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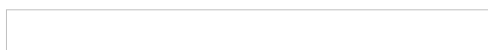
Circuitos elétricos e eletrônicos

Fundamentals of electrical engineering and electronics

A comprehensive education in the fundamentals of electrical engineering is essential to the understanding of more complex relationships in the various applied sectors in both electrical engineering and electronics.

The freedom to experiment is backed up by formal experiment literature and the use of safety extra-low voltage means that the system is even safe for complete laymen. It leads to in-depth knowledge and eventually to the kind of practical skills that form an essential basis for further education and training.

2-mm plug-in system for UniTrain



2-mm plug-in system for UniTrain

The multimedia experiment and training system

The EloTrain 2-mm plug-in system combines with the multimedia experiment and training system UniTrain to create a modern and powerful learning environment for well grounded training in the fundamentals of electrical engineering and electronics. Students are guided through experiments by clearly structured course software aided by text, graphics, animations and tests of knowledge. The experiments themselves are carried out on a 2-mm Experimenter unit specially developed for UniTrain. A wide variety of virtual instruments is available so that students can make real-time measurements. The plug-in modules contain both passive and active electronic components connected via 2-mm laminated plugs featuring gold-plated contacts. When inserted into the plug-in board, the laminated plugs clip the components into place mechanically as well as providing an electrical connection to the plug-in board's nodes. Cables or jumpers can be used to make connections to other nodes, components or measuring instruments. As a rule the 2-mm components are available in two sizes, one for two-pole components and the other for four poles. If a component requires more terminals, these are generally provided in the form of sockets on top of the component. The housings are comprised of two plastic parts clipped together. The upper part features a scratch-proof, high-contrast print of the component's circuit diagram or symbol along with a type name for the component. The transparent body is made of extremely tough see-through plastic allowing the inside of the component to be seen. The base plate is also made of containing 2-mm laminated plugs and joined to the body via an easy-to-open ratchet clip for repair purposes.

EloTrain courses

EloTrain courses

Special multimedia courses are specifically designed for basic education in various applied topics in electrical engineering and electronics. Complex relationships are illustrated at a level entirely comprehensible for schoolchildren using numerous images and illustrations. Students are continually encouraged to apply the knowledge they have learned in experiments using the plug-in components. Experiment instructions and virtual instruments are available for this purpose. Experiments are always safe, even for uninitiated laymen, thanks to the use of non-hazardous safety extra-low voltage.

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

Course, EloTrain 1: DC technology

SO4206-1A

1

1

2

Course, EloTrain 2: AC and three-phase technology

SO4206-1B

1

3

Course, EloTrain 3: Semiconductors

SO4206-1C

1

4

Course, EloTrain 4: Basic electronic circuits

SO4206-1D

1

5

Course, EloTrain 5: Optoelectronics

SO4206-1E

1

6

Course, EloTrain 6: Introduction to digital technology

SO4206-1F

1

7

Course, EloTrain 7: Sequential circuits

SO4206-1G

1
8

Curso EloTrain 8: Fundamentos da elétrica / eletrônica no veículo

SO4206-1J

1

Também necessário:

UniTrain System:

- Computer-based training and experimentation system for vocational and further training and education
- Multimedia combines cognitive and hands-on (haptic) training units into a comprehensive unified concept
- Areas of basic and advanced electrical engineering, electronics and automotive technology
- Enabling students to acquire skills in the handling of equipment
- Wide range of multimedia courses available for study in school or in professional and advanced training
- Self-contained and usable anywhere at any time
- Multimedia learning environment with high degrees of motivation
- Maximum learning effectiveness in laboratories, at work or at home
- Guarantor for effective and efficient study
- Virtual instruments with experiment hardware
- LabSoft, an open experiment platform
- Courses teach the theoretical building blocks and provide experiments
- Intelligent measurement interface supplies analog and digital measuring and control I/O
- High quality item of laboratory equipment with virtual instruments
- Students' progress monitored and electronically documented on the basis of fault finding experiments
- Faults simulated by the hardware as well as tests of knowledge

Pos.

Nome do produto

Bestell-Nr.

Anz.
9

Interface UniTrain com instrumentos virtuais (básico VI)

CO4203-2A

1
10

Experimentador EloTrain 2mm

SO4203-3B

1
11

EloTrain kit de cabos e plugues de medição para sistema de 2 mm, Engenharia eletrônica/eletrônica/digital
SO5146-1N

1
12

Multímetro digital Max 10
LM2332

1

Individual EloTrain components (2mm plugs)

Individual EloTrain components (2mm plugs)

You can put together a set of components tailored specifically to your own needs or select individual components from our extensive range of modules.

- Extensive range of modules featuring both active and passive components
- Wide variety of plug-in boards for various needs
- Multi-function power supplies and measuring instruments
- UniTrain-I courses conveying knowledge of electrical fundamentals as well as more complex experiments and everything in between
- Storage systems to keep components safe

Plug-in components

Plug-in components

The EloTrain plug-in system includes an extensive range of plug-in modules featuring both active and passive components. All components and jumpers are equipped with gold-plated contacts, preventing oxidation and ensuring that the contact resistance remains low for the entire life-time of the module.

