

ARDUINO UNO SHIELD TEMPLATE (REV B)

NOTE: FOR THE MOST UP TO DATE INFO ON THE ARDUINO UNO SHIELD TEMPLATE PLEASE GO TO THE FOLLOWING LINK:
HTTPS://CONFLUENCE.ANALOG.COM AND SEARCH FOR ARDUINO UNO SHIELD TEMPLATE

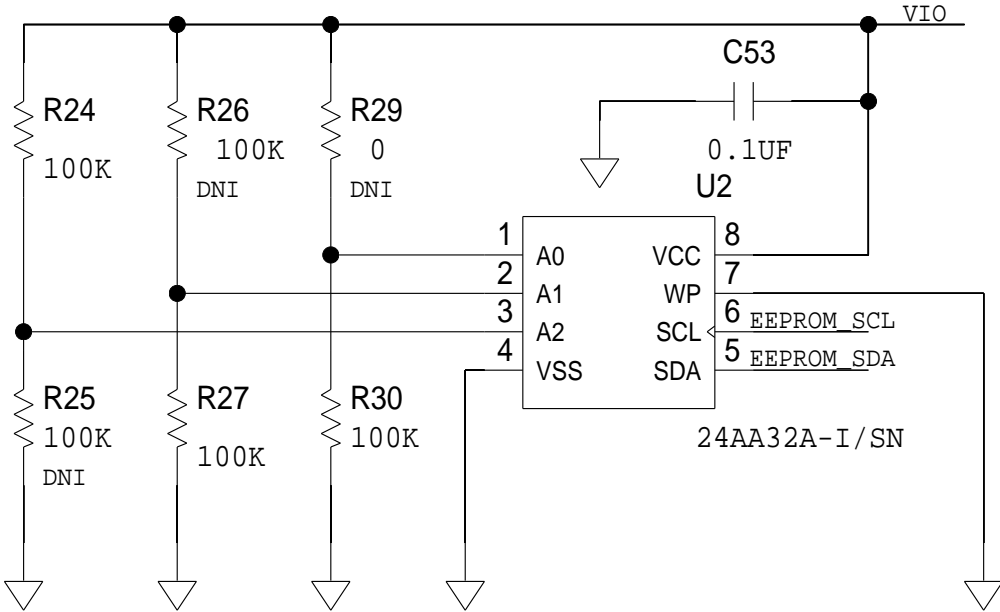
MANDATORY: ENSURE THAT THE SAP CODE FOR THIS BOARD TAKES THE FORM EVAL-ADXXXX-ARDZ

NOTE: IF YOU HAVE ANY QUESTIONS ABOUT THE ARDUINO UNO REV3 SHIELD TEMPLATE PLEASE EMAIL SDPK.SUPPORT@ANALOG.COM

NOTE: THIS TEMPLATE WAS DESIGNED TO WORK WITH THE LATEST ARDUINO UNO REVISION WHICH IS THE ARDUINO UNO REV3
THE PINS ON THE ARDUINO UNO HEADER HAVE NOT CHANGED FROM THE REV3 SINCE 2011

MANDATORY: THIS EEPROM MUST BE INCLUDED ON ALL ARDUINO UNO SHIELDS

USING THE RESISTORS CONNECTED TO THE ADDRESS PINS OF THE EEPROM YOU CAN SELECT THE I2C ADDRESS, AFTER SELECTING
YOUR ADDRESS THE DNI RESISTORS SHOULD NOT BE REMOVED TO ENSURE YOU CAN CONNECT MULTIPLE BOARDS TO A SYSTEM.
THE I2C ADDRESS NUMBER OF THIS EEPROM WILL BE IN THE RANGE OF 0X50 TO 0X57.



THE PURPOSE OF THE "STD_" & "ALT_" RESISTORS BELOW IS TO MAXIMISE
COMPATIBILITY WITH ARDUINO UNO REV3 CONTROLLER BOARDS

THE ARDUINO UNO REV3 AND THE MAJORITY OF NON-OFFICIAL ARDUINO BOARDS USE THE DIGITAL PINS 11, 12 & 13 FOR THE SPI SIGNALS.

THE ARDUINO UNO REV3 ALSO CONNECTS THE SPI SIGNALS TO THE 6-PIN ICSP CONNECTOR.

THE ARDUINO DUE, ZERO, LEONARDO, ETC ONLY CONNECT THE SPI SIGNALS TO THE ICSP CONNECTOR AND
REUSE THE DIGITAL PINS 11, 12 & 13 FOR OTHER PURPOSES.

