

# Solderless Breadboards & Jumper Wires

3 LEVELS OF SAVINGS  
 NAME BRANDS HOUSE BRANDS SPECIAL BUY



## Solderless Breadboards

The screen-printed color coordinates are suitable for many types of digital and analog prototyping and circuit design. Larger models feature a heavy-duty aluminum backing with binding posts. Use with Jameco's AC/DC breadboard power supply, P/N 77682 pg 129.

- Accepts most electronic components, including integrated circuits and transistors for digital and/or analog circuitry
- Ideal for high frequency and low noise circuits
- Components are easily interconnected using 20-28 AWG wire (P/N 19290 & 20080, below left)
- Pins are identified by numbered rows and columns
- 0.1" hole spacing
- One-year warranty



20758



20812

Part No.	Manufacturer	Product No.	Terminal Strips	Bus Strips	Contact Points	Binding Posts	Breadboard Size (L" x W")	Baseplate Size (L" x W")	Weight (lbs.)	Pricing			
										1	10	50	100
2155452	ValuePro	WBP-317	1	0	170	0	1.9 x 1.3	—	0.03	\$2.95	\$2.59	\$2.29	\$1.95
2155461	ValuePro	WBP-323	1	2	270	0	2.6 x 1.6	—	0.05	3.95	3.59	3.29	2.95
2157693	ValuePro	BB-801	1	2	400	0	3.3 x 2.1	—	0.11	4.49	3.95	3.59	3.25
20601	ValuePro	WBU-301-R#	1	2	400	0	3.3 x 2.1	—	0.13	4.95	4.49	3.95	3.59
2229175	ValuePro	MKKN2§	1	2	400	0	3.3 x 2.1	—	0.09	3.95	3.59	3.25	2.95
2157706	ValuePro	BB-102†	1	2	830	0	6.5 x 2.2	—	0.21	5.95	5.39	4.79	4.29
20723	ValuePro	WBU-202-R#	1	2	830	0	6.5 x 2.2	—	0.30	9.95	8.95	7.95	6.95
2125026	ValuePro	BB830T§	1	2	830	0	6.5 x 2.2	—	0.3	7.95	6.95	6.25	5.59
194272	Wisher	WBU-204-1-R#	2	3	1,560	3	6.5 x 4.0	8.5 x 4.7	0.73	15.95	14.95	13.95	12.95
20758	ValuePro	WBU-204-3-R#	2	1	1,360	2	6.5 x 3.1	8.5 x 4.0	0.60	14.95	13.49	11.95	10.95
20774	ValuePro	WBU-204#	2	4	1,660	3	6.5 x 4.4	8.5 x 5.2	0.70	19.95	17.95	15.95	14.49
136901	Wisher	WBU-504	2	3	1,855	4	5.3 x 5.6	7.5 x 6.3	0.90	18.95	17.95	16.95	15.95
2157722	ValuePro	BB-3T5D†	3	5	2,390	4	6.9 x 5.8	8.7 x 7.2	1.28	19.95	17.95	15.95	14.49
20791	ValuePro	WBU-206#	3	5	2,390	4	6.9 x 5.8	9.1 x 6.9	1.10	26.95	23.95	21.95	19.95
2157731	ValuePro	BB-4T7D†	4	7	3,220	4	7.3 x 7.5	9.3 x 8.1	1.60	26.95	23.95	21.95	19.95
20812	ValuePro	WBU-208#	4	7	3,220	4	7.3 x 7.5	9.5 x 8.3	1.40	35.95	32.95	29.95	26.95

† Interconnect with each other # Interconnect with each other § Adhesive back/no baseplate



## Breadboard & Jumper Wire Prototyping Super Combos

\* Web Code: HAC

As with all our other Super Combos, the components are all available separately, so if your breadboard is now a nest of wire, it's easy to replace one or both!



Part No.	Description	Price
2244105	70-piece wire jumper kit with 14 lengths, 10 colors and 400 point breadboard	\$10.95
2244113	350-piece wire jumper kit with 14 lengths, 10 colors and 3220 point breadboard	43.95
2244084	170-point breadboard with single center terminal strip, 1.3"x1.9", red	2.59
2244092	170-point breadboard with single center terminal strip, 1.3"x1.9", blue	2.59



## Powered Project Breadboard

- Solderless breadboard with 2,420 tie points
- Outputs are short-circuit protected
- Includes: 3-prong power cord
- Input power: 110VAC or 220VAC @ 50-60Hz (switch selectable)
- Triple output power supply: fixed 5VDC @ 1.5A; 0 to ±16VDC @ 0.5A (adjustable)
- Breadboard size: 6.9"L x 5.8"W
- Overload protection
- Power switch with light
- Overall size: 9.8"L x 7.8"W x 3.0"H



Part No.	Description	Wt. (lbs.)	1	5
1942163	5VDC @ 1.5A & ±16VDC @ 0.5A	5.8	\$129.95	\$114.95



## Reinforced Jumper Wires

\* Web Code: LAS

These jumper wires are exactly what you need to build the circuits you have designed on breadboards. The various lengths of the wire can help make your circuit concise and less cluttered for larger designs.



