

# P321

## Data Sheet and User Manual

PG3A Pattern Generator  
P321 – Low Speed Serial Probe  
July 2008 - Rev 1.1

## **PG3A Pattern Generator P321 – Serial probe**

### **1.0 General:**

The P321 probe features outputs compatible with four common low-speed serial communication protocols. They are RS232, RS422, SPI, and I<sup>2</sup>C.

RS232 support consists of 3 outputs. The nominal drive level is +5/-5 volts on these outputs.

RS422 support consists of 3 differential outputs.

SPI support consists of 8 outputs. The logic high (Voh) is variable from 2.5 volts to 5.0 volts. The logic low is nominally 0 volts.

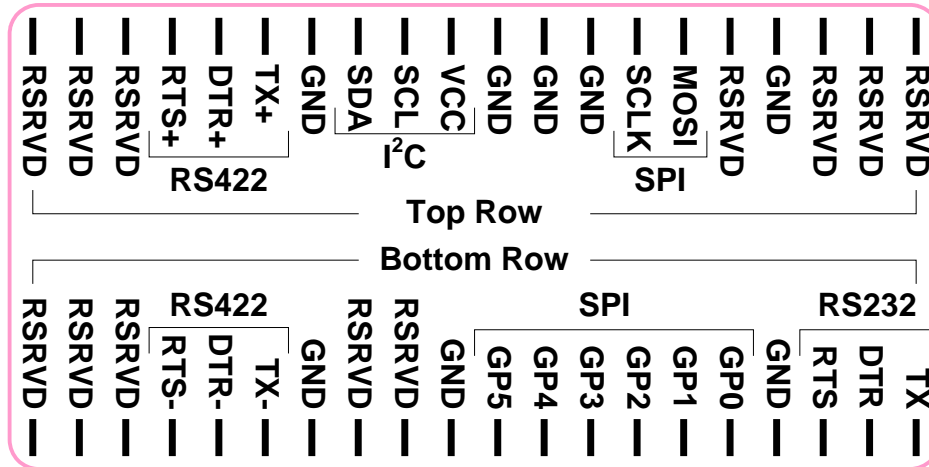
I<sup>2</sup>C support consists of drivers for SCL and SDA. User provides pullup.

## 2.0 Requirements:

The P321 option works with all current PG3AMod and PG3ACab models. The instrument firmware must be V1.2 or higher. The PGApp software must be V2.0.010 or higher. Updated versions of the instrument firmware and the PGApp software can be freely downloaded from the PG3A website: [www.movingpixel.com/PG3A.html](http://www.movingpixel.com/PG3A.html).

## 3.0 Pinouts

The connections to the probe are shown on a label on the probe. This is the view from the top of the probe.



Pins are grouped and labeled by protocol.

### SPI Pins

MOSI Master Out/Slave In  
SCLK Serial Clock  
GP0 – GP5 General Purpose outputs which might be used as chip selects.

### I<sup>2</sup>C Pins

VCC Connect to Vcc ( $2V \leq VCC \leq 5V$ ) used for the target I<sup>2</sup>C bus  
SCL Connect to the SCL line of the target I<sup>2</sup>C bus  
SDA Connect to the SDA line of the target I<sup>2</sup>C bus

### RS422 Pins

TX+ Transmit Data output +  
TX- Transmit Data output -  
DTR+ Data Terminal Ready output +  
DTR- Data Terminal Ready output -  
RTS+ Ready to Send output +  
RTS- Ready to Send output -

### **RS232 Pins**

TX Transmit Data output  
DTR Data Terminal Ready output  
RTS Ready to Send output

### **RSRVD Pins**

Do not make any connections to these pins

### **GND Pins**

One or more ground pins should be connected to the system-under-test (SUT). There is no need to connect all GND pins.

## **4.0 Electrical specification for the P321 probe**

<b>Characteristic</b>	<b>Specification</b>		<b>Notes</b>
	<b>Min</b>	<b>Max</b>	
Output Characteristic			
SPI Output voltage high	+2.0 V	+5.0 V	
SPI bit rate		100 Mbits/s	
I <sup>2</sup> C bit rate		400 kHz	
RS232 bit rate		1 Mbits/s	load < 250 pF
RS422 bit rate		35 Mbits/s	100 Ω termination
Weight	~140 grams		approximate
Overall Dimensions	Length: 130 mm, Width 80 mm, Height: 27 mm		approximate