

HowTo Setup Raspberry Pi to communicate with the Arduino

Description based on

RASPBIAN JESSIE LITE

Minimal image based on Debian Jessie

Version: March 2017

Release date: 2017-03-02

Kernel version: 4.4

1. Enable UART as /dev/ttyS0

1. `sudo nano /boot/config.txt`

add this at the end of the file..

1. `# RASPI 3 UART`
2. `enable_uart=1`
3. `# Allow the normal UART pins to work`
4. `dtoverlay=pi3-disable-bt-overlay dtoverlay=pi3-miniuart-bt`

2. Disable Console on /dev/ttyS0

1. `sudo nano /boot/cmdline.txt`

Remove "console=..."

1. `dwc_otg.lpm_enable=0 console=serial0,115200 console=tty1 root=/dev/mmcblk0p2 rootfstype=ext4`

3. Reboot and test

1. `sudo apt-get install minicom`
2. `sudo minicom -s`

```
+-----+
| A -   Serial Device       : /dev/ttyS0      |
| B -   Lockfile Location   : /var/lock       |
| C -   Callin Program      :                 |
| D -   Callout Program     :                 |
| E -   Bps/Par/Bits        : 19200 8N1       |
| F -   Hardware Flow Control : No            |
| G -   Software Flow Control : No           |
|                                     |
|   Change which setting?           |
+-----+
|                                     |
|   Screen and keyboard             |
|   Save setup as dfl               |
|   Save setup as..                 |
|   Exit                           |
|   Exit from Minicom              |
+-----+
```

Set Hardware Flow to No, set Device to /dev/ttyS0, set BPS to 19200

4. Firmware

We ship the Andino X1 with the Counting Sample Firmware. It works with **19200 Baud**

<https://github.com/andino-systems/Andino-X1/tree/master/src/firmware/counting>

Commands to the Controller

Command	Arguments	Action	Example
RESET	none	Restart the Controller	RESET
INFO	none	Prints the current settings	INFO
POLL	Cycle in ms	Sets the sampling cycle of the digital inputs [in ms]	POLL 1000
EDGE	HL(0) LH(1)	Count on edge HL or LH	EDGE
SEND	Cycle in ms	The counter will send all nnn milliseconds	SEND 5000
DEBO	Number of polls	Sets the debounce count. The signal has to be stable for nn polls	DEBO 100
REL1	state (0 or 1)	Relay 1 is switched on or off	REL1 1
REL2	state (0 or 1)	Relay 2 is switched on or off	REL2 1
RPU1	pulse in sec	Pulse the Relay 1 for nns seconds	RPU1 2
RPU2	pulse in sec	Pulse the Relay 2 for nns seconds	RPU2 2

Messages from the Controller

Message	Arguments	Action	Example
CNTR	messageID counter1 counter2	Send the counter every [SEND] millis	CNTR 9998 12 32
STAT	messageID pin1 pin2	Send the state of the pins every [SEND] millis	CNTR 9998 12 32

Message-ID increments on every Message to check any lost.