

# IEC-60617 Symbols

## Topics in this section

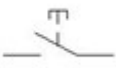


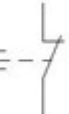
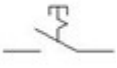

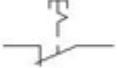

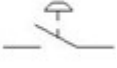
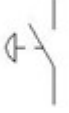
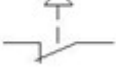
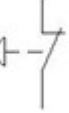
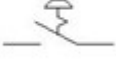

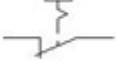
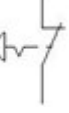




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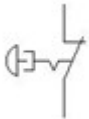



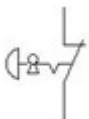



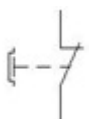








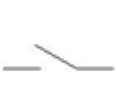

# Push Buttons

## Topics in this section

- [Push Buttons](#)
- [Illuminated Push Buttons](#)

# Push Buttons

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Push Button Normally Open Momentary
HPB11	VPB11	
		Push Button Normally Closed Momentary
HPB12	VPB12	
		Push Button Normally Open Latching
HPB11L	VPB11L	
		Push Button Normally Closed Latching
HPB12L	VPB12L	
		Mushroom Head Normally Open Momentary
HPB11M	VPB11M	
		Mushroom Head Normally Closed Momentary
HPB12M	VPB12M	
		Mushroom Head Normally Open Latching
HPB11ML	VPB11ML	
		Mushroom Head Normally Closed Latching
HPB12ML	VPB12ML	
		Mushroom Head Normally Open Twist Latch
HPB11MTL	VPB11MTL	
		Mushroom Head Normally Closed Twist Latch
HPB12MTL	VPB12MTL	

		Mushroom Head Normally Open Latching, Pull to Disengage
HPB11S80	VPB11S80	
		Mushroom Head Normally Closed Latching, Pull to Disengage
HPB12S80	VPB12S80	
		Mushroom Head Normally Open Latching, Key Operated
HPB11S82	VPB11S82	
		Mushroom Head Normally Closed Latching, Key Operated
HPB12S82	VPB12S82	
		Normally Open Push Button Recessed
HPB11RE	VPB11RE	
		Normally Closed Push Button Recessed
HPB12RE	VPB12RE	
		Normally Open Push Button Recessed Latched
HPB11REL	VPB11REL	
		Normally Closed Push Button Recessed Latched
HPB12REL	VPB12REL	
		Normally Open Push Button Positive Make
HPB11PM	VPB11PM	
		Normally Closed Push Button Positive Break
HPB12PB	VPB12PB	
		2nd+ Normally Open Contact
HPB21	VPB21	



HPB22

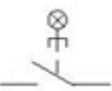
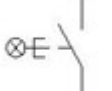
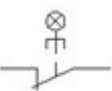
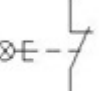


















VPB22

2nd+ Normally Closed Contact

# Illuminated Push Buttons

*Horizontal Symbol    Vertical Symbol    Description*

		Illuminated Push Button Normally Open
HPB11S75	VPB11S75	
		Illuminated Push Button Normally Closed
HPB12S75	VPB12S75	
		Non-Auto Return Push Button Normally Open
HPB11S76	VPB11S76	
		Non-Auto return Push Button Normally Closed
HPB12S76	VPB12S76	
		2nd+ Red Light
HPB2R	VPB2R	
		2nd+ Green Light
HPB2G	VPB2G	
		2nd+ Amber Light
HPB2A	VPB2A	
		2nd+ Yellow Light
HPB2Y	VPB2Y	
		2nd+ Blue Light
HPB2B	VPB2B	
		2nd+ White Light
HPB2W	VPB2W	



HPB2C



VPB2C

2nd+ Clear Light

# Selector Switches




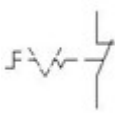



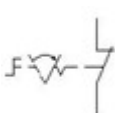

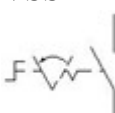

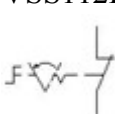


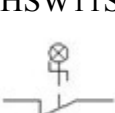
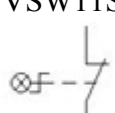
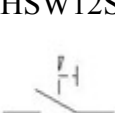

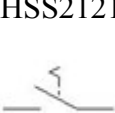

## Topics in this section

- [Selector Switches](#)
- [3 Position Selector Switches](#)
- [4 Position Selector Switches](#)



# Selector Switches

*Horizontal Symbol    Vertical Symbol    Description*

		2 Position Maintain, Normally Open
HSS112	VSS112	
		2 Position Maintain, Normally Closed
HSS122	VSS122	
		2 Position Normally Open Return From Left
HSS112L	VSS112L	
		2 Position Normally Closed Return From Left
HSS122L	VSS122L	
		2 Position Normally Open Return From Right
HSS112R	VSS112R	
		2 Position Normally Closed Return From Right
HSS122R	VSS122R	
		2 Position Normally Open with Lamp
HSW11S77	VSW11S77	
		2 Position Normally Closed with Lamp
HSW12S77	VSW12S77	
		Normally Open Contact with Manual Unlatching
HSS2121F	VSS2121F	
		Normally Open Contact with Maintained Position
HSS2122F	VSS2122F	



HSS217F



VSS217F

Normally Open Anticipated Contact

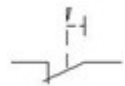


HSS218F



VSS218F

Normally Open Delayed Contact

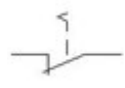


HSS2221F



VSS2221F

Normally Closed Contact with Manual Unlatching



HSS2222F



VSS2222F

Normally Closed Contact with Maintained Position



HSS227F



VSS227F

Normally Closed Anticipated Contact



HSS228F

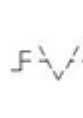


VSS228F

Normally Closed Delayed Contact



HSS11NL

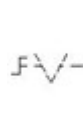


VSS11NL

Non-Latched, Normally Open



HSS12NL



VSS12NL

Non-Latched, Normally Closed



HSS21



VSS21

2nd+ Normally Open Contact






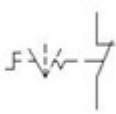



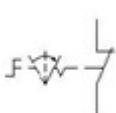



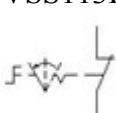
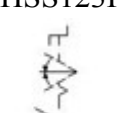
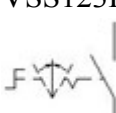

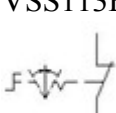



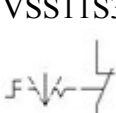
HSS22








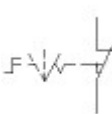



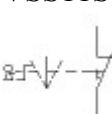




















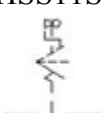

VSS22

2nd+ Normally Closed Contact








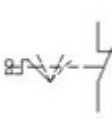


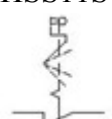





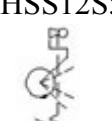



## 3 Position Selector Switches

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		3 Position Maintain, Normally Open
HSS113	VSS113	
		3 Position Maintain, Normally Closed
HSS123	VSS123	
		3 Position Normally Open Return From Left
HSS113L	VSS113L	
		3 Position Normally Closed Return From Left
HSS123L	VSS123L	
		3 Position Normally Open Return From Right
HSS113R	VSS113R	
		3 Position Normally Closed Return From Right
HSS123R	VSS123R	
		3 Position Normally Open Return From Both
HSS113B	VSS113B	
		3 Position Normally Closed Return From Both
HSS123B	VSS123B	
		3 Position Normally Open Neutral 0
HSS11S31	VSS11S31	
		3 Position Normally Closed Neutral 0
HSS12S31	VSS12S31	

		3 Position Normally Open Neutral 1
HSS11S32	VSS11S32	
		3 Position Normally Closed Neutral 1
HSS12S32	VSS12S32	
		3 Position Normally Open Neutral 2
HSS11S33	VSS11S33	
		3 Position Normally Closed Neutral 2
HSS12S33	VSS12S33	
		3 Position Normally Open Key Operated Neutral 0
HSS11S40	VSS11S40	
		3 Position Normally Closed Key Operated Neutral 0
HSS12S40	VSS12S40	
		3 Position Normally Open Key Operated Neutral 1
HSS11S41	VSS11S41	
		3 Position Normally Closed Key Operated Neutral 1
HSS12S41	VSS12S41	
		3 Position Normally Open Key Operated Neutral 2
HSS11S42	VSS11S42	
		3 Position Normally Closed Key Operated Neutral 2
HSS12S42	VSS12S42	
		3 Stable Position Normally Open Key Operated Neutral 0
HSS11S43	VSS11S43	

