

Tillitis TK-1 Programmer (TP-1)

Pinout diagram for the Tillitis TK-1 Programmer (TP-1) showing connections for J1, U2 (Pico), and J2.

J1 Conn_01x20:

PICO_0	1
PICO_1	2
GND	3
PICO_2	4
PICO_3	5
PICO_4	6
PICO_5	7
GND	8
PICO_6	9
5V_EN	10
TX_U	11
RX_U	12
GND	13
SCK_U	14
MOSI_U	15
SS_U	16
MISO_U	17
GND	18
CRESET_U	19
CDONE_U	20

U2 Pico:

PICO_0	1	GPI00	40	VBUS	39	PICO_VSYS	+5V
PICO_1	2	GPI01	38	PICO_VSYS	37	PICO_3V3_EN	GND
GND	3	GND	36	PICO_3V3	35	PICO_ADC_VREF	GND
PICO_2	4	GPI02	34	PICO28	33	PICO27	GND
PICO_3	5	GPI03	32	PICO26	31	PICO26	GND
PICO_4	6	GPI04	30	PICO_RUN	29	PICO22	GND
PICO_5	7	GPI05	28	GPI04_U	27	GPI03_U	GND
GND	8	GND	26	GPI02_U	25	GPI01_U	GND
PICO_6	9	GPI06	24	GPI018	23	CTS_U	GND
5V_EN	10	GPI07	22	RTS_U	21		
TX_U	11	GPI08	20				
RX_U	12	GPI09	19				
GND	13	GND	18				
SCK_U	14	GPI010	17				
MOSI_U	15	GPI011	16				
SS_U	16	GPI012	15				
MISO_U	17	GPI013	14				
GND	18	GND	13				
CRESET_U	19	GPI014	12				
CDONE_U	20	GPI015	11				

J2 Conn_01x20:

1	PICO_VSYS	+5V
2	PICO_VSYS	GND
3	PICO_3V3_EN	GND
4	PICO_3V3	GND
5	PICO_ADC_VREF	GND
6	PICO28	GND
7	PICO27	GND
8	PICO26	GND
9	PICO_RUN	GND
10	PICO22	GND
11	GPI04_U	GND
12	GPI03_U	GND
13	GPI02_U	GND
14	GPI01_U	GND
15	CTS_U	GND
16	RTS_U	GND
17		
18		
19		
20		

Note: J1 and J2 are DNP

Current-limited power switch:

The circuit shows a 5V_EN input connected to a 100R resistor (R17), which is then connected to a 10K resistor (R7). The other end of R7 is connected to the base of a 2N7000 MOSFET (Q1). The MOSFET's source is connected to GND, and its drain is connected to a 5V_FUSE input, which is also connected to a 50mA fuse (F1). The output of the fuse is connected to a 10K resistor (R8), which is then connected to the base of an AO3401A MOSFET (Q2). The MOSFET's source is connected to GND, and its drain is connected to the 5V_DUT output.

3d-printed programming clip:

The clip is designed to hold the Pico board in place. It features four M3 Buttonhead Screws (SCREW1, SCREW2, SCREW3) and four Rubber Feet (FOOT1, FOOT2, FOOT3, FOOT4). The clip is connected to the Pico board via a 7-pin header (J4) and a 20-pin header (J3).

J4 BC-1-701:

1	SCK
2	MOSI
3	SS
4	MISO
5	CRESET
6	CDONE
7	GND

J3 BC-1-208:

1	5V_DUT
2	GND

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