Part No.	Mfr.	AWG	Length (in.)	Number of Wires per Color	1	10
126342	ValuePro	24	3.94	2 ea. yellow/white/red/black/blue†	\$4.95	\$4.49
126325	ValuePro	24	7.87	2 ea. yellow/white/red/black/blue†	5.95	5.49
421315	ValuePro	24	5.90	4 ea. green/white/red/black/blue†	9.95	8.95
2214555	Velleman	22-26	5.9	1 ea. of 10 assorted colors†	2.95	2.65
2214563	Velleman	22-26	5.9	1 ea. of 10 assorted colors§	2.95	2.65
2214571	Velleman	22-26	5.9	1 ea. of 10 assorted colorsf	2.39	2.19
2229191	ValuePro	24	4.0, 5.9, 7.9, 9.8	65 total of 7 assorted color†	2.95	2.59
2150467	Dagu	26	1.6, 3.2, 4.8	28 ea. green/red/black/white/orange*	12.95	11.49
2213405	DFRobot	26	4.3, 5.9, 7.9, 9.5	65 total of 7 assorted colors§	5.95	5.59
2237044	Velleman	22	3.9, 5.9, 7.9, 9.8	65 total of 7 assorted colors§	4.95	4.49
2213456	DFRobot	26	7.8	6 ea. of red/blue/black/white/green§	3.95	3.59
2260738	BPS	28	7.9	4 ea. of 10 colors, zipwire ribbon†	4.95	4.49
2260746	BPS	28	7.9	4 ea. of 10 colors, zipwire ribbonf	4.95	4.49
2260754	BPS	28	7.9	4 ea. of 10 colors, zipwire ribbon§	4.95	4.49
2260762	BPS	28	3.9, 7.9	16 ea. of 10 colors (80)†, (40)§, (40)f	16.95	15.95

\* Contains 100 male-male cables, 40 female-female cables  
 † Male to male cables  
 § Male to female  
 f Female to female

Electro Design

## Breadboard and Jumper Wire Kit

This kit is perfect for easy prototyping!



Part No.	Description	1	5	25
2134993	830-point breadboard with 70-piece wire kit	\$12.95	\$11.95	\$10.95



## Wire Jumper Kits

19290

- 0.1" to 5.0" lengths (14 sizes)
- Clear plastic durable case
- 22 AWG solid wire jumpers in 10 colors
- Pre-stripped/preformed

\* Web Code: LAS



Part No.	Description	* Order in multiples of 10			
		1	10	50	100
2127718	70-piece kit, 5 of each length	\$5.95	\$5.35	\$4.79	\$3.95
2096018	140-piece kit, 10 of each length	6.95	5.95	5.59	4.95
19290	350-piece kit, 25 of each length	12.95	10.95	9.95	8.95
20080	350 pieces, refill for P/N 19290	10.95	9.49	8.49	7.49
2213229	0.5" black wire jumper (22AWG) pre-formed	*	.12	.10	.08
2213211	0.5" red wire jumper (22AWG) pre-formed	*	.12	.10	.08
2213202	0.5" yellow wire jumper (22AWG) pre-formed	*	.12	.10	.08
2213190	0.75" black wire jumper (22AWG) pre-formed	*	.15	.13	.11
2213173	1.0" black wire jumper (22AWG) pre-formed	*	.17	.15	.12
2213165	2.0" blue wire jumper (22AWG) pre-formed	*	.19	.17	.14
2234960	2.0" blue wire jumper (28AWG) straight	*	.19	.17	.14



## SMT to DIP Adapter

This adapter makes it easy to prototype with surface mount ICs on your solderless breadboard. Simply solder the IC onto the adapter and the pins will plug directly into your board.

- Each one includes a row of headers for use with breadboards

\* Web Code: HDS

Part No.	Mfr.	Part No.	Pitch	No. of Boards	1	10
2130263		204-0004-01	1.27mm	3 (one 8-pin, one 18-pin, one 28-pin)	\$5.95	\$5.69

## JAMECO ValuePro Digital Design Lab

Our most popular digital lab!

- 1580 tie points
- Fixed power supply: +5VDC @ 1.0A
- Two 7-segment displays (digit height: 0.3")
- Digital voltmeter • One-year warranty

\* Web Code: LAJ



International 115/220VAC Switchable

### Solderless Breadboard

- Interconnected nickel-plated tie points, fitting all DIP sizes and all components with AWG #22-30 (0.3-0.8mm) solid leads

### DC Power Supplies

- DC supplies equipped with short-circuit protection
- Variable DC power: 0 to ±15V @ 0.3A

### Function Generator (6 ranges)

- Sine/triangle wave output: 0-5Vp-p variable
- Frequency ranges: 0.1Hz-2Hz, 1Hz-20Hz, 10Hz-200Hz, 100Hz-2kHz, 1kHz-20kHz, 10kHz-200kHz • Square wave output: 0-15Vp-p

### Universal Counter

- 1Hz-100MHz, with 8-digit 7-segment LED display

Includes: Power cord and manual

Part No.	Description	Size (W" x D" x H")	Wt. (lbs.)	1	5
75839	Digital lab	10.6 x 13.3 x 5.0	8.1	\$499.95	\$459.95
1952599	Replacement breadboard	4.5 x 6.75 x 0.37	0.5	29.95	26.95

## JAMECO ValuePro AC/DC Power Supply

### Ideal for Breadboards on pg 128

With built-in short circuit protection.