		3 Stable Position Normally Closed Key Operated Neutral 0
HSS12S43	VSS12S43	
		3 Stable Position Normally Open Key Operated Neutral 1
HSS11S44	VSS11S44	
		3 Stable Position Normally Closed Key Operated Neutral 1
HSS12S44	VSS12S44	
		3 Stable Position Normally Open Key Operated Neutral 2
HSS11S45	VSS11S45	
		3 Stable Position Normally Closed Key Operated Neutral 2
HSS12S45	VSS12S45	

# 4 Position Selector Switches









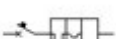



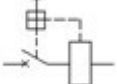





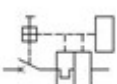

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		4 Position Maintain, Normally Open
HSS114	VSS114	
		4 Position Maintain, Normally Closed
HSS124	VSS124	
		4 Position Key Selector Normally Open
HSS11S46	VSS11S46	
		4 Position Key Selector Normally Closed
HSS12S46	VSS12S46	
		4 Stable Positions Key Selector Normally Open
HSS11S49	VSS11S49	
		4 Stable Positions Key Selector Normally Closed
HSS12S49	VSS12S49	
		4 Stable Positions Key Selector Normally Open- Rotating in 2 Ways
HSS11S50	VSS11S50	
		4 Stable Positions Key Selector Normally Closed- Rotating in 2 Ways
HSS12S50	VSS12S50	
		4 Stable Positions Key Selector Normally Open- Rotating CW
HSS11S51	VSS11S51	
		4 Stable Positions Key Selector Normally Closed- Rotating CW
HSS12S51	VSS12S51	

# Breakers, Disconnects

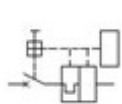
## Topics in this section

- [1 Pole Circuit Breakers](#)
- [2nd+ Pole Circuit Breakers](#)
- [Power Switches](#)
- [Fusible Disconnects](#)
- [Disconnect 1 Pole](#)

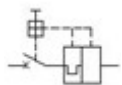
# 1 Pole Circuit Breakers

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Circuit Breaker 1 Pole
HCB1	VCB1	
		Thermal Circuit Breaker
HCB11TH	VCB11TH	
		Current Limit/Thermal
HCB11THI	VCB11THI	
		Magneto/Thermal
HCB11Q9	VCB11Q9	
		Magneto/Thermal with Differential
HCB11Q13	VCB11Q13	
		Differential
HCB11Q17	VCB11Q17	
		With Current Protection
HCB11Q29	VCB11Q29	
		With Current Protection and Lack of Voltage Protection
HCB11Q33	VCB11Q33	
		With Max. Current and Min. Voltage Protection
HCB11Q37	VCB11Q37	
		With Max. Thermal/Current and Min. Voltage Protection
HCB11Q41	VCB11Q41	

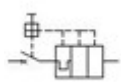




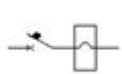
HCB11Q45



HCB11Q21



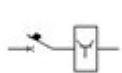
HCB11Q25



HCB11Q146



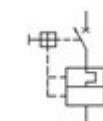
HCB11Q134



HCB11Q138



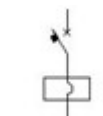
VCB11Q45



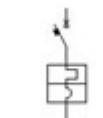
VCB11Q21



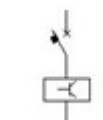
VCB11Q25



VCB11Q146



VCB11Q134



VCB11Q138

With Max. Thermal and Min. Voltage Protection

With Max. Thermal and Current Protection



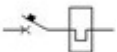











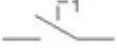

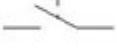



With Max. Thermal Protection and Differential










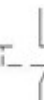

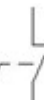










1 Pole Auto Switch with Magneto

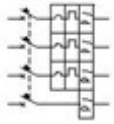
1 Pole Auto Magneto-Thermal Switch/Disconnect

1 Pole Auto Disconnect Switch with Electronic Relay

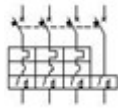
# 2nd+ Pole Circuit Breakers

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Circuit Breaker 2nd+ Pole
HCB2	VCB2	
		Thermal 2nd+ Pole
HCB21TH	VCB21TH	
		Current Limit/Thermal 2nd+ Pole
HCB21THI	VCB21THI	
		Disconnect 2nd+ Pole
HDS21	VDS21	
		Disconnect Normally Open Auxiliary Contact
HDS21AUX	VDS21AUX	
		Disconnect Normally Closed Auxiliary Contact
HDS22AUX	VDS22AUX	
		Auto Return
HCB2120F	VCB2120F	
		With Mechanical Block and Manual Unlatching
HCB2121F	VCB2121F	
		With Maintained Position
HCB2122F	VCB2122F	
		Anticipated Contact
HCB217F	VCB217F	

		Delayed Contact
HC218F	VC218F	
		Circuit Breaker Normally Open Auxiliary Contact
HC21	VC21	
		Circuit Breaker Normally Closed Auxiliary Contact
HC22	VC22	
		Auto Return
HC2220F	VC2220F	
		With Mechanical Block and Manual Unlatching
HC2221F	VC2221F	
		With Maintained Position
HC2222F	VC2222F	
		Anticipated Contact
HC2227F	VC2227F	
		Delayed Contact
HC2228F	VC2228F	
		2 P Magneto-Thermal Switch, 1P Protected
HC1Q142	VC1Q142	
		4 P Magneto-Thermal Switch, 3P Protected
HC1Q143	VC1Q143	
		2 P Magneto-Thermal Switch with Differential, 1P Protected
HC1Q144	VC1Q144	

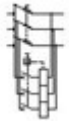


HCB1Q145



VCB1Q145

4 P Magneto-Thermal Switch with Differential, 3P Protected



HDS1Q93

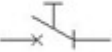
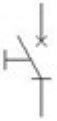

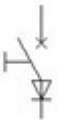
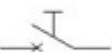
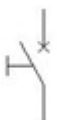


VDS1Q93

3 P 2 Way Disconnect Switch with Fuses


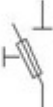












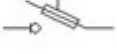

# Power Switches

*Horizontal Symbol    Vertical Symbol    Description*

		1P with Semiconductors
HCB11Q53	VCB11Q53	
		1P with Semiconductors - unidirectional
HCB11Q57	VCB11Q57	
		2P Power Switch
HCB11Q50	VCB11Q50	

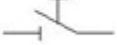





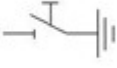



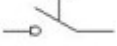




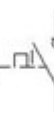
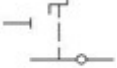

# Fusible Disconnects

*Horizontal Symbol    Vertical Symbol    Description*

		Fused switch
HDS11F	VDS11F	
		2nd+ Pole Fused Switch
HDS21F	VDS21F	
		Auxiliary Contact, Normally Open
HDS21AUX	VDS21AUX	
		Auxiliary Contact, Normally Closed
HDS22AUX	VDS22AUX	
		1 Pole on load
HDS10L	VDS10L	
		2nd+ Pole on load
HDS20L	VDS20L	
		1 Phase Disconnect with Fuse
HDS11Q81	VDS11Q81	
		1 Phase maneuver Switch/Disconnect with Fuse
HDS11Q85	VDS11Q85	

# Disconnect 1 Pole

*Horizontal Symbol    Vertical Symbol    Description*

		Disconnect 1 Pole
HDS11Q65	VDS11Q65	
		Disconnect 1 Pole Non-Fused
HDS11	VDS11	
		Maneuver Switch with Fuse
HDS11Q119	VDS11Q119	
		PE Earthing Switch
HDS11Q123	VDS11Q123	
		Power Auto Switch/Disconnect
HDS11Q5	VDS11Q5	
		Maneuver Switch/Disconnect
HDS11Q69	VDS11Q69	
		Disconnect with Lock Device
HDS11Q73	VDS11Q73	
		Switch/Disconnect with Lock Device
HDS11Q77	VDS11Q77	
		Two Way Disconnect with 3 Positions
HDS11Q89	VDS11Q89	









# Fuses, Transformers, Reactors

## Topics in this section

- [Reactors](#)
- [Fuses](#)
- [Fuse Switches](#)
- [Transformers](#)
- [Current Transformers](#)
- [3 Phase Transformers](#)







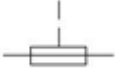



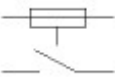



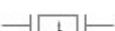

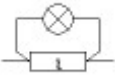





# Reactors

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Reactors - General
HRT1	VRT1	
		Reactors - Iron cored
HRT1IC	VRT1IC	
		Inductor With Magnetic Core Air Gap
HRT1L3	VRT1L3	
		Inductor With Magnetic Core Continuously Variable
HRT1L4	VRT1L4	

