

## Technical Requirements for the Education Instruments Program

### 5. Electronic Accessories of Radiation Education Equipment Kit 2018

Table 1: List of components - active

Component	Description	Package	Qty.
ATMEGA16A	IC MCU 8BIT 16KB FLASH	TQFP - 44	100
ATMEGA328PB	IC MCU 8BIT 32KB FLASH	TQFP - 32	100
CD40106	IC INVERTER GATE HEX	SOIC - 14	180
M74VHC1GT14DFT	IC INVERTER SGL SCHM TTL	SOT-353	300
CP2102	IC BRIDGE USB TO UART	QFN - 20	30
LM4040DYM3-4.1-TR	IC VREF SHUNT 4.096V	SOT - 23	200
PCF8583	IC RTC CLK/CALENDAR I2C	SOIC - 8	200
MIC5219-3.3YM5	IC REG LINEAR 3.3V 500MA	SOT 23-5	100
MIC5219-5.0YM5	IC REG LINEAR 5.0V 500MA	SOT 23-5	100
MC34063ADR	IC REG BUCK BOOST INV ADJ	SOIC - 8	100
TLC555CDR	IC OSC SGL TIMER 2.1MHZ	SOIC - 8	200
IRF7319	MOSFET N/P-CH 30V	SOIC - 8	100
LM358AD	IC OPAMP GP 700KHZ	SOIC - 8	300
CRYSTAL	CRYSTAL 32.7680KHZ	4-SOJ	200
	CRYSTAL 16.0000MHZ	HC-49	100
MMBT2222	TRANS NPN 30V 0.6A	SOT - 23	600
2N7002	MOSFET N-CH 60V 0.38A	SOT - 23	200
MPSA42	TRANS NPN 300V 0.625A	TO - 92	100
MMBTA42	TRANS NPN 300V 0.3A	SOT - 23	120
LM393ADR	IC DUAL DIFF COMPARATOR	SOIC - 8	180
MCP4725A	IC DAC 12BIT EE W/I2C	SOT 23-6	100
MMBT2907A	TRANS PNP 60V 0.6A	SOT - 23	300
RECTIFIER	BRIDGE RECT 1P 600V 500MA	MBF	100
74LVC1G00GW	IC GATE NAND 1CH 2-INP	5-TSSOP	100
HEF4093BT	IC GATE NAND 4CH 2-INP	SO - 14	300
HEF4027BT	IC JK TYPE POS TRG DUAL	SOIC - 16	100
DXT13003D	TRANS NPN 450V 1.3A	SOT - 223	100
MAX7219C	IC SEGMENT DRIVER	SOIC-Wide-24	200

Table 2: List of components - passive

Component	Description	Package	Qty.
1 Giga Ohm Resistor	30*4 mm size (1.2 W)	THT	200
4 Mega Ohm Resistor	7.5 mm	THT	100
7-SEGMENT DISPLAY COMMON CATHODE	0.56" - 4 DIGIT RED (CC)	THT/SMD	100
	0.56" - 2 DIGIT RED (CC)	THT/SMD	100
	0.39" - 4 DIGIT RED/AMBER (CC)	THT/SMD	100
	0.39" - 4 DIGIT GREEN (CC)	THT/SMD	100
Capacitor (Electrolytic)	100uF (16 V) - ALUM	SMD	1000
	10uF (16 V/25 V) - ALUM	SMD	1000
	220uF (10 V/16 V) - ALUM	SMD	1000
	10uF (20 V) - TANTALUM	SMD - 1206	200
	22uF (6.3 V) - TANTALUM	SMD - 1206	100
	4.7uF (10 V) - TANTALUM	SMD - 1206	100
Capacitor (Non- electrolytic)	100pF (3 kV) - CERAMIC	THT	100
	10nF (2 kV) - CERAMIC	THT	200
	100pF (1 kV) - CERAMIC	THT	100
	0.022uF (1 kV) - CERAMIC	THT	100
	100pF (1 kV) - CERAMIC	SMD - 1206	100
	10nF (1 kV) - CERAMIC	SMD - 1206	200
	1nF (1 kV) - CERAMIC	SMD - 1206	100
	1nF (1 kV) - CERAMIC	THT	100
	0.022uF (1 kV) - CERAMIC	SMD - 1808	100
Diodes	1N4007	DO-214AC	300
	BAT42	SOD-523F	100
	UF4007	THT	200
	1N4148	DO-214AC	300
	US1M-13-F	DO-214AC, SMA	200
	1N4007	DO-41	200
Inductors	15 mH	THT	100
	15 mH	SMD	100
	220 uH	SMD - CD74R	100
Potentiometers	100 Ohm Multiturn (10)	SMD - 3214	100
	100k Ohm Multiturn (10)	THT - 3296	100
LEDs	3 mm Diffused - Smoky AMBER	THT	100
	3 mm Diffused - Smoky GREEN	THT	100
	3 mm Diffused - Smoky RED	THT	100
	5 mm Diffused - Smoky GREEN	THT	100
	5 mm Diffused - Smoky RED	THT	100
	Surface Mount - RED	SMD - 1206	200
	Surface Mount - Bicolor (Y/G)	SMD - 0805	200

Table 3: List of components - specialty

Component	Description	Qty.
TEC 12710 Peltier	Thermo-electric cooler (100 W) 40x40	90
TEC 12715 Peltier	Thermo-electric cooler (136 W) 40x40	90
Glass Jar Cylindrical	Cylindrical Glass Jar (85*120 mm) no lid, flat bottom	90
CPU Cooling Fan	6 Copper Heatpipe (90 x 90 x 25 mm DualFan) cooler	90
BNC Coaxial Cable (m)	BNC Cable without connectors >2kV	25
Silver Thermal Paste (g)	Silver Containing Hi-grade Thermal Paste	50
Computer Power Supply	Standard ATX Power Supply (450 W)	90
12 V/1 A Power Supply	12 V/1 A Switching Power Supply with standard DC jack	90
Power Controller unit for TEC Peltier systems	Temperature sensing power control unit for Peltier system	90
Ferrite Pulse Transformer	Ferrite POT type pulse transformer 8:1	100
JLX12864 GLCD	SIZE: 43.5*39.89*4.5 mm	100
Piezo Buzzer	THT Piezo Buzzer (5 V)	100
Piezo Buzzer	SMD Piezo Buzzer (2.5 - 4.5 V)	100
Rotary Encoder	ENCODER 12MM FLAT ROTARY WITH PUSH SWITCH (THT)	90
Encoder Knob	Knob for 12MM FLAT ROTARY	90
connector Cables	8p Dupont (2.54) 15-20 cm ribbon cable	200
	12p Dupont (2.54) 20 cm ribbon cable	200
9 V Battery	9 V standard battery	100
9 V Battery Clips	9 V Battery Clips with wire attached	100
LED Holder for 5 mm	Panel mount LED holder - Black	300
LED Holder for 3 mm	Panel mount LED holder - Black	600
Fuse Clips	20 mm Glass fuse holder clips	200
800 mA Fuse	800 mA, 20 mm Glass fuse (Fast Blown)	100
3M Sponge Pad	Shock Absorbing Sheet - 3/5 mm (sq. ft)	5
Plastic Tweezer	>100 mm Plastic/nylon Tweezer – Flat end	100
DC Jack	Panel mount DC jack	100
Nylon Spacers	5 mm	1000
	10 mm	1000
	15 mm	500
Computer Power Cable	>2 ft PC Power cable	100
Nylon Nut & Bolt	3 * 10 mm with hex bolt	100
	3 * 25 mm with hex bolt	100