- Input power: 120/220VAC @ 50-60Hz (switchable)
- Indicator lamps & power fuses • One-year warranty
- Just plug in & start to use • Compact & lightweight
- For both digital and analog circuits
- Compatible with test leads P/N 77842, pg 117



International 120/220VAC Switchable

Output Specifications:  
 +5VDC @ 1A; -5V @ 300mA fixed;  
 0 to +15VDC @ 500mA variable;  
 0 to -15VDC @ 300mA variable;  
 12-6-0-6-12 tapped VAC, 300mA fixed

Part No.	Description	Wt. (lbs.)	Color	Size (W" x D" x H")	1	5
77682	Power supply	5.5	Beige	7.4 x 5.5 x 2.6	\$169.95	\$154.95

## JAMECO ValuePro Deluxe Electronic Kits



2129115 Top



2129115 Bottom



2129123 Top



2129123 Bottom

**2129115:** 219 pieces; fuses, battery holders, batteries, potentiometers, loudspeaker, capacitors, resistors, photoresistors, transistors, switches, LEDs, clips, jumper and hookup wires, breadboard, AC adapter, and deluxe carrying case P/N 2129131

**2129123:** 109 pieces; voltage regulators, relays, diodes, switches, potentiometers, logic chips, DIP sockets, inverters, counters, timers, headers, 3-digit display, numeric keypad, DC power jacks, binding posts, solder tube, heat shrink tubing, printed circuit boards, clips, IC inserter, IC extractor, anti-static wristband, helping-hands, project box, deluxe carrying case P/N 2129131

**2129131:** Clear flip-top lid with 26 built-in compartments, case with 8 interchangeable compartments, snap-lock closure

- Color: black with clear lid
- Size: 15"L x 11.25"W x 3.75"H

\* Web Code: CKS

Part No.	Description	1	5
2129115	219 pcs. deluxe kit	\$89.95	\$80.95
2129123	109 pcs. deluxe kit	99.95	89.95
2129131	Case with 34 compartments	19.95	17.95

## JAMECO ValuePro Component Cabinets



319600



319611

319601 Components not included

Drawer (319601) Divider (319611)

### 319600:

- Drawer can be divided into 3 sections (clear)
- Wall mountable cabinet (ABS black)
- Cabinet size: 14.7"W x 6.0"D x 7.4"H

Includes: 20 clear plastic drawers, 20 dividers and 30 adhesive I.D. labels

**319601** (drawer): 5.5"L x 2.7"W x 1.5"H

**319611** (divider): 2.5"W x 1.2"H

**2213675:** • Cabinet size: 17.6"L x 7.0"D x 9.8"H

- Counter-top design (ABS white)

### Includes:

14 clear plastic drawers in 3 sizes:

(10) 6.4"L x 3.4"W x 1.5"H,

(3) 8.8"L x 6.4"W x 1.5"H,

(1) 8.8"L x 6.4"W x 3.3"H

and 20 adhesive I.D. labels

Included with every kit on page 26!

Part No.	Description	1	10	50
319600	20-drawer cabinet	\$19.95	\$17.95	\$15.95
2213675	14-drawer cabinet	29.95	26.95	23.95
319601	Drawer for cabinet	.59	.49	.39
319611	Drawer divider for cabinet	* .19	.19	.15

\* Order in multiples of 10

## Plastic Flip-top Boxes

- Clear plastic box with lid, includes removable dividers

**100256:** 18 compartments

**148902:** 12 compartments



100256

Part No.	Size (L" x W" x H")	1	10	25
100256	8.4 x 4.5 x 1.4	\$2.95	\$2.59	\$2.29
148902	10.2 x 4.7 x 1.6	5.95	4.95	4.49

## Breadboard Power Supply

This power supply is a very simple pre-assembled board that takes a 6-12V input and outputs a selectable 5V or 3.3V regulated voltage. All headers are 0.1" pitch for simple insertion into a breadboard. It can be powered from a 2.1mm DC power jack or from a USB port. No assembly required.

- Output: 3.3V/5V @ 500mA max.
- Input: 6-12V (power jack) or 5V (USB)
- 0.1" pin spacing perfect for breadboards
- On/Off switch • Power status LED

Part No.	Size (L" x W")	1	5
2157853	1.7 x 1.2	\$4.95	\$4.49

## valleport ABS Trolley Case

- Two separate sealable compartments
- Two locks with keys and silver hinges
- Two wheels with telescoping handle
- 6 elastic bands to secure hand tools
- Durable ABS plastic construction
- Size: 17.9" x 13.2" x 7.5"



Part No.	Description	Price
2174952	ABS trolley case	\$99.95

\* Enclosures and Boxes — Enter Web Code UAL

\* For additional products, availability and specifications visit [Jameco.com](http://Jameco.com) and enter the Web Code in the product search box

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Order by Phone at 1-800-831-4242 or Online at [www.Jameco.com](http://www.Jameco.com)

JAMECO ValuePro



## Metal and Plastic Enclosures

The prototype builder boards on pg 131 are designed to fit into our ABS plastic and aluminum enclosures, metal cabinets and heavy-duty instrument cases. The pre-cut boards have 2 or 4 mounting holes compatible with the PC board mounting hardware (P/N 106551, pg 131) and adhesive standoff (P/N 2191592).