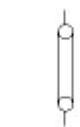
# Fuses

*Horizontal Symbol    Vertical Symbol    Description*

		Fuse
HFU1	VFU1	
		Fuse Auxiliary Contact, Normally Open
HFU21	VFU21	
		Fuse Auxiliary Contact, Normally Closed
HFU22	VFU22	
		Stiker
HFU1ST	VFU1ST	
		With alarm contact
HFU1AC	VFU1AC	
		With separate alarm contact
HFU1SAC	VFU1SAC	
		1 Pole - Live Side
HFU1LS	VFU1LS	
		1 Phase Fuse
HFU1F11	VFU1F11	
		Fuse with Incandescent Light Indication
HFU1F15	VFU1F15	
		Fuse with LED Indication
HFU1F16	VFU1F16	



HFU1NLC



VFU1NLC

Neutral Link - Closed



HFU1NLO







VFU1NLO

Neutral Link - Open

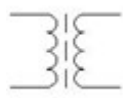
# Fuse Switches

*Horizontal Symbol    Vertical Symbol    Description*

		1 Pole
HFU1FS	VFU1FS	
		1 Pole Child
HFU2FS	VFU2FS	

# Transformers

*Horizontal Symbol    Vertical Symbol    Description*

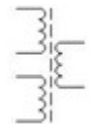


HXF1



VXF1

Transformer Single

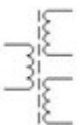


HXF1D



VXF1D

Transformer Dual



HXF1DR



VXF1DR

Transformer Dual (flipped)

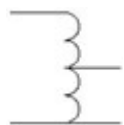


HXF1PT



VXF1PT

PT Potential Transformer



HXF1P1AUTO

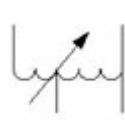


VXF1P1AUTO

Single phase auto

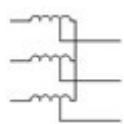


HXF1T18

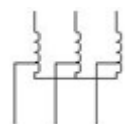


VXF1T18

1 Phase Autotransformer



HXF1T19



VXF1T19

3 Phase Autotransformer Star Connected

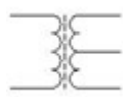


HXF1T2

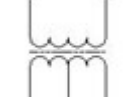


VXF1T2

Power Transformer 1 with 2 Windings

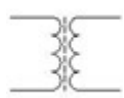


HXF1T4

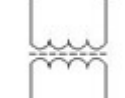


VXF1T4

Power Transformer 2 with 2 Windings



HXF1T3

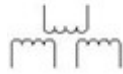


VXF1T3

Power Transformer with 2 Windings and Screen



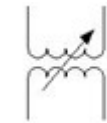
HXF1T6



VXF1T6



HXF1T5



VXF1T5



HXF1T34















VXF1T34

Power Transformer with 3 Windings

Adjustable Power Transformer with 2 Windings

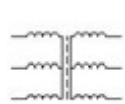
Voltage Transformer

# Current Transformers

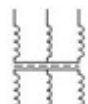
<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		CT Current Transformer
HXF1CT	VXF1CT	
		CT (Flipped)
HXF1CTR	VXF1CTR	
		Current Transformer 2
HXF1T1	VXF1T1	
		With 2 Secondaries - Common Magnetic Circuit
HXF1T31	VXF1T31	
		With Tapped Secondary Winding
HXF1T32	VXF1T32	
		With Conductor Indication
HXF1T33	VXF1T33	

# 3 Phase Transformers

*Horizontal Symbol    Vertical Symbol    Description*



HXF1P3



VXF1P3

3 Phase

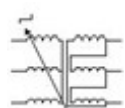


HXF1P3SD

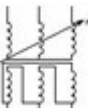


VXF1P3SD

3 Phase Star/Delta



HXF1T11



VXF1T11

3 Phase Star/Delta Primary with Sockets



HXF1T12



VXF1T12

3 Phase Star/Zigzag



HXF1T13



VXF1T13

3 Phase Delta/Delta



HXF1T14



VXF1T14

3 Phase Delta/Star

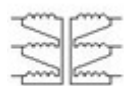


HXF1T15



VXF1T15

3 Phase Star/Star/Delta with 3 Windings



HXF1T20



VXF1T20

3 Phase Delta/Delta



HXF1T7



VXF1T7

3 Phase Star/Star



HXF1T8



VXF1T8

3 Phase Star/Star Secondary with Neutral





HXF1T9



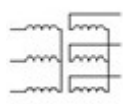
HXF1T21



HXF1T22



HXF1T23



HXF1T24



HXF1T25



HXF1T26



HXF1T27



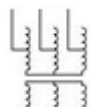
HXF1T28



HXF1T29



HXF1T30



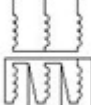
VXF1T9



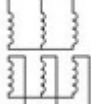
VXF1T21



VXF1T22



VXF1T23



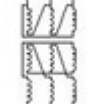
VXF1T24



VXF1T25



VXF1T26



VXF1T27



VXF1T28



VXF1T29



VXF1T30

3 Phase Star/Star Primary with Plugs

3 Phase Dy5

3 Phase Dd6

3 Phase Yd5

3 Phase Yy6

3 Phase Yd11

3 Phase Dy11

3 Phase Dz0

3 Phase Yz5

3 Phase Dz6











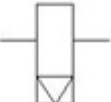
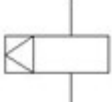
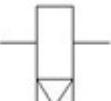
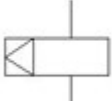


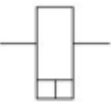
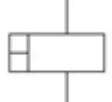


3 Phase Yz11

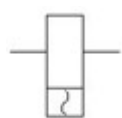
# Relays, Contacts

## Topics in this section

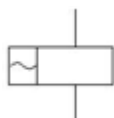
- [Relays and Contacts](#)
- [Relays with Suppression](#)
- [Current Protection Relays](#)
- [Voltage Protection Relays](#)
- [Counter Relays](#)
- [Miscellaneous Relays](#)

# Relays and Contacts

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Relay Normally Open Contact
HCR21	VCR21	
		Relay Normally Closed Contact
HCR22	VCR22	
		Relay Form C
HCR23R	VCR23R	
		Relay Form C Flipped
HCR23	VCR23	
		Relay Coil
HCR1	VCR1	
		Latch Relay Coil
HLR1	VLR1	
		Latch relay (child coil)
HLR2	VLR2	
		Solid State
HCR1SSD	VCR1SSD	
		High Speed
HCR1HSP	VCR1HSP	
		AC Unaffected
HCR1ACU	VCR1ACU	

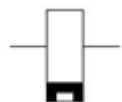


HCR1AC

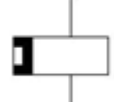


VCR1AC

AC



HCR1POL



VCR1POL

Polarized



HCR1MSR



VCR1MSR

Measuring

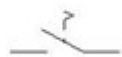


HCR2121F

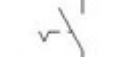


VCR2121F

With Mechanical Block and Manual Unlatching



HCR2122F



VCR2122F

With Maintained Position



HCR217F



VCR217F

Anticipated Contact



HCR218F



VCR218F

Delayed Contact

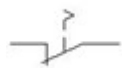


HCR2221F

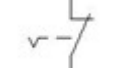


VCR2221F

With Mechanical Block and Manual Unlatching



HCR2222F



VCR2222F

With Maintained Position



HCR227F



VCR227F

Anticipated Contact

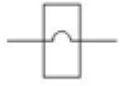


HCR228F

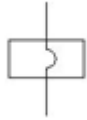


VCR228F

Delayed Contact



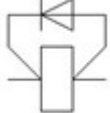
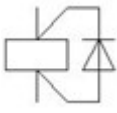

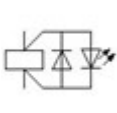

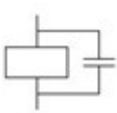
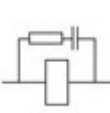
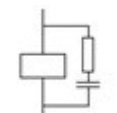
HCR1F34



VCR1F34

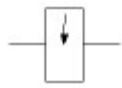
Magnetic Protection

# Relays with Suppression

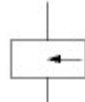
<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Relay with Integrated Block Diode
HCR1K33	VCR1K33	
		Relay with Integrated Block Diode and Integrated LED
HCR1K35	VCR1K35	
		Relay with Capacitor
HCR1K37	VCR1K37	
		Relay with RC Circuit
HCR1K39	VCR1K39	