Rheostats

Rheostats

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
13

Variable resistor, 1kilohm, housing PS2-1
PS2120-9D

1
14

Variable resistor, 5kilohm, housing PS2-1
PS2120-9F

1
15

Variable resistor, 10kilohm, housing PS2-1
PS2120-9G

1
16

Variable resistor, 50kilohm, housing PS2-1
PS2120-9J

1
17

Variable resistor, 100kilohm, housing PS2-1
PS2120-9K

1
18

Variable resistor, 500kilohm, housing PS2-1
PS2120-9M

1

Resistors

Resistors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

19

Resistor, 0.1ohm, 1W, housing PS2-1

PS2121-1A

1

20

Resistor, 0.22ohm, 1W, housing PS2-1

PS2121-1B

1

21

Resistor, 0.47ohm, 1W, housing PS2-1

PS2121-1C

1

22

Resistor, 1ohm, 1W, housing PS2-1

PS2121-1D

1

23

Resistor, 2ohm, 1W, housing PS2-1

PS2121-1S

1

24

Resistor, 2.7ohm, 1W, housing PS2-1

PS2121-1E

1

25

Resistor, 4.7ohm, 1W, housing PS2-1

PS2121-1F

1

26

Resistor, 8.2ohm, 1W, housing PS2-1

PS2121-1G

1

27

Resistor, 10ohm, 1W, housing PS2-1

PS2121-2A

1

28

Resistor, 12ohm, 1W, housing PS2-1
PS2121-2B

1
29

Resistor, 15ohm, 1W, housing PS2-1
PS2121-2C

1
30

Resistor, 18ohm, 1W, housing PS2-1
PS2121-2D

1
31

Resistor, 22ohm, 1W, housing PS2-1
PS2121-2E

1
32

Resistor, 27ohm, 1W, housing PS2-1
PS2121-2F

1
33

Resistor, 33ohm, 1W, housing PS2-1
PS2121-2G

1
34

Resistor, 39ohm, 1W, housing PS2-1
PS2121-2H

1
35

Resistor, 47ohm, 1W, housing PS2-1
PS2121-2J

1
36

Resistor, 56ohm, 1W, housing PS2-1
PS2121-2K

1
37

Resistor, 68ohm, 1W, housing PS2-1
PS2121-2L

1
38

Resistor, 82ohm, 1W, housing PS2-1
PS2121-2M

1
39

Resistor, 100ohm, 1W, housing PS2-1

PS2121-2N	1	40
Resistor, 120ohm, 1W, housing PS2-1 PS2121-2P	1	41
Resistor, 150ohm, 1W, housing PS2-1 PS2121-2Q	1	42
Resistor, 180ohm, 1W, housing PS2-1 PS2121-2R	1	43
Resistor, 220ohm, 1W, housing PS2-1 PS2121-2S	1	44
Resistor, 270ohm, 1W, housing PS2-1 PS2121-2T	1	45
Resistor, 330ohm, 1W, housing PS2-1 PS2121-2U	1	46
Resistor, 390ohm, 1W, housing PS2-1 PS2121-2V	1	47
Resistor, 470ohm, 1W, housing PS2-1 PS2121-2W	1	48
Resistor, 560ohm, 1W, housing PS2-1 PS2121-2X	1	49
Resistor, 680ohm, 1W, housing PS2-1 PS2121-3A	1	50
Resistor, 820ohm, 1W, housing PS2-1 PS2121-3B		

	1
	51
Resistor, 1kilohm, 1W, housing PS2-1 PS2121-3C	
	1
	52
Resistor, 1.2kilohm, 1W, housing PS2-1 PS2121-3D	
	1
	53
Resistor, 1.5kilohm, 1W, housing PS2-1 PS2121-3E	
	1
	54
Resistor, 1.8kilohm, 1W, housing PS2-1 PS2121-3F	
	1
	55
Resistor, 2.2kilohm, 1W, housing PS2-1 PS2121-3G	
	1
	56
Resistor, 2.7kilohm, 1W, housing PS2-1 PS2121-3H	
	1
	57
Resistor, 3.3kilohm, 1W, housing PS2-1 PS2121-3J	
	1
	58
Resistor, 3.9kilohm, 1W, housing PS2-1 PS2121-3K	
	1
	59
Resistor, 4.7kilohm, 1W, housing PS2-1 PS2121-3L	
	1
	60
Resistor, 5.6kilohm, 1W, housing PS2-1 PS2121-3M	
	1
	61
Resistor, 6.8kilohm, 1W, housing PS2-1 PS2121-3N	
	1

62

Resistor, 8.2kilohm, 1W, housing PS2-1
PS2121-3P

1

63

Resistor, 10kilohm,0.5W, housing PS2-1
PS2121-3Q

1

64

Resistor, 12kilohm,0.5W, housing PS2-1
PS2121-3R

1

65

Resistor, 15kilohm,0.5W, housing PS2-1
PS2121-3S

1

66

Resistor, 18kilohm,0.5W, housing PS2-1
PS2121-3T

1

67

Resistor, 22kilohm,0.5W, housing PS2-1
PS2121-3U

1

68

Resistor, 27kilohm,0.5W, housing PS2-1
PS2121-3V

1

Potentiometers

Potentiometers

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

91

Potentiometer, 100ohm, 0.5W lin., housing PS2-3

PS2121-8A

1

92

Potentiometer, 250ohm, 0.5W lin., housing PS2-2

PS2121-8B

1

93

Potentiometer, 470ohm, 0.5W lin., housing PS2-2

PS2121-8C

1

94

Potentiometer, 1kilohm, 0.5W lin., housing PS2-2

PS2121-8D

1

95

Potentiometer, 2kilohm, 0.5W lin., housing PS2-2

PS2121-8E

1

96

Potentiometer, 4.7kilohm, 0.5W lin., housing PS2-2

PS2121-8F

1

97

Potentiometer, 10kilohm, 0.5W lin., housing PS2-2

PS2121-8G

1

98

Potentiometer, 22kilohm, 0.5W lin., housing PS2-2

PS2121-8H

1

99

Potentiometer, 47kilohm, 0.5W lin., housing PS2-2

PS2121-8J

1

100

Potentiometer, 100kilohm, 0.5W lin., housing PS2-2
PS2121-8K

1
101

Potentiometer, 220kilohm, 0.5W lin., housing PS2-2
PS2121-8L

1
102

Potentiometer, 470kilohm, 0.5W lin., housing PS2-2
PS2121-8M

1

Non-linear resistors

Non-linear resistors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
103

VDR resistor, 40E/12V/10mA, housing PS2-1
PS2122-9A

1
104

VDR resistor, 800E/8V/10mA, housing PS2-1
PS2122-9B

1
105

PTC resistor, 30E/40V/70mA, housing PS2-1
PS2122-9C

1
106

PTC resistor, 160E/30V/40mA, housing PS2-1
PS2122-9D

1
107

PTC resistor, vehicle-technology, with heating resistor, housing PS2-3
PS2122-9E

1

PTC resistor, with heating resistor, housing PS2-3
PS2122-9F

1

109

NTC resistor, 150E/0.75W/K164, housing PS2-1
PS2122-9G

1

110

NTC resistor, 1K/0.75W/K164, housing PS2-1
PS2122-9H

1

111

PTC resistor, 270 ohm, with heating resistor, housing PS2-3
PS2122-9J

1

112

LDR resistor, housing PS2-2
PS2123-5L

1

Capacitors

Capacitors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

113

Capacitor, 10pF, housing PS2-1
PS2122-1A

1

114

Capacitor, 22pF, housing PS2-1
PS2122-2A

1

115

Capacitor, 33pF, housing PS2-1
PS2122-1B

	1 116
Capacitor, 47pF, housing PS2-1 PS2122-1C	1 117
Capacitor, 68pF, housing PS2-1 PS2122-1D	1 118
Capacitor, 100pF, housing PS2-1 PS2122-1E	1 119
Capacitor, 220pF, housing PS2-1 PS2122-1F	1 120
Capacitor, 330pF, housing PS2-1 PS2122-1G	1 121
Capacitor, 470pF, housing PS2-1 PS2122-1H	1 122
Capacitor, 560pF, housing PS2-1 PS2122-1J	1 123
Capacitor, 680pF, housing PS2-1 PS2122-1K	1 124
Capacitor, 1nF, housing PS2-1 PS2122-1L	1 125
Capacitor, 2.2nF, housing PS2-1 PS2122-1N	1 126
Capacitor, 3.3nF, housing PS2-1 PS2122-1P	1