**Board description:** Laminated glass epoxy 1/16" thick fire retardant per FR-4 specs. Copper-clad and solder mask one side. Drilled holes: .035" diameter on .080" square pad. Pads spaced on .10" x .10" grid.

See page 39 for Knobs and page 77 for Hardware

\*Web Code: UAL



## ABS Plastic Enclosures

Lid for precision fit (adds 0.4" height). Complete with four screws and lid. All sizes below are interior dimensions. **18893**

Part No.	Cross Ref. No.	Size (L x W x H)	1	10	50	100
18922	H2855	3.1" x 2.0" x 0.9"	\$3.49	\$3.19	\$2.89	\$2.49
18914	H2853	4.9" x 2.5" x 1.5"	3.95	3.59	3.19	2.75
18893	H2851	6.0" x 3.5" x 1.9"	4.95	4.49	3.95	3.49
18906	H2852	7.5" x 4.3" x 2.3"	6.49	5.95	5.39	4.79
2234687	RP1240*	6.5" x 4.9" x 2.9"	17.95	15.95	14.49	12.95

\*Polycarbonate

## ABS Enclosures with Clear Top

Includes screws for mounting boards, rubber gasket for a tight seal on your equipment & drilled holes for mounting. **141841**

Part No.	Cross Ref. No.	Size (L x W x H)	1	10	50	100
141832	203C1	4.9" x 3.4" x 2.4"	\$9.95	\$8.95	\$7.95	\$6.95
141841	203D1	6.5" x 3.4" x 2.2"	9.95	8.95	7.95	6.95
141859	203F1	7.3" x 5.7" x 3.0"	14.95	13.95	12.95	11.95

## ABS Heavy-Duty Instrument Cases

P/N 18877 includes ventilation and speaker sound slots. **18869**

Part No.	Cross Ref. No.	Size (L x W x H)	1	10	50	100
18869	H2505	7.9" x 6.3" x 2.5"	\$7.95	\$6.95	\$6.25	\$5.59
18877	H2507	10.0" x 7.5" x 3.1"	8.95	7.95	6.95	6.25

## ABS Plastic Lip Top Enclosure

PCB standoffs molded into the case with a lip top for a precision fit. Painted black with a satin texture finish and protection against dust and splashing water. Assembly screws and lid included.

Part No.	Mfr. Part No.	Size (L x W x H)	Color	1	10	50
2138206	1551GBK	2.0" x 1.4" x 0.8"	Black	\$1.95	\$1.75	\$1.49

SERPAC

## Specialty Enclosures



### C Series — with Pinch-Fit for PCBs

- Simple 2-piece design
- 2-insert areas for customized I-plates

Please Note: Images used are representative. Color and shapes may vary by model.

Part No.	Mfr. Part No.	Color	Size (L" x W" x H")	1	10	25
675331	C-4-BK	Black	2.13 x 1.38 x 0.58	\$2.95	\$2.59	\$2.29

### H Series — Four Piece Design

- Holds 4-AA batteries (contactors included)
- Circuit board mounting bosses
- Assembly with 6 screws RoHS compliant
- ABS plastic black

Part No.	Mfr. Part No.	Color	Size (L" x W" x H")	1	10	25
222778	H754AA	Black	7.20 x 3.65 x 1.26	\$8.95	\$7.95	\$6.95

### S Series — Two-piece Standard Enclosures

- 2-piece design
- 2-insert areas for customized I-plates
- With screws

Part No.	Mfr. Part No.	Color	Batt. Holder	Size (L" x W" x H")	1	10	25
675462	111-BK	Black	None	3.61 x 2.27 x 1.51	\$4.95	\$4.39	\$3.95
2202108	341BLK*	Black	None	4.38 x 3.25 x 1.51	3.49	2.95	2.59
675489	131-BK	Black	None	4.38 x 3.25 x 1.51	6.95	5.95	5.39
675542	173-BK	Black	None	6.88 x 4.88 x 2.51	10.95	9.95	8.95
675551	193-BK	Black	None	9.50 x 6.34 x 2.51	14.95	12.95	10.95

\*Drilled, ValuePro

## Metal Enclosures

- Mounting screws and rubber feet included
- Glossy black textured steel top cover and ivory aluminum base

Part No.	Cross Ref. No.	Size (L x W x H)	1	10	50	100
208901	B2741A	4.0" x 3.3" x 2.2"	\$6.95	\$6.25	\$5.59	
208911	CMC11922	5.9" x 5.3" x 3.0"	9.95	8.95	7.95	
209350	B2746A	6.3" x 7.8" x 2.5"	9.95	8.95	7.95	
208929	B2744A	7.3" x 6.3" x 2.8"	10.95	9.95	8.95	
209358	SY0207	7.5" x 9.8" x 3.2"	15.95	14.49	12.95	

## Die-Cast Aluminum Enclosures

Made from aluminum, an excellent heat sink, these cases are great for high temp circuits (up to 600°C). Includes screws. **11973**