PLACEMENT OF THE "STD_" RESISTOR CONNECTS THE SPI SIGNALS TO DIGITAL PINS 11, 12 & 13, WHICH WILL MAKE YOUR
SHIELD COMPATIBLE WITH THE ARDUINO UNO REV 3 & MAJORITY OF NON-OFFICAL ARDUINO UNO REV3 BOARDS.

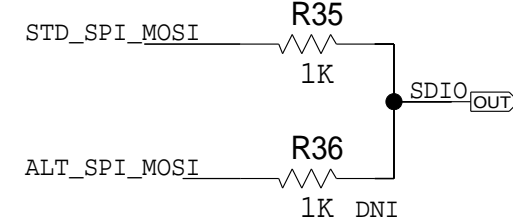
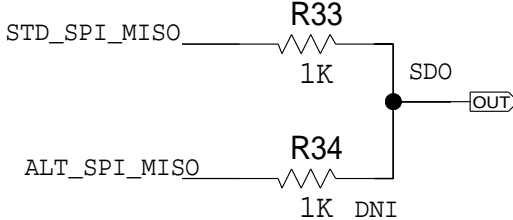
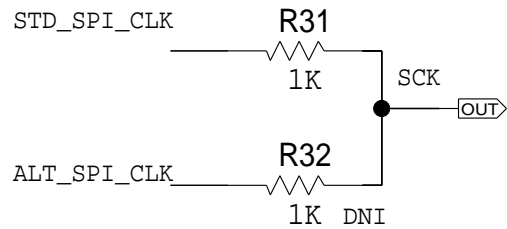
PLACEMENT OF THE "ALT_" RESISTORS & REMOVING THE "STD_" RESISTORS WILL CONNECT THE SPI SIGNALS TO THE ICSP
WHICH WILL MAKE YOUR SHIELD COMPATIBLE WITH ARDUINO BOARDS SUCH AS THE DUE, MEGA, ZERO, ETC.

BOTH THE "STD_" & "ALT_" RESISTORS SHOULD NEVER BE POPULATED SIMULTANEOUSLY
AS THIS MAY DAMAGE CONTROLLER BOARDS THAT REUSE THE DIGITAL PINS 11, 12 & 13 FOR OTHER PURPOSES.

RECOMMENDED: PLACE BOTH "STD_" & "ALT_" RESISTOR FOOTPRINTS ON YOUR BOARD, THE "STD_" RESISTORS SHOULD BE POPULATED
AND THE "ALT_" RESISTORS ON YOUR BOARD SHOULD BE UNPOPULATED (I.E. DNI)

NOTE: THESE RESISTORS CAN OPTIONALLY BE REPLACED WITH JUMPERS OR A SUITABLE ANALOG SWITCH SYSTEM.

STD = STANDARD CONNECTION
ALT = ALTERNATE CONNECTION



NOTE: IOREF IS THE IO VOLTAGE OF THE CONTROLLER BOARD.

IOREF FOR ARDUINO UNO IS 5V AT 20MA.

IOREF FOR SDP-K1 IS 1.8V OR 3.3V.

MANDATORY: STATE WHAT IO VOLTAGE YOUR SHIELD OPERATES IN ON YOUR SCHEMATIC.

RESET: IS AN OPEN DRAIN SIGNAL THAT IS ACTIVE LOW WHICH WILL RESET BOTH THE CONTROLLER BOARD & SHIELD IF PULLED LOW.

MANDATORY: THE RESET SIGNAL MUST BE TREATED AS AN OPEN DRAIN SIGNAL
IF YOU INTEND TO USE THIS SIGNAL ON YOUR ARDUINO SHIELD.

NOTE: THE 3.3V SUPPLY ON AN ARDUINO UNO CAN ONLY SUPPLY UP TO 50MA.
ARDUINO DO NOT GIVE ANY OFFICAL GUIDELINES ON THE CURRENT CAPABILITIES
OF OTHER SUPPLIES SUCH AS THE 5V & VIN SUPPLY.

THE VIN PIN CAN BE USED TO SUPPLY POWER TO A CONTROLLER BOARD OR A SHIELD I.E. IT IS A BIDIRECTIONAL POWER SUPPLY.