127

Capacitor, 4.7nF, housing PS2-1
PS2122-1Q

1

128

Capacitor, 6.8nF, housing PS2-1
PS2122-1R

1

129

Capacitor, 10nF, housing PS2-1
PS2122-1S

1

130

Capacitor, 22nF, housing PS2-1
PS2122-1T

1

131

Capacitor, 33nF, housing PS2-1
PS2122-1U

1

132

Capacitor, 47nF, housing PS2-1
PS2122-1V

1

133

Capacitor, 68nF, housing PS2-1
PS2122-2B

1

134

Capacitor, 0.1 μ F, housing PS2-1
PS2122-1W

1

135

Capacitor, 0.22 μ F, housing PS2-1
PS2122-1X

1

136

Capacitor, 0.47 μ F, housing PS2-1
PS2122-2C

1

137

Capacitor, 1 μ F, housing PS2-1
PS2122-2E

1

138

Capacitor, 2.2 μ F, housing PS2-1
PS2122-2F

1

Electrolyte capacitors

Electrolyte capacitors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
139

Capacitor, 1 μ F electrolytic, housing PS2-1
PS2122-4A

1

140

Capacitor, 2.2 μ F electrolytic, housing PS2-1
PS2122-4B

1

141

Capacitor, 4.7 μ F electrolytic, housing PS2-1
PS2122-4C

1

142

Capacitor, 10 μ F electrolytic, housing PS2-1
PS2122-4D

1

143

Capacitor, 22 μ F electrolytic, housing PS2-1
PS2122-4E

1

144

Capacitor, 47 μ F electrolytic, housing PS2-1
PS2122-4F

1

145

Capacitor, 100 μ F electrolytic, housing PS2-1
PS2122-4G

1

146

Capacitor, 220 μ F electrolytic, housing PS2-2
PS2122-4H

1

147

Capacitor, 470 μ F electrolytic, housing PS2-2
PS2122-4J

1

148

Capacitor, 1000 μ F electrolytic, housing PS2-2
PS2122-4K

1

Coils, transformer

Coils, transformer

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

149

Coil, 0.1mH (ferrite core), housing PS2-2
PS2124-1A

1

150

Coil, 0.33mH (ferrite core), housing PS2-2
PS2124-1B

1

151

Coil, 1mH (ferrite core), housing PS2-2
PS2124-1C

1

152

Coil, 3.3mH (ferrite core), housing PS2-2
PS2124-1D

1

153

Coil, 10mH (ferrite core), housing PS2-2
PS2124-1E

1
154

Coil, 33mH (ferrite core), housing PS2-2
PS2124-1F

1
155

Coil, 100mH (ferrite core), housing PS2-2
PS2124-1G

1
156

Transformer, housing PS2-3
PS2124-2B

1
157

Coil, N = 100, housing PS2-1
PS2124-2C

1
158

Coil, N = 300, housing PS2-1
PS2124-2D

1
159

Coil, N = 900, housing PS2-1
PS2124-2E

1
160

Cut strip-wound core for transformer
PS4124-2N

1

Diodes, Z-diodes

Diodes, Z-diodes

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

Diode 1 N 4148, housing PS2-1

PS2122-7A

161

1

162

Diode 1 N 4007, housing PS2-1

PS2122-7C

1

163

Diode, Ge AA 118, housing PS2-1

PS2122-7D

1

164

Zener diode ZPD 3.3, housing PS2-1

PS2122-7X

1

165

Zener diode ZPD 3.9, housing PS2-1

PS2122-7Y

1

166

Zener diode ZPD 4.7, housing PS2-1

PS2122-8A

1

167

Zener diode ZPD 6.2, housing PS2-1

PS2122-8B

1

168

Zener diode ZPD 10, housing PS2-1

PS2122-8C

1

169

Zener diode ZPD 12, housing PS2-1

PS2122-8E

1

LEDs

LEDs

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

LED, red, housing PS2-1

PS2123-5B

170

1

171

LED, orange, housing PS2-1

PS2123-5C

1

172

LED, yellow, housing PS2-1

PS2123-5D

1

173

LED, green, housingPS2-1

PS2123-5E

1

174

LED, infrared, housingPS2-1

PS2123-5H

1

175

LED, green, 2-15V, housing PS2-2

PS2123-8J

1

176

LED, red, 2-15V, housing PS2-2

PS2123-8K

1

177

LED, yellow, 2-15V, housing PS2-2

PS2123-8L

1

Transistors

Transistors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

**Transistor, Ge, PNP, 3AX81, base left, housing PS2-2
PS2123-1A**

178

1

179

**Transistor, Si, NPN, BC547, base left, housing PS2-2
PS2123-1C**

1

180

**Transistor, Si, NPN, BC547, base right, housing PS2-2
PS2123-1D**

1

181

**Transistor, Si, PNP, BC558, base right, housing PS2-2
PS2123-1F**

1

182

**Transistor, Si, PNP, BC558, base left, housing PS2-2
PS2123-1E**

1

183

**Transistor, Si, NPN, BC237, base left, housing PS2-2
PS2123-1G**

1

184

**Transistor, Si, NPN, BD237, base right, housing PS2-2
PS2123-1H**

1

185

**Transistor, Si, PNP, BD238, base left, housing PS2-2
PS2123-1J**

1

186

Transistor, Si, PNP, BC238, base right, housing PS2-2 PS2123-1K	1 187
Darlington transistor TIP 162, base left, housing PSA2-2 PS2123-2C	1 188
MOS-FET P condutor, caixa PS2-2 PS2123-2F	1 189
MOS-FET N bloqueador, PS2-2 PS2123-2G	1 190
Field-effect transistor 2 N 3819, housing PS2-2 PS2123-2H	1 191
Field-effect transistor 2 N 3820, housing PS2-2 PS2123-2J	1 192
Si dual gate BF 900, housing PS2-2 PS2123-2K	1
 Thyristors, Triacs	
 <u>Thyristors, Triacs</u>	
Lista de artigos:	
Lista de artigos:	
Pos.	
Nome do produto	
Bestell-Nr.	Anz.
	193
Diac, 30V/300μA, housing PS2-1 PS2123-3B	1