# Current Protection Relays

*Horizontal Symbol    Vertical Symbol    Description*

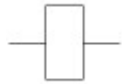


HCR1F28



VCR1F28

Come Back Current Protection

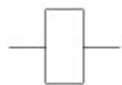


HCR1F29



VCR1F29

Differential Current Protection



HCR1F30



VCR1F30

Differential Current Protection - Relative Value



HCR1F25



VCR1F25

Maximum Current Protection



HCR1F26



VCR1F26

Minimum Current Protection

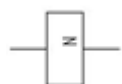


HCR1F27



VCR1F27

Minimum and Maximum Current Protection



HCR1F32



VCR1F32

In Neutral



HCR1F33



VCR1F33

In Neutral between 2 Multi-Phase Systems



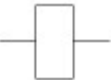
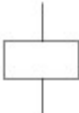
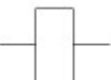
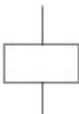

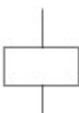

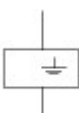
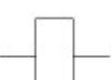
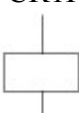
HCR1F37



VCR1F37

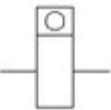
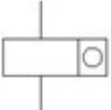
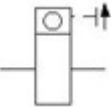
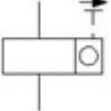
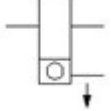
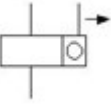
Ground Failure Current Protection

# Voltage Protection Relays


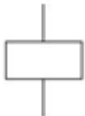

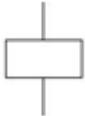

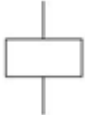

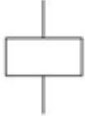

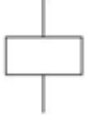
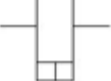
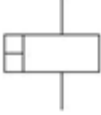

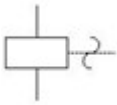
<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Minimum Voltage Protection
HCR1F35	VCR1F35	
		Maximum Voltage Protection
HCR1F36	VCR1F36	
		Residual Voltage Protection
HCR1F38	VCR1F38	
		Ground Failure Voltage Protection
HCR1F31	VCR1F31	
		Lack of Voltage Protection
HCR1F39	VCR1F39	



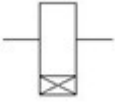
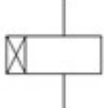
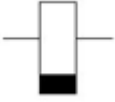
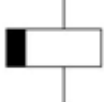
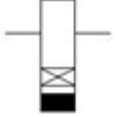
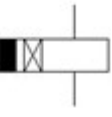
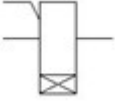
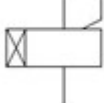
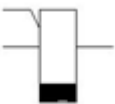
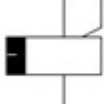
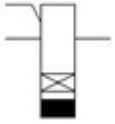
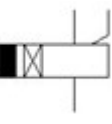
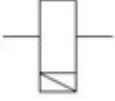
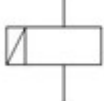






# Counter Relays

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Counter No Reset
HCR1CNN	VCR1CNN	
		Counter Manual Reset
HCR1CNM	VCR1CNM	
		Counter Electronic Reset
HCR1CNE	VCR1CNE	

# Miscellaneous Relays

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Frequency Relay
HCR1F40	VCR1F40	
		Minimum Impedance Relay
HCR1F41	VCR1F41	
		Relay Sensing Lack of Phase in Three Phase System
HCR1F42	VCR1F42	
		Minimum Active Power Relay
HCR1F43	VCR1F43	
		Insulating Relay
HCR1F44	VCR1F44	
		Quick Relay Coil
HCR1K1	VCR1K1	
		Mechanical Resonance Relay
HCR1K11	VCR1K11	

# Time Delay Relays

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		ON Delay Coil
HTD1N	VTD1N	
		OFF Delay Coil
HTD1F	VTD1F	
		ON/OFF Delay
HCR1OOD	VCR1OOD	
		3 Clamp Delay Relay - Energized
HTD1K25	VTD1K25	
		3 Clamp Delay Relay - De-energized
HTD1K27	VTD1K27	
		3 Clamp Delay Relay - Energized/De-energized
HTD1K29	VTD1K29	
		Latency Relay
HTD1K5	VTD1K5	
		ON Delay Normally Open(Delay Close)
HTD21N	VTD21N	
		ON Delay Normally Closed(Delay Open)
HTD22N	VTD22N	
		OFF Delay Normally Open (Instant Close/Delay Open)
HTD21F	VTD21F	



HTD22F



HTD21I



HTD22I



HTD21IF



HTD22IF



HTD21DOO



HTD22DOO



VTD22F



VTD21I



VTD22I



VTD21IF



VTD22IF



VTD21DOO



VTD22DOO

OFF Delay Normally Closed (Instant Open/Delay Close)

Normally Open Contact (Instant)

Normally Closed Contact (Instant)

Normally Open Contact (Instant-for Delay Close)

Normally Closed Contact (Instant-for Delay Close)

Normally Open Delay ON/OFF

Normally Closed Delay ON/OFF







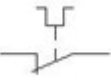
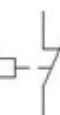
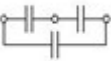
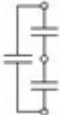
# Motor Control

## Topics in this section

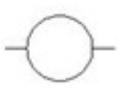
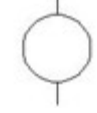
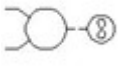

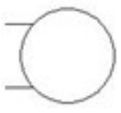





- [Motor Control](#)
- [1 Phase Motors](#)
- [3 Phase Motors](#)
- [DC Motors](#)
- [Generators](#)
- [Motor Starters](#)

# Motor Control





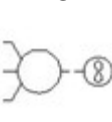
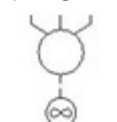
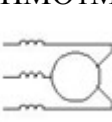
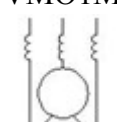
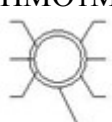
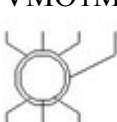
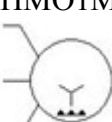

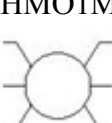
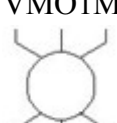
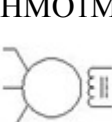

*Horizontal Symbol    Vertical Symbol    Description*

		Overload, 1 Pole
HOL1	VOL1	
		2nd+ Overload Pole
HOL2	VOL2	
		2nd+ Overload, Normally Open Contact
HOL21	VOL21	
		2nd+ Overload, Normally Closed Contact
HOL22	VOL22	
		3 Phase KVAR Capacitor
HCA113	VCA113	

# 1 Phase Motors

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		1 Phase Motor
HMO12	VMO12	
		1 Phase Motor with Fan
HMO1M3M	VMO1M3M	
		1 Phase AC Motor
HMO1M9	VMO1M9	
		1 Phase AC Motor in Series Connection
HMO1M10	VMO1M10	
		1 Phase Synchronous AC Motor
HMO1M16	VMO1M16	

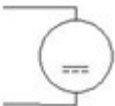













# 3 Phase Motors

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		3 Phase Motor
HMO13	VMO13	
		3 Phase Motor (4 Connections)
HMO14	VMO14	
		3 Phase Motor with Fan
HMO1M2	VMO1M2	
		3 Phase Asynchro Motor with Series Excitation
HMO1M3	VMO1M3	
		3 Phase Asynchro Wound-Rotor Motor
HMO1M4	VMO1M4	
		3 Phase Asynchro Star Connected Stator Auto Starter on Rotor
HMO1M5	VMO1M5	
		3 Phase Asynchro Motor - 6 Pole
HMO1M11	VMO1M11	
		3 Phase Synchronous AC Motor
HMO1M17	VMO1M17	





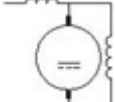
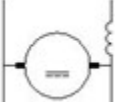


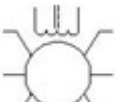



# DC Motors

*Horizontal Symbol    Vertical Symbol    Description*

		DC Motor
HMO1M6	VMO1M6	
		DC Motor with Permanent Magnets
HMO1M13	VMO1M13	
		DC Motor - Linear with Permanent Magnets
HMO1M14	VMO1M14	
		DC Motor - Stepping with Permanent Magnets
HMO1M15	VMO1M15	
		DC Motor - Series Excitation
HMO1M7	VMO1M7	
		DC Motor - Derived Excitation
HMO1M8	VMO1M8	
		DC Motor - Independent Excitation
HMO1M12	VMO1M12	