THE VIN PIN IS A BIDIRECTIONAL POWER SUPPLY ON GENUINE ARDUINO UNO REV3 FORM FACTOR BOARDS SUCH AS THE SDP-K1,
ARDUINO UNO REV3, MEGA & DUE, HOWEVER CERTAIN ARDUINO UNO FORM FACTOR BOARDS FROM COMPANIES SUCH AS ST OT NXP
HAVE IMPLEMENTED THE VIN PIN AS AN INPUT SUPPLY TO THEIR CONTROLLER BOARDS ONLY, THEREFORE YOU CANNOT SUPPLY A SHIELD

FROM THE VIN PIN ON THESE BOARDS AND IF YOU REQUIRE BEYOND WHAT CAN BE SUPPLIED BY THE 5V & 3.3V YOU MUST EXTERNALLY SUPPLY YOUR BOARD.

THE RECOMMENDED VOLTAGE RANGE FOR THE VIN PIN IS 7V - 12V FROM THE OFFICAL ARDUINO WEBSITE, THOUGH THE MAX LIMITS ARE 6V - 20V
THEREFORE WHEN YOUR BOARD IS CONNECTED TO A CONTROLLER BOARD THAT IS BEING POWERED BY A 20V EXTERNAL SUPPLY, YOUR BOARD WILL
RECEIVE 20V ON THE VIN PIN AND YOUR POWER SUPPLIES WOULD NEED TO BE ABLE TO HAND THIS.

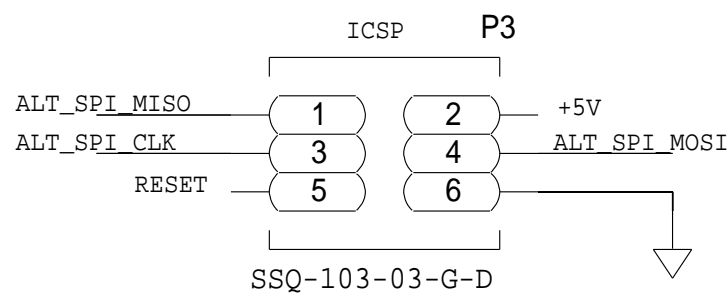
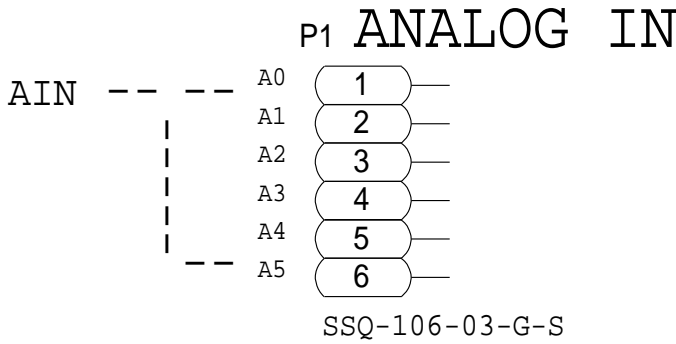
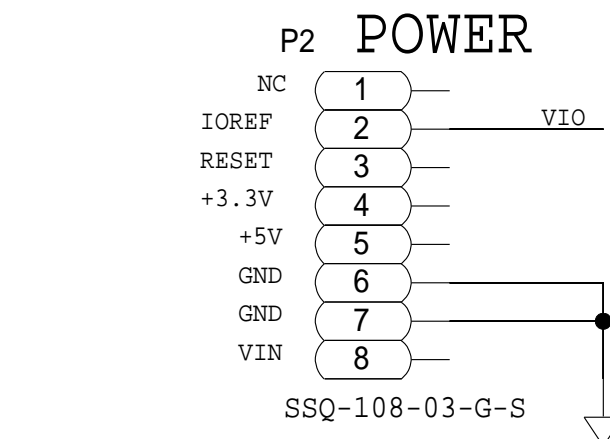
NOTE: ST CONTROLLER BOARDS CAN ONLY BE SUPPLIED WITH A VOLTAGE BETWEEN 7V - 12V ON THE VIN PIN (REF ST NUCLEO F411).

NOTE: NXP CONTROLLER BOARDS CAN ONLY BE SUPPLIED WITH A VOLTAGE BETWEEN 5V - 9V ON THE VIN PIN (REF NXP FREEDOM K64F).