194

Unijunction transistor, 30V, housing PS2-2
PS2123-3E

1

195

Thyristor, 200V/1A, housing PS2-2
PS2123-3F

1

196

Triac, 200V/1A, housing PS2-2
PS2123-3G

1

Operational amplifiers

Operational amplifiers

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

197

Operational amplifier TL 071 C, housing PS2-2
PS2123-2V

1

Optoelectronics

Optoelectronics

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

198

LED, infrared, housing PS2-1

PS2123-5H

1

199

LDR resistor, housing PS2-2

PS2123-5L

1

200

Si photoelement, housing PS2-2

PS2123-5P

1

201

Si photodiode, housing PS2-1

PS2123-5S

1

202

Si phototransistor, housing PS2-1

PS2123-5T

1

203

Optocoupler, housing PS2-2

PS2123-6G

1

Quartz

Quartz

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
204

Quartz crystal, 1MHz, housing PS2-1

PS2122-9U

1

Electro-mechanical components, lamps

Electro-mechanical components, lamps

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
205

Off switch/single-pole, housing PS2-2

PS2123-7A

1

206

On-off push-button/single-pole, housing PS2-2

PS2123-7B

1

207

Changeover switch/single-pole, housing PS2-2

PS2123-7G

1

208

Lamp, green 6.3V, housing PS2-2

PS2123-8B

1

209

Lamp, red, 6.3V, housing PS2-2

PS2123-8C

1

210

Lamp socket, E10, housing PS2-2
PS2123-8P

1

211

DC Motor 12V / 2W, housing PS4-3
PS2124-3L

1

212

DC Motor 12V / 2W, housing PS4-3
PS2124-3M

1

Digital technology



Digital technology

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

213

Driver/NOT gate, housing PS2-3
PS2125-2N

1

214

IC adapter, 16 pins, housing PS2-3
PS2125-2Y

1

215

4-bit input, housing PS2-3
PS2125-3A

1

216

AND/NAND gates, 4 inputs, 2-fold, housing PS2-3
PS2125-3C

1

217

OR/NOR gates, 4 inputs, 2-fold, housing PS2-3

PS2125-3D	1	218
AND/NAND gate, 2 inputs,4-fold, housing PS2-3 PS2125-3E	1	219
OR/NOR gate, 2 inputs, 4-fold, housing PS2-3 PS2125-3H	1	220
XOR/XNOR gate, 2 inputs, 4-fold, housing PS2-3 PS2125-3J	1	221
JK master-slave flip-flop, 2-fold, housing PS2-3 PS2125-3M	1	222
JK flip-flop, 2-fold, housing PS2-3 PS2125-3N	1	223
Counter, 4-bit, housing PS2-3 PS2125-3P	1	224
AND/OR/NOT gates, housing PS2-3 PS2125-3Q	1	225
Multiplexer, 1 of 4, housing PS2-3 PS2125-3T	1	226
Shift register, 4-bit, 2-fold, housing PS2-3 PS2125-3U	1	227
Latch, 4-bit, housing PS2-3 PS2125-3V	1	228
Adder, 4-bit, housing PS2-3 PS2125-3W		

1
229

Buffer, 4-bit, tri-state, housing PS4-3
PS4125-3Y

1
230

Display, 7-segment, housing PS2-3
PS2125-4A

1
231

Monoflop, 2-fold, housing PS2-3
PS2125-4B

1
232

Clock generator, housing PS2-3
PS2125-4G

1

Leergehäuse

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
233

Assembling set of empty housings PS2-1
PS2124-6A

1
234

Assembling set of empty housings PS2-2
PS2124-6B

1
235

Assembling set of empty housings PS2-3
PS2124-6C

1
236

Assembling set of empty PSA4-2 housings
PS2124-6D

1

Assembling set of empty PSA4-2 housings
PS2124-6E

1

All EloTrain plug-in boards

All EloTrain plug-in boards

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

238

Experimentador EloTrain 2mm
SO4203-3B

1

EloTrain Accessories:

EloTrain Accessories:

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

239

Multímetro digital Max 10
LM2332

2

240

Osciloscópio digital de armazenamento, de 2 canais e ecrã a cores, incluindo sondas de 30MHz

LM6210	1
Test lead, BNC/2x 4mm plug, 1.5m	241
LM9032	2
	242
EloTrain kit de cabos e plugues de medição para sistema de 2 mm, Engenharia eletrônica/eletrônica/digital	
SO5146-1N	1
	243
Connection plugs 2mm/7,5mm, black, gold plated	
SO5124-6F	1

4-mm plug-in system



4-mm plug-in system

A tried and trusted plug-in system for fundamental education

The EloTrain plug-in is a comprehensive set of components for performing experiments in the fields of electrical engineering, electronics and digital technology. The 4-mm plug-in components can be assembled in any way on an EloTrain plug-in board so that electronic circuits of any size can be set up, operated and tested.

The plug-in modules include both passive and active electronic components with contacts formed by 4-mm laminated plugs. When inserted into the plug-in board, the plugs hold the components firmly in place, while simultaneously making electrical connections between the board's nodes. Leads and jumpers can then be used to form links to other nodes on the board as well as other components or measuring instruments.

The 4mm plug-in components are available in three sizes with two, four or six terminals.

For components requiring more terminals than this, additional sockets are provided on top of the module.

The housings are comprised of three plastic parts clipped together. The white top part features a scratch-proof, high-contrast print of the component's circuit diagram or symbol along with a type name for the component. The transparent body is made of extremely tough see-through plastic allowing the inside of the component to be seen. The base plate is also made containing 4-mm laminated plugs and joined to the body via an easy-to-open ratchet clip for repair purposes.

High-power elements are contained in open, light-metal housings for improved heat dissipation.

The components designed for digital technology experiments are provided with power via 4 laminated plugs. Digital inputs and outputs are made available on the top of the modules and can be linked together by means of leads tipped with 2-mm plugs.

Experiment equipment

Experiment equipment

A set of components specially designed for educational purposes covering a wide variety of topics in electrical engineering and electronics. The freedom to experiment is backed up by formal experiment literature and the use of safety extra-low voltage means that the system is even safe for complete laymen.

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

244

EloTrain basic set: Electrical engineering/electronics 4mm, with storage board

PS4200-1C

1

245

Manual, EloTrain: Direct Current

SH5002-7B

1

246

Manual, EloTrain: AC and three-phase current

SH5002-7D

1

247

Manual, EloTrain: Semiconductor components

SH5002-7H

1

248

Manual, EloTrain: Basic electronic circuits

SH5002-7J

1

249

EloTrain extension set: Optoelectronics, 4mm plug-in components

PS4200-1P

1

250

Manual, EloTrain: Optoelectronics

SH5002-7K

1
251

EloTrain digital technology set, 4mm plug-in components
PS4300-1A

1
252

Manual, EloTrain Introduction to digital technology
SH5002-8B

1
253

Manual, EloTrain: Sequential circuits
SH5002-8D

1

Também necessário:

Pos.

Nome do produto

Bestell-Nr.

Anz.
254

EloTrain plug-in board 2/4mm, 120 nodes
CO3535-5H

1

Acessórios:

Pos.

Nome do produto

Bestell-Nr.

Anz.
255

EloTrain Messleitungs- und steckersatz 4mm-System, Elektrotechnik/Elektronik/Dig
SO5146-1M

1

Fonte de alimentação:

Fonte de alimentação:

Alternative electric power supply for power duct or table top housing

Pos.

Nome do produto

Bestell-Nr.

Anz.

256

Multi Power Supply 4 x DC, 2 x AC, trifásica, gerador de funções

CO3538-8M

1

257

Multi Power Supply CC, CA, trifásico, gerador de funções, 60UD

ST8008-6K

1

258

Table-top housing for 60 PU inserts incl. connection for non-heating components

ST8008-7K

1

Instrumentos de medição:

Instrumentos de medição:

Pos.

Nome do produto

Bestell-Nr.

Anz.