Part No.	Cross Ref. No.	Size (L x W x H)	1	10	50	100
11957	B5002	3.9" x 2.0" x 1.0"	\$6.95	\$6.25	\$5.59	\$4.95
11965	03-125B	4.7" x 2.6" x 1.4"	9.95	8.95	7.95	6.95
2191867	BOX3-1455N-BK	6.3" x 4.6" x 2.1"	23.95	22.95	21.95	20.95
11973	03-125C	7.5" x 4.3" x 2.4"	19.95	18.95	17.95	16.95

## Aluminum Enclosures

The enclosure comes in two pieces that slide together. **11870**

Part No.	Cross Ref. No.	Size (L x W x H)	1	10	50	100
11870	H2300	4.0" x 2.0" x 2.8"	\$5.95	\$5.49	\$4.95	\$4.49
11886	H2320	5.0" x 4.0" x 3.0"	6.95	6.29	5.59	5.49

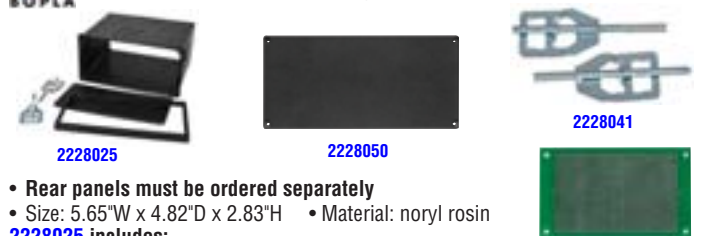
## Rugged Diecast Aluminum Alloy Enclosures

Protects from dust and splashing water, while also providing EMI/RFI shielding. Designed to meet IP54 rating. Unpainted with a vibra finish. Assembly screws included.

Part No.	Mfr. Part No.	Size (L x W x H)	Cover	1	10	50
2138169	1550A	3.5" x 1.4" x 1.2"	Lid top	\$5.95	\$4.95	\$4.25
2138290	1590B	4.4" x 2.3" x 1.1"	Lip top	7.25	6.45	5.39
2138302	1590BB	4.7" x 3.7" x 1.2"	Lip top	8.95	8.49	7.95



## Black Plastic Mounting Enclosure w/ PCB Grooves



- Rear panels must be ordered separately
- Size: 5.65"W x 4.82"D x 2.83"H
- Material: noryl rosin

- 2228025 includes:
  - Enclosure with PCB grooves (NGS7411)
  - Front panel, plain (NGS7411P)
  - Front panel frame (NGS74PF)
- Screw clamps NGS-NK 2 3/4" (L)
- Self tapping screws (8)

Part No.	Description	1	10
2228025	Enclosure with PCB grooves and front panel	\$6.95	\$6.25
2228050	Rear panel, unpunched ABS, plain, black	3.95	3.59
2228041	Screw clamps for screw fitting enclosure (2) NGS-NK	2.95	2.59
263207	P.C. protoboard - 674 plated thru hole pads	7.95	6.95



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# Prototyping PC Boards & Terminals



## General Purpose Prototyping Boards

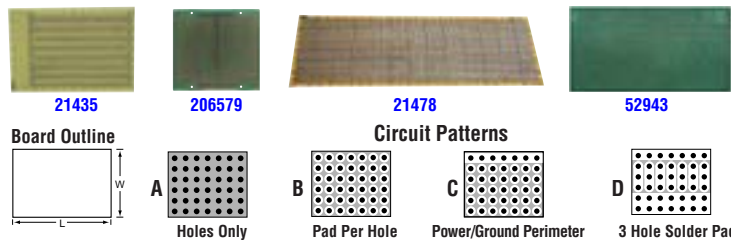
Select the prototype board that fits your needs from our comprehensive product listing. Prototyping boards with punched holes are convenient, economical tools for assembling circuit components and trying cost-effective alternatives to custom designs.

- 0.062" board thickness
- 0.1" hole spacing
- 0.08" pad size
- PCB material epoxy glass
- Plated through pads are double-sided

106551

\* Web Code: PBH

See PCB enclosures on pg 130, and mounting hardware (recommended P/N 106551) below



