIO Touch Screens. 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.

Ethernet Port: HIO Touch Screens support Ethernet port. It can be used to connect to a PLC and monitor machine / process status from remote location. The ethernet port can also be used for remote programming of HIO Touch Screens.
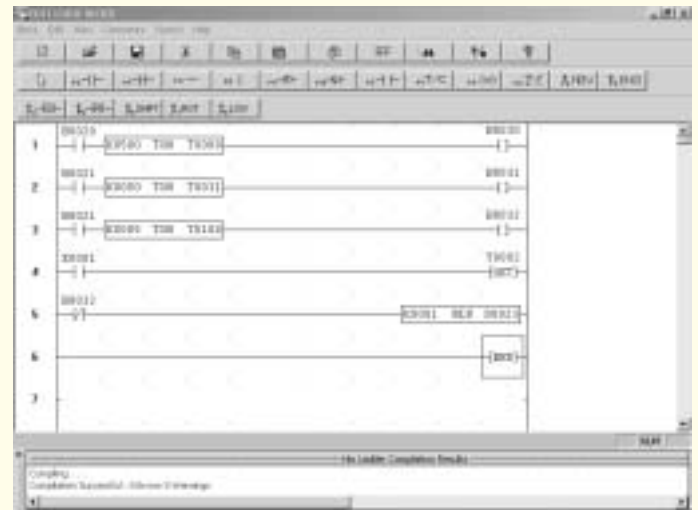
Configuration Software
HIO unit has to be configured before its use in any system.
Complete configuration consists of defining:
1. HIO Settings
2. PLC node
3. Tag Database
4. Global Keys
5. Alarms
6. Global and Power-on Task list
7. Screens and Screens Task-List, Screen keys, if required.

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. 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

Specifications

Power	: + 24V DC ±10%, 15 W max
Bezel	: IP 65 rated Touch Screen
Operating Temperature	: 0° to 50ºC
Storage Temperature	: -20° to 80ºC
Humidity	: 10% to 90% (Non condensing)
Communication Ports	: Two serial ports (RS232 / RS422 / RS485 / CMOS levels supported)
Ethernet Port	: For connecting to a PLC, programming of HIO, a third party device and another PLC or drive or remote monitoring.
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)

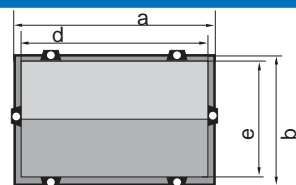|	
Relay Rating	: 230V AC, 2 Amp. (max.)

Analog Inputs

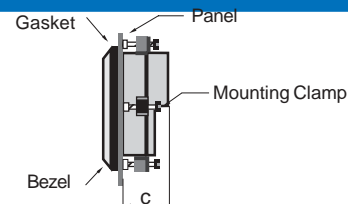|	
Voltage	: 0-100 mV, 0-50 mV
Current	: 0-20 mA, 4-20 mA
RTD	: 3-wire RTD (Alpha1, Alpha2)
T/C	: Type B, R, S, E, J, K, N and T

Analog Outputs

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

Dimensions

All dimensions are in mm.

Product Comparison

Model	Display	Keys / LED's	Digital Inputs	Digital Outputs	Analog Inputs	Analog Outputs	Numeric Keys	Dimensions in mm (a x b x c)	(d x e)	Part Number
HIO 230	192 X 64 (4.1")	Touch Screen	16	12	0	0	Pop-up Screen	140 x 77 x 35	132 x 68	HIO230-1612-0000-B-C-00
HIO 230	192 X 64 (4.1")	Touch Screen	16	12	4	0	Pop-up Screen	140 x 77 x 35	132 x 68	HIO230-1612-0400-I-B-C-00-S2
HIO 230	192 X 64 (4.1")	Touch Screen	16	12	4	0	Pop-up Screen	140 x 77 x 35	132 x 68	HIO230-1612-0400-V-B-C-00-S2
HIO 230	192 X 64 (4.1")	Touch Screen	12	08	06#	01	Pop-up Screen	140 x 77 x 35	132 x 68	HIO230-1208-0601-U-B-C-00
HIO285	320 X 240 (5.7" Mono)	Touch Screen	28	16	0	0	Pop-up Screen	193 x 136 x 58	184 x 126	HIO285-2816-0000-B-C-00
HIO285	320 X 240 (5.7" Mono)	Touch Screen	28	16	0	0	Pop-up Screen	193 x 136 x 58	184 x 126	HIO285-2816-0000-B-R-00
HIO285	320 X 240 (5.7" Mono)	Touch Screen	28	16	4	2	Pop-up Screen	193 x 136 x 58	184 x 126	HIO285-2816-0402-U-B-C-00
HIO285	320 X 240 (5.7" Mono)	Touch Screen	28	16	4	2	Pop-up Screen	193 x 136 x 58	184 x 126	HIO285-2816-0402-U-B-R-00
HIO545	320 X 240 (5.7" Color)	Touch Screen	28	16	0	0	Pop-up Screen	193 x 136 x 58	184 x 126	HIO545-2816-0000-B-C-00
HIO545	320 X 240 (5.7" Color)	Touch Screen	28	16	0	0	Pop-up Screen	193 x 136 x 58	184 x 126	HIO545-2816-0000-B-R-00
HIO545	320 X 240 (5.7" Color)	Touch Screen	28	16	4	2	Pop-up Screen	193 x 136 x 58	184 x 126	HIO545-2816-0402-U-B-C-00
HIO545	320 X 240 (5.7" Color)	Touch Screen	28	16	4	2	Pop-up Screen	193 x 136 x 58	184 x 126	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 V DC inputs (10 bit resolution)
 # : 2 universal, 4 nos. 4-20 mA (10 bit resolution)

C: Open Collector output (NPN 300mA). **S2:** 10 bit resolution for analog input
P: PNP Transistor output (300mA). Replace 'C' by 'P' in product part no.
R: Relay* (14 Relays (NO type) + 2 Open Collector. Only HIO 285 & 545 are available with relay option
B: Black Case (Units are also available with Gray case. Replace 'B' by 'G' in part no. for Gray case.)
Datalogging not available in HIO 230

(Preliminary Datasheet. Specifications subject to change without prior notice. DS-HIOTouchScren Rev.1)