259

Multímetro digital Max 10

LM2332

2

260

Osciloscópio digital de armazenamento, de 2 canais e ecrã a cores, incluindo sondas de 30MHz

LM6210

1

261

Test lead, BNC/2x 4mm plug, 1.5m

LM9032

2

Experiment equipment specifically for case

Experiment equipment specifically for case

A set of components specially designed for educational purposes covering a wide variety of topics in electrical engineering and electronics. The freedom to experiment is backed up by formal experiment literature and the use of safety extra-low voltage means that the system is even safe for complete laymen.

Lista de artigos:

Lista de artigos:

Alternative case

Pos.

Nome do produto

Bestell-Nr.

Anz.

262

EloTrain basic set without board: Electrical engineering/electronics, 4mm

PS4200-1D

1

263

EloTrain case to hold DIN A4 board, multi power supply and for storing plug-in components

SO5127-3L

1

264

EloTrain case to hold 2 DIN A4 boards, multi power supply and for storing plug-in components

SO5127-3U

1

265

Manual, EloTrain: Direct Current

SH5002-7B

1

266

Manual, EloTrain: AC and three-phase current

SH5002-7D

1

267

Manual, EloTrain: Semiconductor components

SH5002-7H	1	268
Manual, EloTrain: Basic electronic circuits		
SH5002-7J	1	269
EloTrain extension set: Optoelectronics, 4mm plug-in components		
PS4200-1P	1	270
Manual, EloTrain: Optoelectronics		
SH5002-7K	1	271
EloTrain digital technology set, 4mm plug-in components		
PS4300-1A	1	272
Manual, EloTrain Introduction to digital technology		
SH5002-8B	1	273
Manual, EloTrain: Sequential circuits		
SH5002-8D	1	
Também necessário:		
Pos.		
Nome do produto		
Bestell-Nr.		
		Anz.
		274
EloTrain plug-in board 2/4mm, 120 nodes		
CO3535-5H	1	

Acessórios:

Pos.

Nome do produto

Bestell-Nr.

Anz.

275

EloTrain Messleitungs- und steckersatz 4mm-System, Elektrotechnik/Elektronik/Dig
SO5146-1M

1

Fonte de alimentação:

Fonte de alimentação:

Alternative electric power supply for power duct or table top housing

Pos.

Nome do produto

Bestell-Nr.

Anz.

276

Multi Power Supply 4 x DC, 2 x AC, trifásica, gerador de funções
CO3538-8M

1

277

Multi Power Supply CC, CA, trifásico, gerador de funções, 60UD
ST8008-6K

1

278

Table-top housing for 60 PU inserts incl. connection for non-heating components
ST8008-7K

1

Instrumentos de medição:

Instrumentos de medição:

Pos.

Nome do produto

Bestell-Nr.

Anz.

279

Multímetro digital Max 10
LM2332

2

280

Osciloscópio digital de armazenamento, de 2 canais e ecrã a cores, incluindo sondas de 30MHz

LM6210

1
281

Test lead, BNC/2x 4mm plug, 1.5m

LM9032

2

Individual EloTrain components (4mm plugs)



Individual EloTrain components (4mm plugs)

You can put together a set of components tailored specifically to your own needs or select individual components from our extensive range of modules.

- Extensive range of modules featuring both active and passive components
- Wide variety of plug-in boards for various needs
- Multi-function power supplies and measuring instruments
- Manuals conveying knowledge of electrical fundamentals as well as more complex experiments and everything in between
- Storage systems to keep components safe

Plug-in components



Plug-in components

The EloTrain plug-in system includes an extensive range of plug-in modules featuring both active and passive components. All components and jumpers are equipped with gold-plated contacts, preventing oxidation and ensuring that the contact resistance remains low for the entire life-time of the module.

Rheostats



Rheostats

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
282

Variable resistor, 1kilohm, housing PS4-1
PS4120-9D

1
283

Variable resistor, 5kilohm, housing PS4-1
PS4120-9F

1
284

Variable resistor, 10kilohm, housing PS4-1
PS4120-9G

1
285

Variable resistor, 47kilohm, housing PS4-1
PS4120-9J

1
286

Variable resistor, 100kilohm, housing PS4-1
PS4120-9K

1
287

Variable resistor, 500kilohm, housing PS4-1
PS4120-9M

1

Resistors

Resistors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

288

Resistor, 0.1ohm, 2W, housing PS4-1

PS4121-1A

1

289

Resistor, 0.22ohm, 2W, housing PS4-1

PS4121-1B

1

290

Resistor, 0.47ohm, 2W, housing PS4-1

PS4121-1C

1

291

Resistor, 1ohm, 2W, housing PS4-1

PS4121-1D

1

292

Resistor, 2ohm, 2W, housing PS4-1

PS4121-1S

1

293

Resistor, 2.7ohm, 2W, housing PS4-1

PS4121-1E

1

294

Resistor, 4.7ohm, 2W, housing PS4-1

PS4121-1F

1

295

Resistor, 8.2ohm, 2W, housing PS4-2

PS4121-1G

1

296

Resistor, 10ohm, 2W, housing PS4-1

PS4121-2A

1

297

Resistor, 12ohm, 2W, housing PS4-1
PS4121-2B

1
298

Resistor, 15ohm, 2W, housing PS4-1
PS4121-2C

1
299

Resistor, 18ohm, 2W, housing PS4-1
PS4121-2D

1
300

Resistor, 22ohm, 2W, housing PS4-1
PS4121-2E

1
301

Resistor, 27ohm, 2W, housing PS4-1
PS4121-2F

1
302

Resistor, 33ohm, 2W, housing PS4-1
PS4121-2G

1
303

Resistor, 39ohm, 2W, housing PS4-1
PS4121-2H

1
304

Resistor, 47ohm, 2W, housing PS4-1
PS4121-2J

1
305

Resistor, 56ohm, 2W, housing PS4-1
PS4121-2K

1
306

Resistor, 68ohm, 2W, housing PS4-1
PS4121-2L

1
307

Resistor, 82ohm, 2W, housing PS4-1
PS4121-2M

1
308

Resistor, 100ohm, 2W, housing PS4-1

PS4121-2N	1	309
Resistor, 120ohm, 2W, housing PS4-1 PS4121-2P	1	310
Resistor, 150ohm, 2W, housing PS4-1 PS4121-2Q	1	311
Resistor, 180ohm, 2W, housing PS4-1 PS4121-2R	1	312
Resistor, 220ohm, 2W, housing PS4-1 PS4121-2S	1	313
Resistor, 270ohm, 2W, housing PS4-1 PS4121-2T	1	314
Resistor, 330ohm, 2W, housing PS4-1 PS4121-2U	1	315
Resistor, 390ohm, 2W, housing PS4-1 PS4121-2V	1	316
Resistor, 470ohm, 2W, housing PS4-1 PS4121-2W	1	317
Resistor, 560ohm, 2W, housing PS4-1 PS4121-2X	1	318
Resistor, 680ohm, 2W, housing PS4-1 PS4121-3A	1	319
Resistor, 820ohm, 2W, housing PS4-1 PS4121-3B		