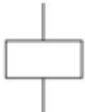








# Generators

*Horizontal Symbol    Vertical Symbol    Description*

		DC Generator
HPW1G9	VPW1G9	
		DC Generator with Compound Excitation
HPW1G10	VPW1G10	
		3 Phase Synchro Generator with Permanent Magnets
HPW1G6	VPW1G6	
		3 Phase Synchro Generator 1
HPW1G7	VPW1G7	
		3 Phase Synchro Generator 2
HPW1G8	VPW1G8	

# Motor Starters

*Horizontal Symbol    Vertical Symbol    Description*

		Motor Starter Coil
HMS1	VMS1	
		Motor Starter 1 Pole Normally Open (Power)
HMS21P	VMS21P	
		Motor Starter 1 Pole Normally Closed (Power)
HMS22P	VMS22P	
		2nd+ Motor Starter Normally Open
HMS21	VMS21	
		2nd+ Motor Starter Normally Closed
HMS22	VMS22	







# Pilot Lights

## Topics in this section

- [Pilot Lights](#)
- [Standard Lights](#)
- [Transformer Lights](#)
- [Push to Test Lights](#)
- [LEDs](#)
- [Beacons - Flashing](#)
- [Beacons - Rotating](#)















# Pilot Lights

*Horizontal Symbol    Vertical Symbol    Description*

		Blinking Device
HLT1H21	VLT1H21	
		Neon Lamp
HLT1H22	VLT1H22	
		Incandescent Lamp
HLT1H24	VLT1H24	


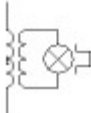
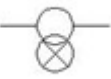

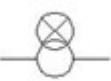

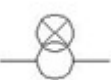





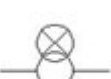





# Standard Lights

*Horizontal Symbol    Vertical Symbol    Description*

		Red Standard
HLT1R	VLT1R	
		Green Standard
HLT1G	VLT1G	
		Orange Standard
HLT1A	VLT1A	
		Yellow Standard
HLT1Y	VLT1Y	
		Blue Standard
HLT1B	VLT1B	
		White Standard
HLT1W	VLT1W	
		Clear Standard
HLT1C	VLT1C	



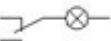

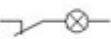

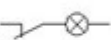

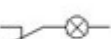





NoteLights receive text to indicate the color at the time of insertion.

# Transformer Lights

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Blinking Light - Bulb with Transformer
HLT1H10	VLT1H10	
		Indicator Lamp Energized by Built-in Transformer
HLT1H23A	VLT1H23A	
		Red
HLT1RT	VLT1RT	
		Green
HLT1GT	VLT1GT	
		Orange
HLT1AT	VLT1AT	
		Yellow
HLT1YT	VLT1YT	
		Blue
HLT1BT	VLT1BT	
		White
HLT1WT	VLT1WT	
		Clear
HLT1CT	VLT1CT	

NoteLights receive text to indicate the color at the time of insertion.

# Push to Test Lights

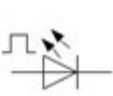
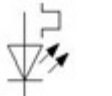
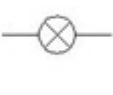

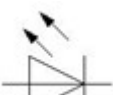
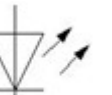
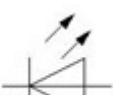
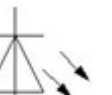
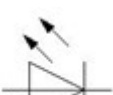

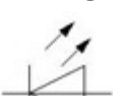
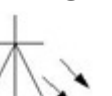
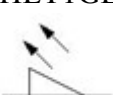


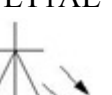
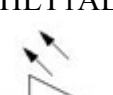



<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Red Press To Test
HLT1RP	VLT1RP	
		Green Press To Test
HLT1GP	VLT1GP	
		Orange Press To Test
HLT1AP	VLT1AP	
		Yellow Press To Test
HLT1YP	VLT1YP	
		Blue Press To Test
HLT1BP	VLT1BP	
		White Press To Test
HLT1WP	VLT1WP	
		Clear Press To Test
HLT1CP	VLT1CP	

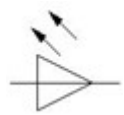
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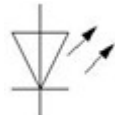
# LEDs

*Horizontal Symbol    Vertical Symbol    Description*

		Blinking LED
HLT1H13	VLT1H13	
		LED Indicator Lamp
HLT1H25	VLT1H25	
		Red
HLT1RL	VLT1RL	
		Red 180
HLT1RLR	VLT1RLR	
		Green
HLT1GL	VLT1GL	
		Green 180
HLT1GLR	VLT1GLR	
		Orange
HLT1AL	VLT1AL	
		Orange 180
HLT1ALR	VLT1ALR	
		Yellow
HLT1YL	VLT1YL	
		Yellow 180
HLT1YLR	VLT1YLR	

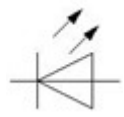


HLT1BL



VLT1BL

Blue

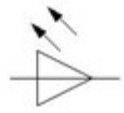


HLT1BLR

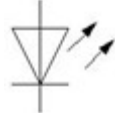


VLT1BLR

Blue 180



HLT1WL



VLT1WL

White

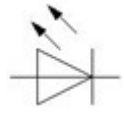


HLT1WLR

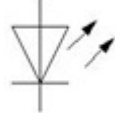


VLT1WLR

White 180

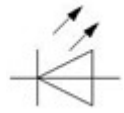


HLT1CL

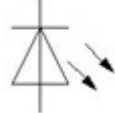


VLT1CL

Clear



HLT1CLR





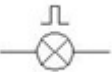

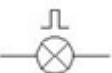









VLT1CLR

Clear 180

Note Lights receive text to indicate the color at the time of insertion.

# Beacons - Flashing















*Horizontal Symbol    Vertical Symbol    Description*

		Red
HBE1RFL	VBE1RFL	
		Green
HBE1GFL	VBE1GFL	
		Orange
HBE1AFL	VBE1AFL	
		Yellow
HBE1YFL	VBE1YFL	
		Blue
HBE1BFL	VBE1BFL	
		White
HBE1WFL	VBE1WFL	
		Clear
HBE1CFL	VBE1CFL	

NoteLights receive text to indicate the color at the time of insertion.

















# Beacons - Rotating

*Horizontal Symbol    Vertical Symbol    Description*

		Red
HBE1RRT	VBE1RRT	
		Green
HBE1GRT	VBE1GRT	
		Orange
HBE1ART	VBE1ART	
		Yellow
HBE1YRT	VBE1YRT	
		Blue
HBE1BRT	VBE1BRT	
		White
HBE1WRT	VBE1WRT	
		Clear
HBE1CRT	VBE1CRT	

NoteLights receive text to indicate the color at the time of insertion.

# PLC I/O









<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		IN, 1st Point, 1 Wire
PLCIOI1T	PLCIOI1TV	
		IN, 1st Point, 2 Wires
PLCIOI2T	PLCIOI2TV	
		OUT, 1st Point, 1 Wire
PLCIOO1T	PLCIOO1TV	
		OUT, 1st Point, 2 Wires
PLCIOO2T	PLCIOO2TV	
		IN, 2nd+ Child, 1 Wire
PLCIOI1	PLCIOI1V	
		IN, 2nd+ Child, 2 Wires
PLCIOI2	PLCIOI2V	
		OUT, 2nd+ Child, 1 Wire
PLCIOO1	PLCIOO1V	
		OUT, 2nd+ Child, 2 Wires
PLCIOO2	PLCIOO2V	

# Terminals, Connectors

## Topics in this section


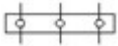




- [Terminals](#)
- [Power Distribution Blocks](#)
- [Connectors - No Wirenumber Changes](#)
- [Connectors - Wirenumber Changes](#)

# Terminals

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Round
HT0_02	VT0_02	
		Round with Wire Number
HT0W02	VT0W02	
		Round with Terminal Number
HT0002	VT0002	
		Round with Wire Number Change
HT1002	VT1002	

