PX466S PXI Signal Distribution Module

Assembly P/N 11030250

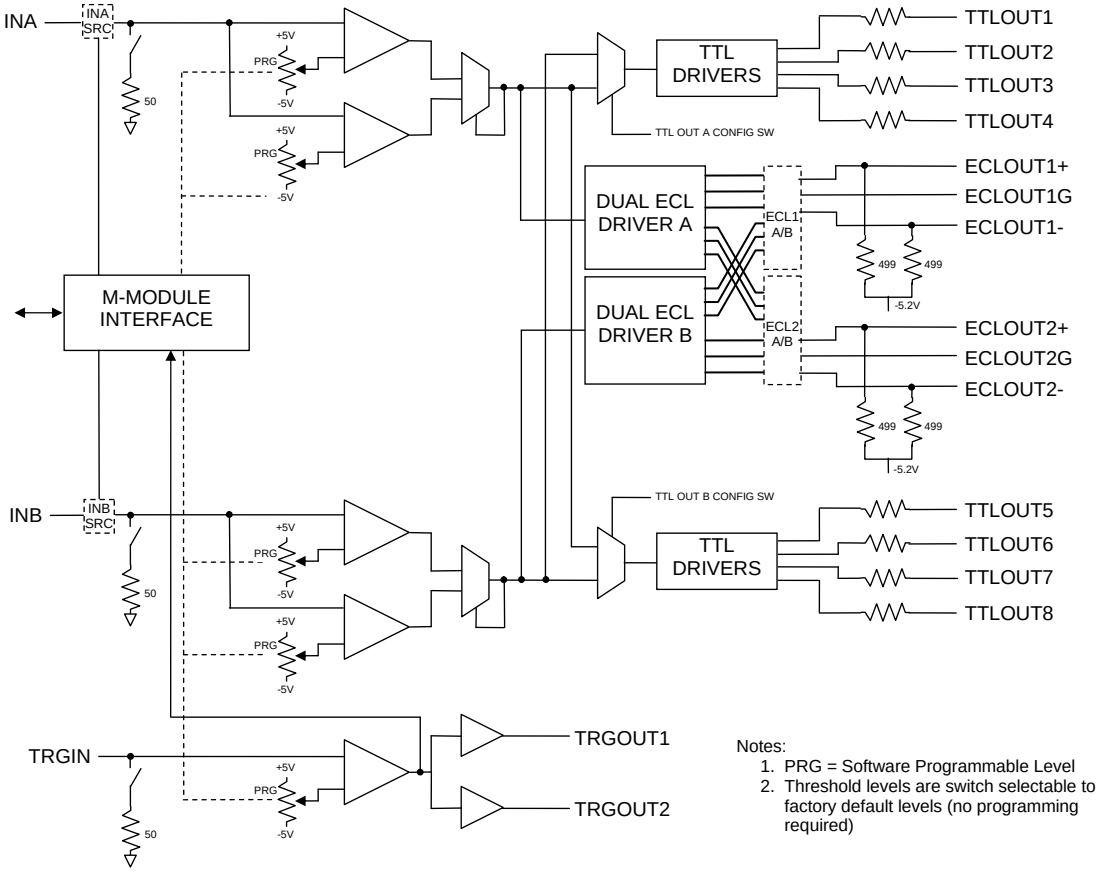
DESCRIPTION

The PX466S provides distribution of clock signals to other devices. The module accepts three analog input signals and provides TTL and ECL distribution as shown below in the functional block diagram. The input signals are passed through high speed comparators that convert the analog level to a digital signal. The digital signals are individually buffered to provide the TTL and ECL outputs. Internal connectors and the use of backplane triggers facilitate integration with other modules.

The source of INA and INB is selectable to the front panel connector, internal connector, or a PXI trigger. The trigger outputs can be directed to the PXI triggers. Front panel INA and INB use a window comparator to provide a large input hysteresis. TRIGIN uses a single input comparator. The threshold levels can be the fixed at the factory default levels to allow operation without any software programming or they can be programmed to a level between -5V and +5V. Non-volatile potentiometers retain programmed settings when power is off.