1
320

Resistor, 1kilohm, 1W, housing PS4-1
PS4121-3C

1
321

Resistor, 1.2kilohm, 1W, housing PS4-1
PS4121-3D

1
322

Resistor, 1.5kilohm, 1W, housing PS4-1
PS4121-3E

1
323

Resistor, 1.8kilohm, 1W, housing PS4-1
PS4121-3F

1
324

Resistor, 2.2kilohm, 1W, housing PS4-1
PS4121-3G

1
325

Resistor, 2.7kilohm, 1W, housing PS4-1
PS4121-3H

1
326

Resistor, 3.3kilohm, 1W, housing PS4-1
PS4121-3J

1
327

Resistor, 3.9kilohm, 1W, housing PS4-1
PS4121-3K

1
328

Resistor, 4.7kilohm, 1W, housing PS4-1
PS4121-3L

1
329

Resistor, 5.6kilohm, 1W, housing PS4-1
PS4121-3M

1
330

Resistor, 6.8kilohm, 1W, housing PS4-1
PS4121-3N

1

331

Resistor, 8.2kilohm, 1W, housing PS4-1
PS4121-3P

1

332

Resistor, 10kilohm,0.5W, housing PS4-1
PS4121-3Q

1

333

Resistor, 12kilohm,0.5W, housing PS4-1
PS4121-3R

1

334

Resistor, 15kilohm,0.5W, housing PS4-1
PS4121-3S

1

335

Resistor, 18kilohm,0.5W, housing PS4-1
PS4121-3T

1

336

Resistor, 22kilohm,0.5W, housing PS4-1
PS4121-3U

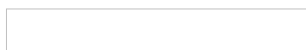
1

337

Resistor, 27kilohm,0.5W, housing PS4-1
PS4121-3V

1

High-power resistors



High-power resistors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
360

Resistor, 8.2ohm, 10W, housing PSA4-2
PS4121-6T

1

361

Resistor, 22.ohm, 10W, housing PSA4-2
PS4121-6E

1

Potentiometers



Potentiometers

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
362

Potentiometer, 100ohm, 0.5W lin., housing PS4-2
PS4121-8A

1

363

Potentiometer, 250ohm, 0.5W lin., housing PS4-2
PS4121-8B

1

364

Potentiometer, 470ohm, 0.5W lin., housing PS4-2
PS4121-8C

1

365

Potentiometer, 1kilohm, 0.5W lin., housing PS4-2

PS4121-8D	1	366
Potentiometer, 2.5kilohm, 0.5W lin., housing PS4-2 PS4121-8E	1	367
Potentiometer, 4.7kilohm, 0.5W lin., housing PS4-2 PS4121-8F	1	368
Potentiometer, 10kilohm, 0.5W lin., housing PS4-2 PS4121-8G	1	369
Potentiometer, 25kilohm, 0.5W lin., housing PS4-2 PS4121-8H	1	370
Potentiometer, 47kilohm, 0.5W lin., housing PS4-2 PS4121-8J	1	371
Potentiometer, 100kilohm, 0.5W lin., housing PS4-2 PS4121-8K	1	372
Potentiometer, 250kilohm, 0.5W lin., housing PS4-2 PS4121-8L	1	373
Potentiometer, 470kilohm, 0.5W lin., housing PS4-2 PS4121-8M	1	374
Potentiometer, 1megohm, 0.5W lin., housing PS4-2 PS4121-8N	1	375
Potentiometer, 27ohm, 3W, housing PS4-2 PS4121-9A	1	376

Non-linear resistors

Non-linear resistors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
377

VDR resistor, 40E/12V/10mA, housing PS4-1
PS4122-9A

1

378

VDR resistor, 800E/8V/10mA, housing PS4-1
PS4122-9B

1

379

PTC resistor, 30E/40V/70mA, housing PS4-1
PS4122-9C

1

380

PTC resistor, 160E/30V/40mA, housing PS4-1
PS4122-9D

1

381

NTC resistor, 150E/0.75W/K164, housing PS4-1
PS4122-9G

1

382

NTC resistor, 1K/0.75W/K164, housing PS4-1
PS4122-9H

1

383

LDR resistor, housing PS4-1
PS4123-5L

1

Capacitors

Capacitors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
384

Capacitor, 10pF, housing PS4-1
PS4122-1A

1
385

Capacitor, 22pF, housing PS4-1
PS4122-2A

1
386

Capacitor, 33pF, housing PS4-1
PS4122-1B

1
387

Capacitor, 47pF, housing PS4-1
PS4122-1C

1
388

Capacitor, 68pF, housing PS4-1
PS4122-1D

1
389

Capacitor, 100pF, housing PS4-1
PS4122-1E

1
390

Capacitor, 220pF, housing PS4-1
PS4122-1F

1
391

Capacitor, 330pF, housing PS4-1
PS4122-1G

1

392

Capacitor, 470pF, housing PS4-1
PS4122-1H

1

393

Capacitor, 560pF, housing PS4-1
PS4122-1J

1

394

Capacitor, 680pF, housing PS4-1
PS4122-1K

1

395

Capacitor, 1nF, housing PS4-1
PS4122-1L

1

396

Capacitor, 2.2nF, housing PS4-1
PS4122-1N

1

397

Capacitor, 3.3nF, housing PS4-1
PS4122-1P

1

398

Capacitor, 4.7nF, housing PS4-1
PS4122-1Q

1

399

Capacitor, 6.8nF, housing PS4-1
PS4122-1R

1

400

Capacitor, 10nF, housing PS4-1
PS4122-1S

1

401

Capacitor, 22nF, housing PS4-1
PS4122-1T

1

402

Capacitor, 33nF, housing PS4-1
PS4122-1U

1

403

Capacitor, 47nF, housing PS4-1
PS4122-1V

1
404

Capacitor, 68nF, housing PS4-1
PS4122-2B

1
405

Capacitor, 0.1 μ F, housing PS4-1
PS4122-1W

1
406

Capacitor, 0.22 μ F, housing PS4-1
PS4122-1X

1
407

Capacitor, 0.47 μ F, housing PS4-1
PS4122-2C

1
408

Capacitor, 1 μ F, housing PS4-1
PS4122-2E

1
409

Capacitor, 2.2 μ F, housing PS4-1
PS4122-2F

1
410

Capacitor, 4.7 μ F, housing PS4-1
PS4122-2H

1
411

Capacitor, 10 μ F, housing PS4-1
PS4122-2K

1

Electrolyte capacitors



Electrolyte capacitors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

412

Capacitor, 1 μ F electrolytic, housing PS4-1

PS4122-4A

1

413

Capacitor, 2.2 μ F electrolytic, housing PS4-1

PS4122-4B

1

414

Capacitor, 4.7 μ F electrolytic, housing PS4-1

PS4122-4C

1

415

Capacitor, 10 μ F electrolytic, housing PS4-1

PS4122-4D

1

416

Capacitor, 22 μ F electrolytic, housing PS4-1

PS4122-4E

1

417

Capacitor, 47 μ F electrolytic, housing PS4-1

PS4122-4F

1

418

Capacitor, 100 μ F electrolytic, housing PS4-1

PS4122-4G

1

419

Capacitor, 220 μ F electrolytic, housing PS4-1

PS4122-4H

1

420

Capacitor, 470 μ F electrolytic, housing PS4-1

PS4122-4J

1

421

Capacitor, 1000 μ F electrolytic, housing PS4-2
PS4122-4K

1
422

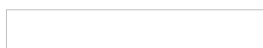
Capacitor, 2200 μ F electrolytic, housing PS4-2
PS4122-4L