Part No.	Product No.	Size (W" x L")	Fits Enclosure(s) (see page 130)	Circuit Pattern	Hole Pads	# Holes x Dia.†	Power/Ground Buses	Connector I/O or Edge	# Mounting Holes x Dia.	Wt. (lbs.)	Pricing			
											1	10	50	100
105102	G/S(PCB-365)-R	1.50 x 3.50	11957	C	Single-sided	365 x .038"	4	None	2 x .140"	.02	\$4.95	\$4.49	\$3.95	\$3.59
2229335	245-0001	1.80 x 2.80	—	C	Single-sided	417 x .035"	2	None	4 x .120"	.02	4.49	3.95	3.59	3.19
105100	G/S(PCB228)-R	1.60 x 2.70	18922	B	Single-sided	288 x .035"	None	None	2 x .115"	.02	4.95	4.49	3.95	3.59
105129	2853PCB-R	2.00 x 4.40	18914, 11965	C	Single-sided	669 x .038"	4	None	4 x .140"	.03	6.95	6.25	5.59	4.95
2213421	FIT0099 <sup>1</sup>	2.28 x 3.07	—	B	Single-sided	572 x .038"	None	None	4 x .118"	.03	1.95	1.75	1.49	1.25
105111	PCB-102-R	2.40 x 3.40	11870	C	Single-sided	637 x .038"	4	None	2 x .140"	.03	4.49	3.95	3.59	3.19
263207	PCB-463-R	2.40 x 4.10	—	B	Plated through	640 x .031"	None	None	4 x .120"	.05	7.95	6.95	6.25	5.59
263215	PCB-858-R	2.50 x 4.25	18893	D	Plated through	640 x .042"	None	D-sub 25/USB/RJ45	4 x .120"	.05	6.95	5.95	5.49	4.95
105153	2851PCB-R	3.10 x 5.50	18893	C	Single-sided	1450 x .035"	7	None	4 x .140"	.07	5.49	4.95	4.49	3.95
263223	PCB-69-R	3.30 x 3.70	—	B	Single-sided	900 x .042"	None	None	4 x .120"	.05	4.95	4.49	3.95	3.59
105137	PCB-1266-R	3.30 x 4.50	11886	C	Single-sided	1266 x .035"	4	None	4 x .140"	.06	5.95	5.49	4.95	4.49
105162	2852PCB-R	3.60 x 7.00	18906, 11973	B	Single-sided	2225 x .035"	4	None	4 x .140"	.10	9.95	8.95	7.95	6.95
2131186	ECS3-H <sup>2</sup>	3.90 x 6.30	—	D	Single-sided	784 x .041"	2	DIN41617/41612	4 x .120"	.12	5.69	5.29	5.19	4.89
206587	PCB-586-R	4.30 x 6.80	209350	C	Single-sided	2550 x .042"	5	None	4 x .140"	.07	8.95	7.95	6.95	6.25
21435	JE401-R	4.50 x 6.50	18869	B/D	Single-sided	2360 x .042"	2	None	None	.12	12.95	11.95	10.95	9.95
206579	PCB-578-R	4.60 x 4.30	208911	C	Single-sided	1684 x .042"	5	None	4 x .140"	.07	5.95	5.49	4.95	4.49
105180	PCB-135-R	5.00 x 6.50	18869	C	Single-sided	2829 x .035"	7	None	8 x .120"	.13	8.95	7.95	6.95	6.25
21478	JE407-R	5.00 x 13.25	—	B	Double-sided	6063 x .038"	None	None	8 x .120"	.28	29.95	26.95	23.95	21.95
206594	PCB-594	5.50 x 8.00	209358	C	Single-sided	3906 x .042"	5	None	4 x .140"	1.0	10.95	9.95	8.95	7.95
105187	2507PCB	6.10 x 8.80	18877	C	Single-sided	4771 x .035"	7	None	8 x .140"	.21	13.95	12.49	10.95	9.95



## Vector Prototyping Boards

Part No.	Product No.	Size (W" x L")	Fits Enclosure(s)	Circuit Pattern	Hole Pads	# Holes x Dia.†	Power/Ground Buses	Connector I/O or Edge	# Mounting Holes x Dia.	Wt. (lbs.)	1	10	50	100
43140	64P44XXXP	4.50 x 6.50	18869	A	Drilled only	2860 x .042"	None	None	None	.09	\$8.75	\$7.69	\$6.59	\$6.39
52943	84P44WE	4.50 x 8.50	18877	A	Drilled only	3740 x .042"	None	None	None	.15	12.49	11.49	10.49	9.95
37612	169P44XXXP#	4.50 x 17.0	—	A	Drilled only	7524 x .042"	None	None	None	.25	15.95	14.95	13.95	13.49
37621	169P84WE	8.50 x 17.0	—	A	Drilled only	14,448 x .042"	None	None	None	.53	29.95	26.75	22.95	22.29
106551	20 pieces; PC board mounting hardware (4 spacers, 8 screws and 8 washers) used with all above boards										2.95	2.59	2.29	1.95

Manufacturer: <sup>1</sup> DFRobot <sup>2</sup> Velleman # PCB material: phenolic † All 0.042" Diameter hole boards use terminals P/Ns 34147, 34155 and 34163 (below)



## .042" Diameter Copper Alloy Wire Wrap and Push-In Terminals

\* Web Code: XCE

34147: Push-In Micro-Klip Terminals

34155: Miniwrap Wiring Terminals • Shoulder: .045"

- Two-prong with square tail for wire wrapping

34163: Klipwrap Wiring Terminals

- Three-prong with square tail for wire wrapping



34147 34155 34163

Part No.	Mfr. Part No.	Height Above .062" Board	Length Below .062" Board	Post Size	Overall Length	100 pc. units	
						1	10
34147	T421-1/C	.200	.097	.032" x .045"	.36"	\$10.95	\$9.95
34155	T44/C	.065	.530	.025" Sq.	.69"	9.95	8.95
34163	T49/C	.200	.530	.025" Sq.	.83"	14.95	13.49



## PCB Adhesive Standoff

The rectangular base is offset to allow the base to be underneath the board when the mounting hole is close to PCB edge. The offset base provides large sticking surface while permitting the PCB to be mounted in tight spaces or close to walls.