From the factory, the configuration switches are set as follows:

Output Configuration:	Input A drives TTLOUT 1-4, Input B drives TTLOUT 5-8
INA, INB, and TRG Impedance:	50Ω
INA, INB, and TRG Input Threshold Level:	Fixed default level (see specifications)
INA and INB source:	External front panel
ECL1 source:	Input A
ECL2 source:	Input B



Notes:
1. PRG = Software Programmable Level
2. Threshold levels are switch selectable to factory default levels (no programming required)

DOCUMENTATION

The PX466S is an integration of a MA210 M-Module and an AMi3002 PXI M-module carrier. This document discusses the general use of the PX466S integrated module. For full details on each of the individual modules used in the PX466S, please refer to the User Manual for that particular module.

Document Description	Website
MA210 User Manual	www.chtech.com -> Support -> Product Manuals -> Source -> MA210
i3002 User Manual	www.acq.nl -> Products -> Carrier -> i3002-> Manual

SOFTWARE CONFIGURATION AND CONTROL

With the switch settings in the factory default positions, the PX466S does not require any software configuration or control. The threshold levels are fixed according to the specifications shown below.

In the event that programmable input level thresholds are required, a software driver is available. Since the signal distribution functions of the PX466S are fully controlled by the integrated MA210 M-Module, the user can use the MA210 software driver which is available for download on C&H's website. This driver fully supports the PX466S. The driver uses the VISA I/O library and includes an interactive soft front panel that can be used to operate the PX466S. The driver provides a library of function calls for initializing, configuring, and operating the instrument. The library is provided in formats for most popular development environments as well as in a Windows DLL format. In addition, ANSI-C source code is provided and is written in a manner to allow the driver to be easily ported to operating systems that do not support VISA.

SPECIFICATIONS

Common Input Characteristics:

Voltage Range	-5.0V to +5.0V
Input Impedance	50Ω or Hi-Z [1]
Level Adjust Resolution	39mV (8 bit)
Level Adjust Accuracy	
50Ω In Imp.	±7% + 150mV
Hi-Z In Imp.	±10% + 150mV

INA/INB Input Characteristics:

High Threshold Level Range[2]	-5.0 to +5.0V
Low Threshold Level Range[2]	-5.0 to +5.0V
Fixed Factory Default Levels	
High Level	+2.15V
Low Level	+1.85V

Trigger Input Characteristics:

Threshold Level Range	-5.0 to +5.0V
Fixed Factory Default Level	+2.0V

TTL Output Characteristics:

Impedance[3]		12.5Ω
Output Levels (Load = 50Ω)	V_{OL}	≤ 0.5V
	V_{OH}	≥ 3.0V
Propagation Delay		
from INA/INB to TTL Output		≤ 21ns
from MTRIG to TTL Output		≤ 30ns

ECL Output Characteristics:

Type	10K Series ECL
Termination	499Ω pull downs (-5.2V) on both lines
Propagation Delay	
from INA/INB to ECLOUT	≤ 7ns
from MTRIG to ECLOUT	≤ 21ns

Trigger Output Characteristics:

Impedance	50Ω
Output Levels (Load = 50Ω)	V_{OL} ≤ 0.4V
	V_{OH} ≥ 2.5V
Width	≥ 3ns
Propagation Delay (TRIGIN to TRIGOUT)	≤ 21ns
Skew (between TRGOUT1 & TRGOUT2)	≤ 1.0ns

Power:

+5V	1.6 A
+12V	50 mA
-12V	400 mA

Temperature:

Operating	0°C to 50°C
Storage	-40°C to 70°C

Notes:
1. Input impedance is switch selectable. Hi-Z is around 10KΩ.
2. For proper operation, the high level must be greater than the low level.
3. Four 50Ω output drivers are used in parallel.