1
423

Capacitor, 4700 μ F electrolytic, housing PS 4-3
PS4122-4M

1

Coils, transformer



Coils, transformer

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
424

Coil, 0.1mH (ferrite core), housing PS4-1
PS4124-1A

1
425

Coil, 0.33mH (ferrite core), housing PS4-1
PS4124-1B

1
426

Coil, 1mH (ferrite core), housing PS4-1
PS4124-1C

1
427

Coil, 3.3mH (ferrite core), housing PS4-1
PS4124-1D

1
428

Coil, 10mH (ferrite core), housing PS4-1
PS4124-1E

1
429

Coil, 33mH (ferrite core), housing PS4-1
PS4124-1F

1
430

Coil, 100mH (ferrite core), housing PS4-1
PS4124-1G

1
431

Transformer for push-pull amplifier, housing PS4-3
PS4124-2A

1
432

Transformer, housing PS4-3
PS4124-2B

1
433

Coil, N = 100, housing PS4-1
PS4124-2C

1
434

Coil, N = 300, housing PS4-1
PS4124-2D

1
435

Coil, N = 900, housing PS4-1
PS4124-2E

1
436

Cut strip-wound core for transformer
PS4124-2N

1

Diodes, Z-diodes



Diodes, Z-diodes

Lista de artigos:

Lista de artigos:

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Nome do produto

Bestell-Nr.

Anz.

437

Diode 1 N 4148, housing PS4-1

PS4122-7A

1

438

Diode 1 N 4007, housing PS4-1

PS4122-7C

1

439

Germanium diode AA 118, housing PS4-1

PS4122-7D

1

440

Zener diode ZPD 3.3, housing PS4-1

PS4122-7X

1

441

Zener diode ZPD 3.9, housing PS4-1

PS4122-7Y

1

442

Zener diode ZPD 4.7, housing PS4-1

PS4122-8A

1

443

Zener diode ZPD 6.2, housing PS4-1

PS4122-8B

1

444

Zener diode ZPD 10, housing PS4-1

PS4122-8C

1

445

Zener diode ZPD 12, housing PS4-1

PS4122-8E

1

LEDs



LEDs

Lista de artigos:

Lista de artigos:

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Nome do produto

Bestell-Nr.

Anz.

446

LED, red, housing PS4-1

PS4123-5B

1

447

LED, orange, housing PS4-1

PS4123-5C

1

448

LED, yellow, housing PS4-1

PS4123-5D

1

449

LED, green, housing PS4-1

PS4123-5E

1

450

LED, infrared for use as waveguide transmitter, housing PS4-1

PS4123-5H

1

451

LED, green, 2-15V, housing PS4-1

PS4123-8J

1

452

LED, red, 2-15V, housing PS4-1

PS4123-8K

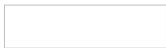
1

453

LED, yellow, 2-15V, housing PS4-1

PS4123-8L

Transistors



Transistors

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
454

**Transistor, Ge PNP 3AX81, base left, housing PS4-2
PS4123-1A**

1
455

**Transistor, Si, NPN, BC547, base left, housing PS4-2
PS4123-1C**

1
456

**Transistor, Si, NPN, BC547, base right, housing PS4-2
PS4123-1D**

1
457

**Transistor, Si, PNP, BC558, base right, housing PS4-2
PS4123-1F**

1
458

**Transistor, Si, PNP, BC558, base left, housing PS4-2
PS4123-1E**

1
459

**Transistor, Si, NPN, BD237, base left, housing PS4-2
PS4123-1G**

1
460

**Transistor, Si, NPN, BD237, base right, housing PS4-2
PS4123-1H**

1
461

Transistor, Si, PNP, BD238, base left, housing PS4-2 PS4123-1J	1 462
Transistor, Si, PNP, BD238, base right, housing PS4-2 PS4123-1K	1 463
Transistor, Si, NPN, BD135, base left, housing PSA4-2 PS4123-1U	1 464
Transistor, Si, NPN, BD135, base right, housing PSA4-2 PS4123-1V	1 465
Transistor, Si, PNP, BD136, base left, housing PSA4-2 PS4123-1W	1 466
Transistor, Si, PNP, BD136, base right, housing PSA4-2 PS4123-1X	1 467
Darlington transistor TIP 162, base left, housing PSA4-2 PS4123-2C	1 468
Power MOSFET, N-Channel, 100V, 10A, housing PS4A-2 PS4123-2D	1 469
Power MOSFET, P-Channel, 100V, 10A, housing PS4A-2 PS4123-2E	1 470
Field-effect transistor, P-Channel, Enhancement , housing PS4-2 PS4123-2F	1 471
Field-effect transistor 2 N 3819, housing PS4-2 PS4123-2H	1 472

PS4123-2H	1	473
Field-effect transistor 2 N 3820, housing PS4-2 PS4123-2J	1	474
Si dual gate BF 900, housing PS4-2 PS4123-2K	1	
 Thyristors, Triacs		
<input type="text"/>		
<u>Thyristors, Triacs</u>		
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Lista de artigos:		
Pos.		
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		475
Diac, 30V/300μA, housing PS4-1 PS4123-3B	1	476
Unijunction transistor, 30V, housing PS4-2 PS4123-3E	1	477
Thyristor, 200V/1A, housing PS4-2 PS4123-3F	1	478
Triac, 200V/1A, housing PS4-2 PS4123-3G	1	479
Thyristor, 800V/10A, housing PSA4-2 PS4123-3P	1	

Operational amplifiers

Operational amplifiers

Lista de artigos:

Lista de artigos:

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Nome do produto

Bestell-Nr.

Anz.
480

Operational amplifier TL 071 C, housingPS4-3
PS4123-2V

1

Optoelectronics

Optoelectronics

Lista de artigos:

Lista de artigos:

Pos.

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Anz.
481

LED, infrared for use as waveguide transmitter, housingPS4-1
PS4123-5H

1

482

LDR resistor, housing PS4-1
PS4123-5L

1

483

Si photoelement, housing PS4-1
PS4123-5P

1
484

Si photodiode, housing PS4-1
PS4123-5S

1
485

Si phototransistor, housing PS4-1
PS4123-5T

1
486

Optocoupler, housing PS4-2
PS4123-6G

1
487

Waveguide, housing PS4-1
PS4123-6J

1
488

Variable light source, housing PS4-3
PS4123-6M

1

Quartz



Quartz

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

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Anz.
489

Quartz crystal, 1MHz, housing PS4-1
PS4122-9U

1

Digital technology

Digital technology

Lista de artigos:

Lista de artigos:

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Bestell-Nr.