- Low profile, offset base
- 3M adhesive tape backing
- 0.125" diameter PCB hole
- Integral clip locks PCBs in place
- Material: nylon 66 (Ul)
- Flame class: 94V-2
- Size: 0.6"L x 0.8"W x 0.12"D

\* Web Code: PSF

Part No.	Product No.	Description	1	10	50
2191592	SA120X8	8-pack adhesive standoff for PCBs	\$2.75	\$2.49	\$2.29



## Solderable PC Protoboards

\* Web Code: PBH

- High-quality FR4 glass epoxy PCBs for long life
- Anti-tarnish protective coating for easy soldering

2127267

Part No.	Product No.	Size (L" x W" x D")	Points	Pricing		
				1	10	50
2125042	SB300	3.0 x 1.2 x 0.06	300	\$3.95	\$3.49	\$3.19
2125051	SB400	3.0 x 1.9 x 0.06	400	4.95	4.49	3.95
2191402	SB404	3.75 x 1.85 x 0.06	540	4.95	4.45	3.95
2191411	SB830	7.25 x 1.85 x 0.06	1258	6.49	5.95	5.39
2125034	BR1	7.0 x 1.85 x 0.06	830	6.49	5.79	5.29
2127267	ST3U	6.3 x 3.9 x 0.06	2356	9.95	8.95	7.95



## PT Series Prototyping Boards

\* Web Code: PBH

- Features power buses that connect to a power jack (recommended P/Ns 101178 and 101187, pg 98)

Part No.	Cross Ref.	Size (L" x W")	Hole Pads	# Holes x Dia.	# Mntg Holes x Dia.	1	10	50
645677	PB-456	3.5 x 2.5	Double-sided	456 x .036"	4.0 x .140" .....	\$9.95	\$8.95	\$7.95
262511	PB-1135	5.0 x 3.7	Double-sided	1135 x .036"	4.0 x .140" .....	10.95	9.95	8.95
262537	PB-1931	6.0 x 4.9	Double-sided	1931 x .036"	4.0 x .140" .....	11.95	10.95	9.95



645677 262511 262537

\* For additional products, availability and specifications visit [Jameco.com](http://Jameco.com) and enter the Web Code in the product search box



Order by Phone at 1-800-831-4242 or Online at [www.Jameco.com](http://www.Jameco.com)

## Pre-Sensitized Circuit Boards & Chemicals

### Circuit Boards

- Pre-coated circuit board
- 1/16" thick

\* Web Code: CTB 156751



Part No.	Mfr. Part No.	Description	Size (W" x L")	1	10	25
2097117	14-024	Single sided	2.0 x 4.0	\$4.49	\$3.95	\$2.95
156751	14-034	Single sided	3.0 x 4.0	5.39	4.89	4.35
2161326	14-046	Single sided	4.0 x 6.0	7.95	7.19	6.59
2161334	14-066	Single sided	6.0 x 6.0	8.95	7.95	7.19
156742	14-234	Double sided	3.0 x 4.0	6.95	6.25	5.59
2161342	14-266	Double sided	6.0 x 6.0	12.95	11.49	9.95

### Copy Sheets and Chemicals

Part No.	Mfr. Part No.	Description	Size (W" x L")	1	10	25
2097070	12-500	Clear copy sheets (8.5" x 11.5") 5 pk.		\$4.95	\$4.49	\$3.95
70201	ER3*	Dry concentrated etchant (makes 1 pint)		6.25	5.65	4.95
156734	12-404*	4 oz. positive developer		21.49	19.35	17.39
2097088	12-800	Tin plating copper kit†		16.95	15.25	13.69

\* Shipped via ground - available in continental U.S. only

† Includes ER-18 tinnit solution, 8"x6"x2" pan, 16 oz. bottle

## Printed Circuit Board Adapter

- 0.318" setback right angle DB15 high density
- Low profile male shrouded header
- Straight and right angle male headers (dual row)
- Straight and right angle IDC socket
- Ribbon cable



Part No.	Description	1	5	25
2231700	DB15 high density to 16-pin IDC	\$9.95	\$8.95	\$7.95

## Prototype Boards

### Experimenter's Phenolic Prototype Boards

- 616673: Single land pattern, 0.15" spacing
- 616649: Copper plated w/ 94 five-point terminals & two 40-point bus strips, 0.1 spacing

Part No.	Mfr. Part No.	Size (W" x L" x Thick")	1	10	25
616673	22-512	3.38 x 6.75 x 1/16	\$5.19	\$4.79	\$4.49
616649	22-508	2.0 x 6.0 x 1/16	11.89	10.69	9.95

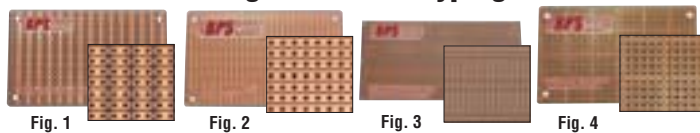
### Perforated Bare Phenolic Prototype Boards

Unexcelled for prototypes, breadboards, hobby or science projects. Bare phenolic board with no copper clad.