# Power Distribution Blocks





















*Horizontal Symbol    Vertical Symbol    Description*

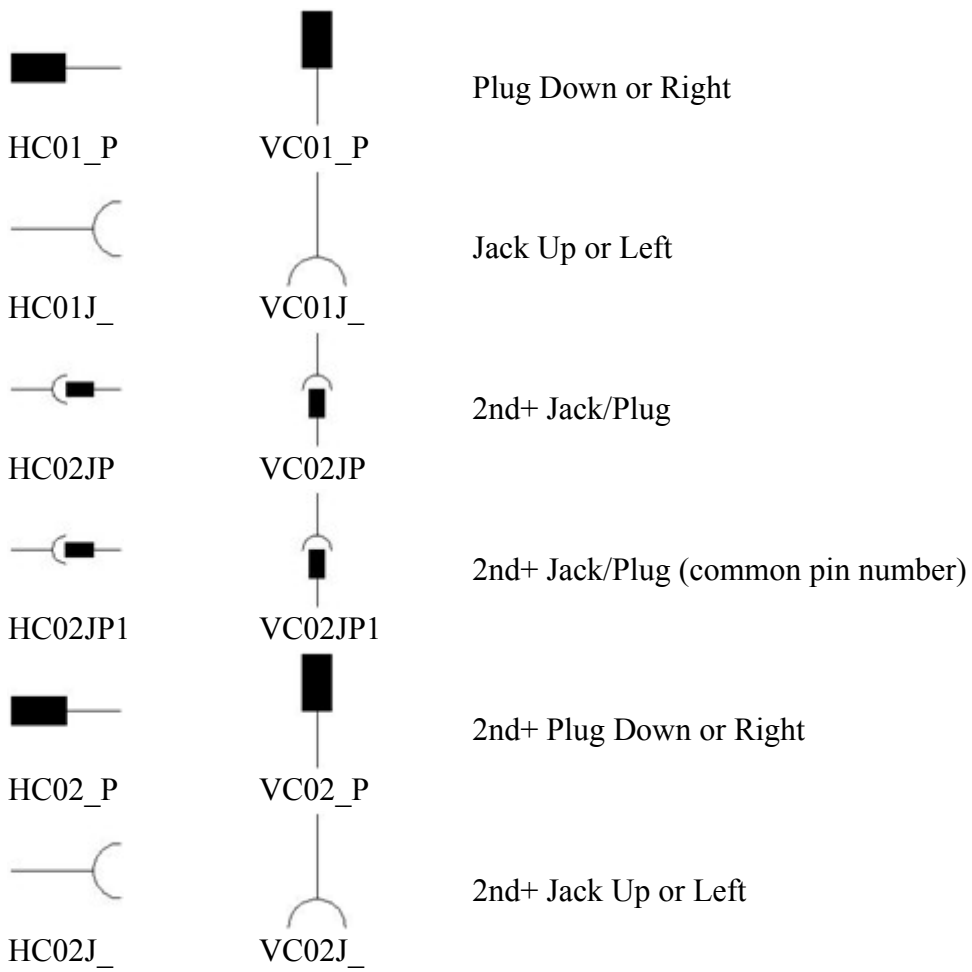
		3 Terminal, 10 Unit Spacing
HDB1308	VDB1308	
		3 Terminal, 15 Unit Spacing
HDB1312	VDB1312	
		3 Terminal, 20 Unit Spacing
HDB1316	VDB1316	



# Connectors - No Wirenumber Changes





















*Horizontal Symbol    Vertical Symbol    Description*

		Plug/Jack
HC01PJ	VC01PJ	
		Plug/Jack (common pin number)
HC01PJ1	VC01PJ1	
		Plug Up or Left
HC01P_	VC01P_	
		Jack Down or Right
HC01_J	VC01_J	
		2nd+ Plug/Jack
HC02PJ	VC02PJ	
		2nd+ Plug/Jack (common pin number)
HC02PJ1	VC02PJ1	
		2nd+ Plug Up or Left
HC02P_	VC02P_	
		2nd+ Jack Down or Right
HC02_J	VC02_J	
		Jack/Plug
HC01JP	VC01JP	
		Jack/Plug (common pin number)
HC01JP1	VC01JP1	



# Connectors - Wirenumber Changes

*Horizontal Symbol    Vertical Symbol    Description*

		Plug/Jack
HCN1PJ	VCN1PJ	
		Plug Up or Left
HC01P_	VC01P_	
		Jack Down or Right
HC01_J	VC01_J	
		2nd+ Plug/Jack
HCN2PJ	VCN2PJ	
		2nd+ Plug Up or Left
HC02P_	VC02P_	
		2nd+ Jack Down or Right
HC02_J	VC02_J	
		Jack/Plug
HCN1JP	VCN1JP	
		Plug Down or Right
HC01_P	VC01_P	
		Jack Up or Left
HC01J_	VC01J_	
		2nd+ Jack/Plug
HCN2JP	VCN2JP	



HC02\_P



HC02J\_



VC02\_P



VC02J\_

2nd+ Plug Down or Right

2nd+ Jack Up or Left

# Limit Switches

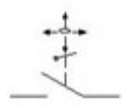
<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Limit Switch Normally Open
HLS11	VLS11	
		Limit Switch Normally Closed
HLS12	VLS12	
		Limit Switch, Roller Normally Open
HLS11C	VLS11C	
		Limit Switch, Roller Normally Closed
HLS12C	VLS12C	
		Limit Switch Normally Open - Cam Driven
HLS11S13	VLS11S13	
		Limit Switch Normally Closed - Cam Driven
HLS12S13	VLS12S13	
		Limit Switch Normally Open - Events Driven
HLS11S16	VLS11S16	
		Limit Switch Normally Closed - Events Driven
HLS12S16	VLS12S16	
		2 Position Switch Normally Open with Detents and Lamp
HLS11S78	VLS11S78	
		2 Position Switch Normally Closed with Detents and Lamp
HLS12S78	VLS12S78	



HLS11S84



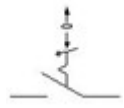
HLS12S84



HLS11S85



HLS12S85



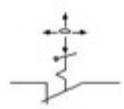
HLS11S87



HLS12S87



HLS11S88



HLS12S88



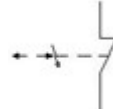
HLS21



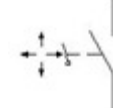
HLS22



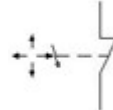
VLS11S84



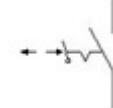
VLS12S84



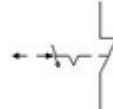
VLS11S85



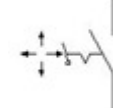
VLS12S85



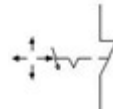
VLS11S87



VLS12S87



VLS11S88



VLS12S88



VLS21



VLS22

Bi-directional Lever Actuated - Normally Open

Bi-directional Lever Actuated - Normally Closed

Four-directional Lever Actuated - Normally Open

Four-directional Lever Actuated - Normally Closed

Bi-directional Lever Actuated - Normally Open with Detent

Bi-directional Lever Actuated - Normally Closed with Detent

Four-directional Lever Actuated - Normally Open with Detent

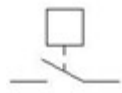
Four-directional Lever Actuated - Normally Closed with Detent

2nd+ Normally Open Contact

2nd+ Normally Closed Contact

# Pressure and Temperature Switches

*Horizontal Symbol    Vertical Symbol    Description*



HPS11



VPS11

Pressure Switch, Normally Open

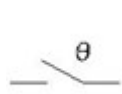


HPS12



VPS12

Pressure Switch, Normally Closed

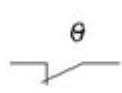


HTS11

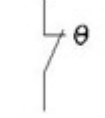


VTS11

Temperature Switch 1, Normally Open

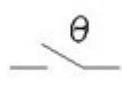


HTS12

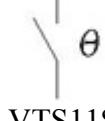


VTS12

Temperature Switch 1, Normally Closed

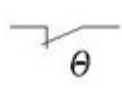


HTS11S74

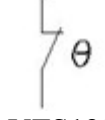


VTS11S74

Temperature Switch 3, Normally Open



HTS12S74



VTS12S74

Temperature Switch 3, Normally Closed



HSW21



VSW21

2nd+ Normally Open Contact



HSW22



VSW22

2nd+ Normally Closed Contact



HTS12S59C



VTS12S59C

Thermal Switch Normally Closed, Self-operating

# Proximity Switches











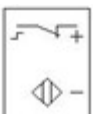
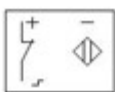

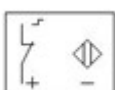
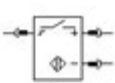
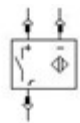
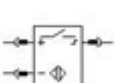
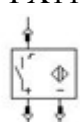
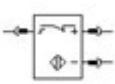
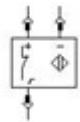
## Topics in this section