Anz.
490

Driver/NOT gate, housing PS4-3

PS4125-2N

1
491

IC adapter, 16 pins, housing PS4-3

PS4125-2Y

1
492

4-bit input, housing PS4-3

PS4125-3A

1
493

AND/NAND gates, 4 inputs, 2-fold, housing PS4-3

PS4125-3C

1
494

OR/NOR gates, 4 inputs, 2-fold, housing PS4-3

PS4125-3D

1
495

AND/NAND gate, 2 inputs,4-fold, housing PS4-3

PS4125-3E

1
496

OR/NOR gate, 2 inputs, 4-fold, housing PS4-3

PS4125-3H

1
497

XOR/XNOR gate, 2 inputs, 4-fold, housing PS4-3

PS4125-3J

	1
	498
JK master-slave flip-flop, 2-fold, housing PS4-3 PS4125-3M	
	1
	499
JK flip-flop, 2-fold, housing PS4-3 PS4125-3N	
	1
	500
Counter, 4-bit, housing PS4-3 PS4125-3P	
	1
	501
AND/OR/NOT gates, housing PS4-3 PS4125-3Q	
	1
	502
Multiplexer, 1 of 4, housing PS4-3 PS4125-3T	
	1
	503
Shift register, 4-bit, 2-fold, housing PS4-3 PS4125-3U	
	1
	504
Latch, 4-bit, housing PS4-3 PS4125-3V	
	1
	505
Adder, 4-bit, housing PS4-3 PS4125-3W	
	1
	506
Buffer, 4-bit, tri-state, housing PS4-3 PS4125-3Y	
	1
	507
Display, 7-segment, housing PS4-3 PS4125-4A	
	1
	508
Monoflop, 2-fold, housing PS4-3 PS4125-4B	
	1

Clock generator, housing PS4-3
PS4125-4G

1

510

Multiplexer, 1 of 8, housing PS4-3
PS4125-5A

1

511

Demultiplexer, 8 of 1, housing PS4-3
PS4125-5B

1

512

A/D converter with 8-bit resolution, housing PS4-3
PS4125-5C

1

513

D/A converter with 8-bit resolution, housing PS4-3
PS4125-5D

1

Electro-mechanical components, lamps

Electro-mechanical components, lamps

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.

514

Off switch/single-pole, housing PS4-1
PS4123-7A

1

515

On-off push-button/single-pole, housing PS4-1
PS4123-7B

1

516

Changeover switch/2-pole, housing PS4-3

PS4123-7F	1	517
Changeover switch/single-pole, housing PS4-2 PS4123-7G	1	518
DLR relay, exciter 15V, housing PS4-2 PS4123-7P	1	519
Relay, exciter 8-21V, housing PS4-3 PS4123-7T	1	520
Lamp, green, 6.3V, housing PS4-1 PS4123-8B	1	521
Lamp, red, 6.3V / 100mA, housing PS4-1 PS4123-8C	1	522
Lamp socket E10, top, housing PS4-1 PS4123-8R	1	523
Filament lamp, 6V/180mA, E10 SO5123-8Q	1	524
Filament lamp, 15V/100mA, E10 SO5123-8R	1	525
Filament lamp, 24V/80mA, E10 SO5123-8S	1	526
Speaker, 32ohm, 0.4W, housing PS4-3 PS4124-2M	1	527
Moving coil galvanometer, 1mA, housing PS4-3 PS4124-2U		

Empty housings

Empty housings

Lista de artigos:

Lista de artigos:

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Bestell-Nr.

Anz.
528

Set of empty PS4-1 housings

PS4124-6A

1
529

Set of empty PS4-2 housings

PS4124-6B

1
530

Set of empty PS4-3 housings

PS4124-6C

1
531

Set of empty PSA4-2 housings

PS4124-6D

1
532

Set of empty PSA4-3 housings

PS4124-6E

1

EloTrain plug-in boards



EloTrain plug-in boards

Plug-in board for both 4-mm and 2-mm plug-in component systems for building your own experiments in highly compact circuits using plug-in modules. Various sizes of component mean that easily understood circuit layouts can be assembled with components at various

distances apart.

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
533

EloTrain plug-in board 2/4mm, 120 nodes

CO3535-5H

1

534

EloTrain storage board for 4-mm plug-in components

PS4200-3A

1

EloTrain power supplies



EloTrain power supplies

Multi-functional, compact power supply plus function generator and three-phase supply for all basic and advanced experiments in the areas of electrical engineering, electronics and digital technology. The equipment is available in the form of a desk-top unit or for mounting in a 3HU power supply duct.

Lista de artigos:

Lista de artigos:

Pos.

Nome do produto

Bestell-Nr.

Anz.
535

Multi Power Supply 4 x DC, 2 x AC, trifásica, gerador de funções

CO3538-8M

1

536

Multi Power Supply CC, CA, trifásico, gerador de funções, 60UD

ST8008-6K

1

Table-top housing for 60 PU inserts incl. connection for non-heating components
ST8008-7K

1

EloTrain media



EloTrain media

High-quality, colour-printed manual bound with a strong spine and containing solutions.

Includes:

- High-quality printed teachers' section
- CD-ROM with additional student workbook
- Theoretical background
- Colour CAD drawings for experiment set-ups and circuits
- Exercises and worksheets
- Colour printed on 100-g/m² Color-Copy paper with cover in 210 g/m² glossy paper

Lista de artigos:

Lista de artigos:

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Bestell-Nr.

Anz.

538

Manual, EloTrain: Direct Current

SH5002-7B

1

539

Manual, EloTrain: AC and three-phase current

SH5002-7D

1

540

Manual, EloTrain: Semiconductor components

SH5002-7H	1
	541
Manual, EloTrain: Basic electronic circuits	
SH5002-7J	1
	542
Manual, EloTrain: Optoelectronics	
SH5002-7K	1
	543
Manual, EloTrain Introduction to digital technology	
SH5002-8B	1
	544
Manual, EloTrain: Sequential circuits	
SH5002-8D	1
	545
Manual EloTrain Fundamentos da elétrica / eletrônica no veículo 1	
SH5005-1V	1

EloTrain Accessories:

EloTrain Accessories:

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Lista de artigos:

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Nome do produto

Bestell-Nr.

Anz.

546

Multímetro digital Max 10

LM2332

2

547

Osciloscópio digital de armazenamento, de 2 canais e ecrã a cores, incluindo sondas de 30MHz

LM6210

	1
	548
Test lead, BNC/2x 4mm plug, 1.5m LM9032	
	2
	549
EloTrain case to hold DIN A4 board, multi power supply and for storing plug-in components SO5127-3L	
	1
	550
EloTrain case to hold 2 DIN A4 boards, power supply and for storing plug-in components SO5127-3B	
	1
	551
Connection plugs 2mm/7,5mm, black, gold plated SO5124-6F	
	1
	552
Plugues de ligação de segurança 4mm com tomada, 1000V/32A CAT II SO5126-3R	
	1