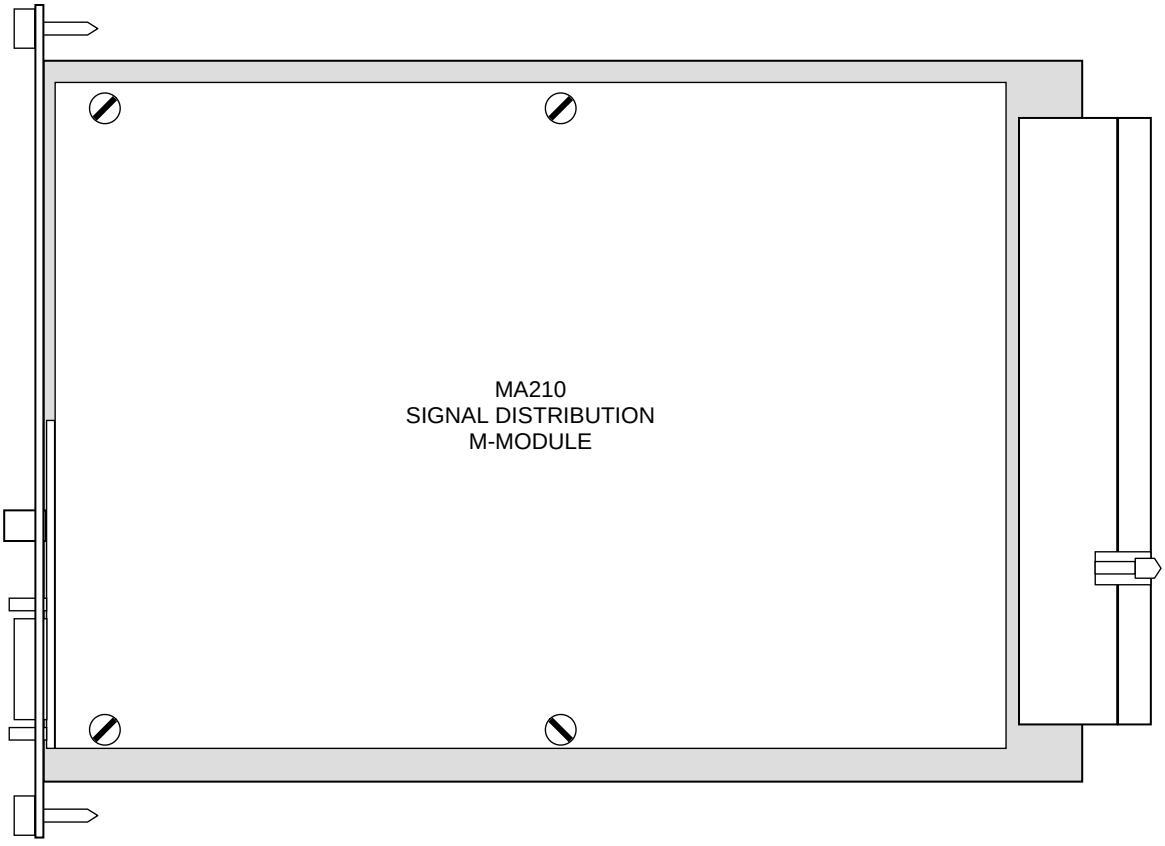
ELECTRICAL

The electrical interface is compliant with the PXI bus specification Rev 2.1, cPCI Specification 2.0 R3.0, and PCI Specification 2.2 (slave only). The module supports both 5V and 3.3V signaling voltages (VIO). Five PXI compliant trigger lines are supported.

MECHANICAL

The PX466S is an integration of a MA210 M-Module and an AMi3002 PXI M-module carrier as shown below. The MA210 provides the Signal Distribution capability and the AMi3002 provides the electrical and mechanical interface to a PXI backplane and chassis. For a list of available M-Module, visit C&H's website.

To allow the use of a double-wide M-module in a standard 3U cPCI (PXI) system, the module is slightly higher than the 3U standard. The card guide rails for the slot the module will be used in must be replaced with the special card guide rails supplied with the PX466S. The rails easily snap out using a flat screwdriver.



I/O CONNECTOR

Below is the signal list for the two connectors located on the front panel of the PX466S. For more details on each signal, refer to the MA210 User Manual.