- 0.100" spacing
- 1/16" thick

Part No.	Mfr. Part No.	Size (W" x L")	Hole Dia.	1	10	25
616690	22-516	4.50 x 6.0	.042	\$4.19	\$3.79	\$3.59

## Through-Hole Prototyping Boards



- High-quality FR4 glass-epoxy circuit board
- 0.037" drilled holes on 0.1" (2.54mm) centers
- 1 oz./ft<sup>2</sup> copper with anti-tarnish coating for easy soldering

Part No.	Mfr. Part No.	Description	Fig.	Size (W" x L")	1	10
2191461	PR2H1	Single-sided	1	1.97 x 3.15	\$3.15	\$2.89
2191488	ST1	Single-sided	2	1.97 x 3.15	3.15	2.89
2191470	PR2H2	Single-sided	1	3.15 x 3.94	5.95	5.39
2191496	ST2	Single-sided	2	3.15 x 3.94	5.95	5.25
2191429	SB1660	Single-sided	3	3.65 x 7.25	11.95	10.95
2191445	PAD1	Double-sided	4	1.97 x 3.15	4.95	4.49
2191453	PAD2	Double-sided	4	3.15 x 3.94	5.95	5.49

## TopMax II High Speed Universal Programmer

- USB interface
- 48-pin ZIF socket
- Input voltage: 5V, 3.3V, 2.7V, 1.8V
- No. of devices supported: 15,000+
- Supports: NAND Flash Memory, Standard Flash Memory, EPROM, EEPROM, Serial PROM, GAL, FPGA, MCU



Part No.	Mfr. Part No.	Price
2110158	TOPMAXII	\$699.95

## Prototyping Developer Kit

The Jameco prototyping developer kit includes everything you need to get started with prototyping your own PCB.

- 2 pre-coated circuit boards, 3" x 4" x 1/16" (P/N 156751, left)
- 4 oz. positive developer concentrate (P/N 156734, left)
- 32 oz. etching solution (P/N 616438, pg 127)



Part No.	Description	1	5
2113244	Prototyping developer kit*	\$49.95	\$44.95

\* Shipped via ground - available in continental U.S. only

## Bare Copper Circuit Boards - Single Sided

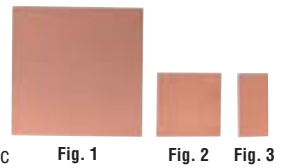
1 oz. copper on base of either fiberglass or reinforced epoxy board.

Part No.	Mfr. Part No.	Size (W" x L" x Thick")	1	10	25
616471	22-250	3" x 5" x 1/16"	\$2.75	\$2.49	\$2.25
616489	22-260	4" x 6" x 1/16"	2.69	2.39	2.29
616497	22-261	6" x 6" x 1/16"	3.19	2.99	2.89
616500	22-263	6" x 9" x 1/16"	4.29	3.89	3.65
616518	22-264	8" x 10" x 1/16"	7.59	6.79	6.49
616534	22-268	11" x 14" x 1/16"	13.79	12.39	11.79

## Copper-Plated Blank Circuit Boards

Single and double-sided boards are copper plated.

- Copper thickness: 35µm
- Total copper weight: 1 oz per side
- 1.6mm (1/16") thick
- PCB material: phenolic



Part No.	Cross Ref. No.	Description	Fig.	Size (L" x W")	1	10	25
169279	PCBS3X6	Single-sided	3	2.9 x 5.9	\$3.95	\$3.59	\$3.29
169288	PCBS6X6	Single-sided	2	5.9 x 5.9	4.95	4.49	3.95
169296	PCBS12X12	Single-sided	1	11.8 x 11.8	14.95	13.49	11.95
169317	PCBD6X6	Double-sided	2	5.9 x 5.9	6.95	6.39	5.59
169325	PCBD12X12	Double-sided	1	11.8 x 11.8	17.95	15.95	14.49

## Positive Pre-Sensitized Circuit Boards

1 oz. copper (.0014") on an epoxy glass FR-4 board, UL94V-0 rated. The peel-off coating protects the board while handling or cutting prior to exposure. Use with developer mixed 1:9 with water.

Part No.	Mfr. Part No.	Description	Size	1	10	25
616251	21-334	Single-sided	4" x 6"	\$4.39	\$3.99	\$3.69
616260	21-336	Single-sided	6" x 6"	6.39	5.79	5.49
616307	21-353	Double-sided	6" x 9"	11.39	10.29	9.49

## 1660 Point Breadboard & PCB Kit

### SB1660 Double PC Breadboard

- 1660 contact points, 2528 pads total, 0.042" holes on 0.1" centers
- 12 power rails can be used for power or signals
- Single-sided high quality FR4 glass epoxy circuit board
- 1 oz./ft. copper with anti-tarnish for easy soldering
- Bonus two-hole pads along center lines for DIL headers to be used
- Pb free and RoHS compliant
- Size: 7.25"L x 3.65"W x 1/16"H



### BB1660 Breadboard

- 1660 contact points, 0.1" centers
- 8 power rails for power or signals
- White ABS plastic with color printed legend
- Adhesive tape backing to a surface or metal plate (2 included)
- Pb free and RoHS compliant
- Rating: 36 volts, 2 amps
- Size: 6.5"L x 4.4"W x 0.3"H



Part No.	Mfr. Part No.	Description	1	5
2233852	Kit-BB1660 +SB1660	Breadboard and PCB kit	\$27.95	\$24.95

\* Programmers Available Online - Enter Web Code SUP