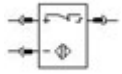
- [Inductive Switches](#)
- [Capacitive Switches](#)
- [Magnetic Switches](#)
- [Photoelectric Emitter Switches](#)
- [Photoelectric Receiver Switches](#)
- [Photoelectric Emitter/Receiver Switches](#)
- [Ultrasonic Switches](#)
- [Touch Switches](#)



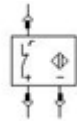
# Inductive Switches

*Horizontal Symbol    Vertical Symbol    Description*

		Ferrous
HPX1I	VPX1I	
		Ferrous Proximity Switch, Normally Open
HPX11I	VPX11I	
		Ferrous Proximity Switch, Normally Closed
HPX12I	VPX12I	
		Normally Open 3 Wire
HPX11IN3	VPX11IN3	
		Normally Open 3 Wire 180
HPX11IN3R	VPX11IN3R	
		Normally Closed 3 Wire
HPX12IN3	VPX12IN3	
		Normally Closed 3 Wire 180
HPX12IN3R	VPX12IN3R	
		Normally Open 3 Wire with connector
HPX11IN3C	VPX11IN3C	
		Normally Open 3 Wire 180 with connector
HPX11IN3RC	VPX11IN3RC	
		Normally Closed 3 Wire with connector
HPX12IN3C	VPX12IN3C	



HPX12IN3RC



VPX12IN3RC

Normally Closed 3 Wire 180 with connector



HSW21



VSW21

2nd+ Normally Open Contact



HSW22

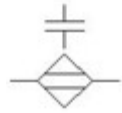


VSW22

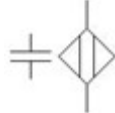
2nd+ Normally Closed Contact

# Capacitive Switches

*Horizontal Symbol    Vertical Symbol    Description*



HPX1C



VPX1C

Capacitive



HPX11C

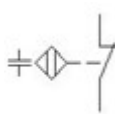


VPX11C

Capacitive Switch, Normally Open

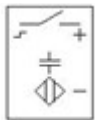


HPX12C



VPX12C

Capacitive Switch, Normally Closed

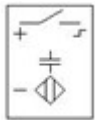


HPX11C3

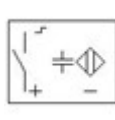


VPX11C3

Normally Open 3 Wire

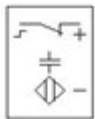


HPX11C3R



VPX11C3R

Normally Open 3 Wire 180

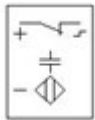


HPX12C3

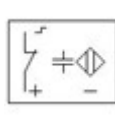


VPX12C3

Normally Closed 3 Wire

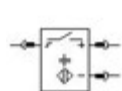


HPX12C3R

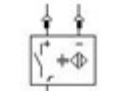


VPX12C3R

Normally Closed 3 Wire 180

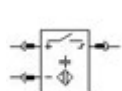


HPX11C3C

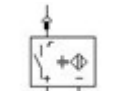


VPX11C3C

Normally Open 3 Wire with connector



HPX11C3RC

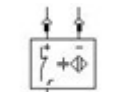


VPX11C3RC

Normally Open 3 Wire 180 with connector

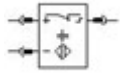


HPX12C3C



VPX12C3C

Normally Closed 3 Wire with connector



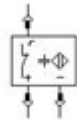
HPX12C3RC



HSW21



HSW22



VPX12C3RC



VSW21



VSW22













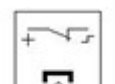

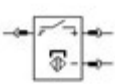
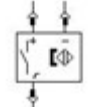
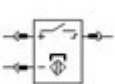
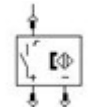

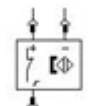
Normally Closed 3 Wire 180 with connector

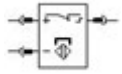
2nd+ Normally Open Contact

2nd+ Normally Closed Contact

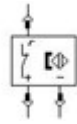
# Magnetic Switches

*Horizontal Symbol    Vertical Symbol    Description*

		Magnetic
HPX11M	VPX11M	
		Magnetic Proximity Switch, Normally Open
HPX11M	VPX11M	
		Magnetic Proximity Switch, Normally Closed
HPX12M	VPX12M	
		Normally Open 3 Wire
HPX11M3	VPX11M3	
		Normally Open 3 Wire 180
HPX11M3R	VPX11M3R	
		Normally Closed 3 Wire
HPX12M3	VPX12M3	
		Normally Closed 3 Wire 180
HPX12M3R	VPX12M3R	
		Normally Open 3 Wire with connector
HPX11M3C	VPX11M3C	
		Normally Open 3 Wire 180 with connector
HPX11M3RC	VPX11M3RC	
		Normally Closed 3 Wire with connector
HPX12M3C	VPX12M3C	



HPX12M3RC

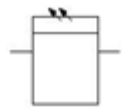


VPX12M3RC

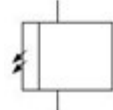
Normally Closed 3 Wire 180 with connector

# Photoelectric Emitter Switches

*Horizontal Symbol    Vertical Symbol    Description*

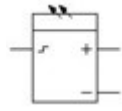


HPE1B14

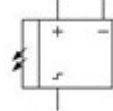


VPE1B14

Emitter - AC Driven

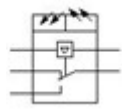


HPE1B15

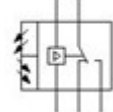


VPE1B15

Emitter - DC Driven

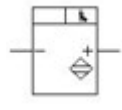


HPE13B16SC

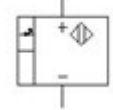


VPE13B16SC

Emitter - Receiver with Form C

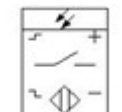


HPE1B20

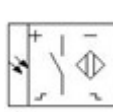


VPE1B20

Emitter - DC Driven

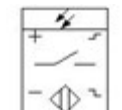


HPE11PE4

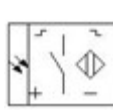


VPE11PE4

Normally Open 4 wire

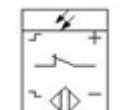


HPE11PE4R

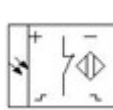


VPE11PE4R

Normally Open 4 wire 180

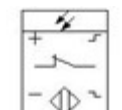


HPE12PE4

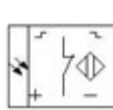


VPE12PE4

Normally Closed 4 wire

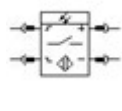


HPE12PE4R

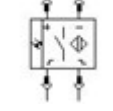


VPE12PE4R

Normally Closed 4 wire 180

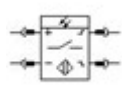


HPE11PE4C

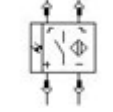


VPE11PE4C

Normally Open 4 wire with connector

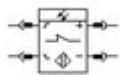


HPE11PE4RC

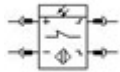


VPE11PE4RC

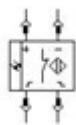
Normally Open 4 wire 180 with connector



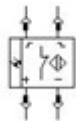
HPE12PE4C



HPE12PE4RC



VPE12PE4C



VPE12PE4RC

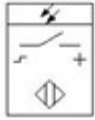
Normally Closed 4 wire with connector

Normally Closed 4 wire 180 with connector

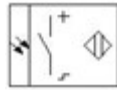


# Photoelectric Receiver Switches

*Horizontal Symbol    Vertical Symbol    Description*

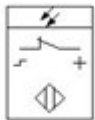


HPE11PE2

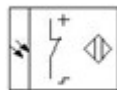


VPE11PE2

Normally Open Receiver 2 wire

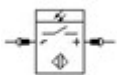


HPE12PE2

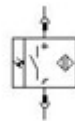


VPE12PE2

Normally Closed Receiver 2 wire

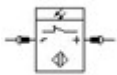


HPE11PE2C

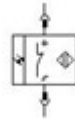


VPE11PE2C

Normally Open Receiver 2 wire with connector

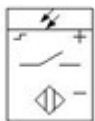


HPE12PE2C



VPE12PE2C

Normally Closed Receiver 2 wire with connector



HPE11PE3



VPE11PE3

Normally Open Receiver 3 wire

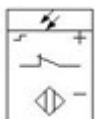


HPE11PE3R

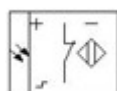


VPE11PE3R

Normally Open Receiver 3 wire 180

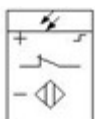


HPE12PE3

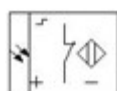


VPE12PE3

Normally Closed Receiver 3 wire

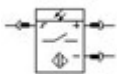


HPE12PE3R

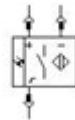


VPE12PE3R

Normally Closed Receiver 3 wire 180

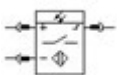


HPE11PE3C

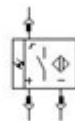


VPE11PE3C

Normally Open Receiver 3 wire with connector

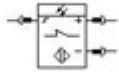


HPE11PE3RC

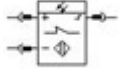


VPE11PE3RC

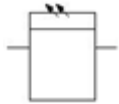
Normally Open Receiver 3 wire 180 with connector