RECOMMENDED: IF THE TOTAL CURRENT CONSUMPTION FROM YOUR SHIELD IS GREATER THAN 200MA
YOU SHOULD ADD A DC JACK TO YOUR SHIELD THAT CAN SUPPLY A VOLTAGE IN THE RANGE OF 7V TO 9V
ON THE VIN PIN TO THE CONTROLLER BOARD, TO MAXIMISE USEABILITY. HOWEVER, TO PROTECT AGAINST
POSSIBLY DAMAGING VOLTAGES FROM THE VIN PIN TO YOUR BOARD OUTSIDE OF 7V TO 9V YOU MUST
INCLUDE A DIODE (WITH THE CATHODE CONNECTED TO THE VIN PIN AND A REVERSE BREAKDOWN
VOLTAGE >25V) ON YOUR BOARD. DC JACK MUST BE CENTRE POSITIVE.

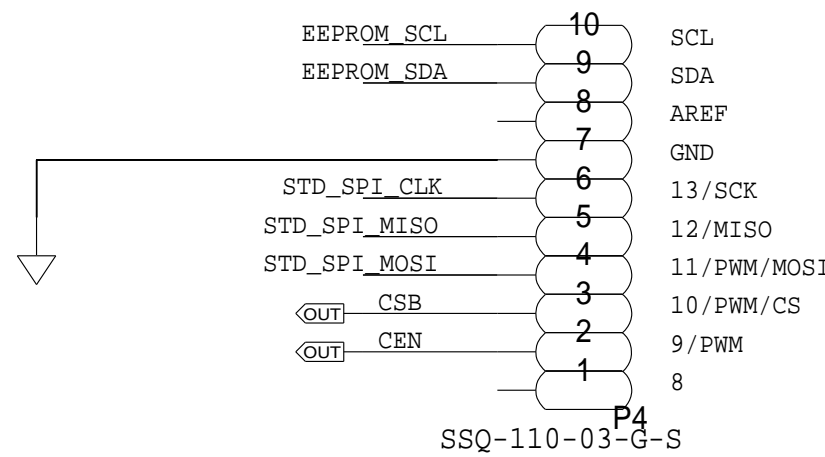
RECOMMENDED: DO NOT USE THE A4 & A5 PINS ON THE ARDUINO UNO HEADER.

ON AN ARDUINO UNO THE A4 & A5 ADC PINS ARE ALSO CONNECTED TO THE I2C LINES THEREFORE CONNECTING
ANYTHING TO THESE PINS WILL ALSO CONNECT THEM TO THE SCL AND SDA SIGNALS.

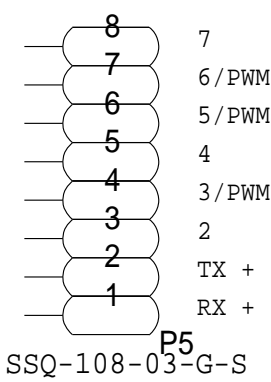


MANDATORY: THE ICSP MUST BE PLACED TO ENSURE YOUR DESIGNED SHIELD
CAN BE STACKED WITH OTHER ARDUINO SHIELDS.

DIGI1



DIGI0



RECOMMENDED: DO NOT CONNECT I2C PULL UP RESISTORS TO I2C LINES FOR YOUR SHIELD.

ON AN ARDUINO UNO INTERNAL PULL-UP RESISTORS ARE USED ON THE I2C LINES.

ON AN SDP-K1 2.2KOHM PULL-UP RESISTORS ARE USED ON THE I2C LINES.

NOTE: AREF IS THE REFERENCE VOLTAGE FOR THE ANALOG LINES A0 TO A5.

NOTE: IF YOU INTEND TO USE ANY OF THE ANALOG LINES A0 TO A5 YOU MUST CONNECT A REFERENCE VOLTAGE TO THIS PIN.

NOTE: THE AREF VOLTAGE LIMITS ON THE SDP-K1 ARE 1.7 <= AREF <= IOREF.

MANDATORY: ALL SPI CS SIGNALS SHOULD BE WIRED TO A PWM PIN IF YOU WANT
A DETERMINISTIC FRAME RATE.

NOTE: DETERMINISTIC FRAME RATES ARE A CAPABILITY OF THE SDP-K1 BUT MAY NOT BE AVAILABLE ON OTHER CONTROLLER BOARDS.

SCHEMATIC				
	HW TYPE : Customer Evaluation Z			
	Product(s): ADP5612CCGZ			
	ADP5612CCGZ			
	DESIGN VIEW	DRAWING NO.	REV	
<DESIGN_VIEW>		02_076206	B	
PTD ENGINEER		SIZE	SCALE	SHEET 4 OF 4
M. INCIONG		D	1:1	