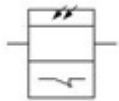
HPE12PE3C



HPE12PE3RC



HPE11B14



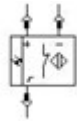
HPE12B14



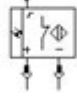
HPE11B15



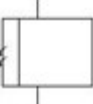
HPE12B15



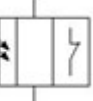
VPE12PE3C



VPE12PE3RC



VPE11B14



VPE12B14



VPE11B15



VPE12B15

Normally Closed Receiver 3 wire with connector

Normally Closed Receiver 3 wire 180 with connector

Normally Open Receiver - AC Driven

Normally Closed Receiver - AC Driven

Normally Open Receiver - DC Driven

Normally Closed Receiver - DC Driven

# Photoelectric Emitter/Receiver Switches

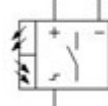
*Horizontal  
Symbol*

*Vertical  
Symbol*

*Description*

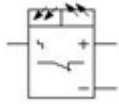


HPE11B16

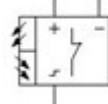


VPE11B16

Normally Open Emitter-Receiver - DC Driven

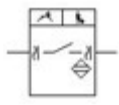


HPE12B16

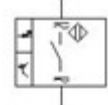


VPE12B16

Normally Closed Emitter-Receiver - DC Driven

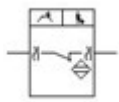


HPE11B22

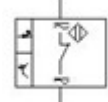


VPE11B22

Normally Open Emitter-Receiver AC/DC Driven 2 PIN



HPE12B22

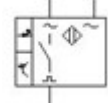


VPE12B22

Normally Closed Emitter-Receiver AC/DC Driven 2 PIN



HPE11B23



VPE11B23

Normally Open Emitter-Receiver AC Driven 3 PIN

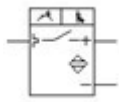


HPE12B23

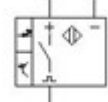


VPE12B23

Normally Closed Emitter-Receiver AC Driven 3 PIN

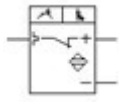


HPE11B24



VPE11B24

Normally Open Emitter-Receiver DC Driven 3 PIN

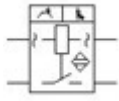


HPE12B24

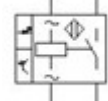


VPE12B24

Normally Closed Emitter-Receiver DC Driven 3 PIN

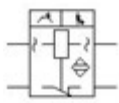


HPE11B25

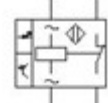


VPE11B25

Normally Open Emitter-Receiver AC Driven 4 PIN

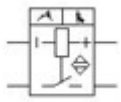


HPE12B25

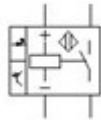


VPE12B25

Normally Closed Emitter-Receiver AC Driven 4 PIN

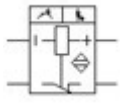


HPE11B26

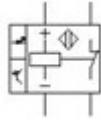


VPE11B26

Normally Open Emitter-Receiver DC Driven 4 PIN

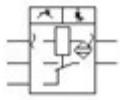


HPE12B26

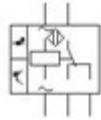


VPE12B26

Normally Closed Emitter-Receiver DC Driven 4 PIN

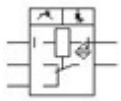


HPE13B25SC

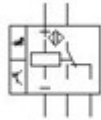


VPE13B25SC

FORM C Emitter-Receiver AC Driven 5 PIN



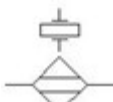




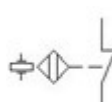
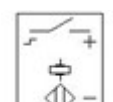

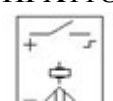

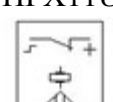

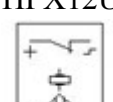
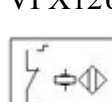
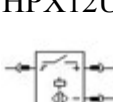
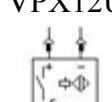
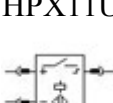

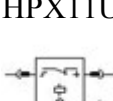
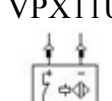
HPE13B26SC

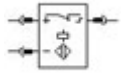


VPE13B26SC

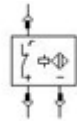
FORM C Emitter-Receiver DC Driven 5 PIN

# Ultrasonic Switches

Horizontal Symbol	Vertical Symbol	Description
		Ultrasonic
HPX1U	VPX1U	
		Ultrasonic Switch, Normally Open
HPX11U	VPX11U	
		Ultrasonic Switch, Normally Closed
HPX12U	VPX12U	
		Normally Open 3 Wire
HPX11U3	VPX11U3	
		Normally Open 3 Wire 180
HPX11U3R	VPX11U3R	
		Normally Closed 3 Wire
HPX12U3	VPX12U3	
		Normally Closed 3 Wire 180
HPX12U3R	VPX12U3R	
		Normally Open 3 Wire with connector
HPX11U3C	VPX11U3C	
		Normally Open 3 Wire 180 with connector
HPX11U3RC	VPX11U3RC	
		Normally Closed 3 Wire with connector
HPX12U3C	VPX12U3C	



HPX12U3RC

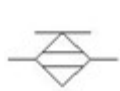


VPX12U3RC

Normally Closed 3 Wire 180 with connector

# Touch Switches

*Horizontal Symbol    Vertical Symbol    Description*



HPX1TS



VPX1TS

Touch



HPX11TS



VPX11TS

Touch Sense Proximity Switch, Normally Open

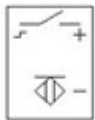


HPX12TS

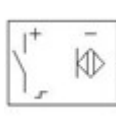


VPX12TS

Touch Sense Proximity Switch, Normally Closed

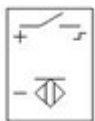


HPX11TS3

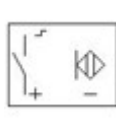


VPX11TS3

Normally Open 3 Wire



HPX11TS3R

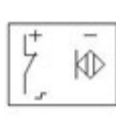


VPX11TS3R

Normally Open 3 Wire 180



HPX12TS3

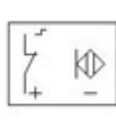


VPX12TS3

Normally Closed 3 Wire

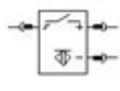


HPX12TS3R



VPX12TS3R

Normally Closed 3 Wire 180

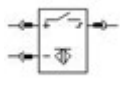


HPX11TS3C



VPX11TS3C

Normally Open 3 Wire with Connector

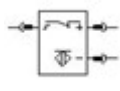


HPX11TS3RC



VPX11TS3RC

Normally Open 3 Wire 180 with Connector

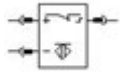


HPX12TS3C

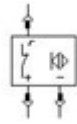


VPX12TS3C

Normally Closed 3 Wire with Connector



HPX12TS3RC

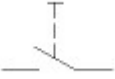
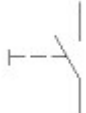
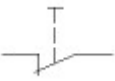




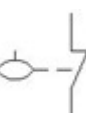
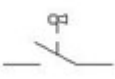
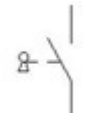

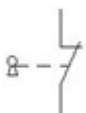




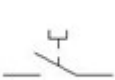

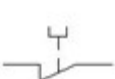



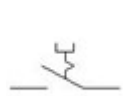
VPX12TS3RC

Normally Closed 3 Wire 180 with connector

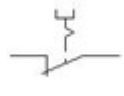


# Miscellaneous Switches

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Generic Switch, Normally Open
HSW11	VSW11	
		Generic Switch, Normally Closed
HSW12	VSW12	
		Float/Level Switch, Normally Open
HFL11	VFL11	
		Float/Level Switch, Normally Closed
HFL12	VFL12	
		Key Switch, Normally Open
HPB11KS	VPB11KS	
		Key Switch, Normally Closed
HPB12KS	VPB12KS	
		Key Switch Latched, Normally Open
HPB11KSL	VPB11KSL	
		Key Switch Latched, Normally Closed
HPB12KSL	VPB12KSL	
		Pull Cord Switch, Normally Open
HPC11	VPC11	
		Pull Cord Switch, Normally Closed
HPC12	VPC12	



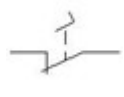
HPC11L



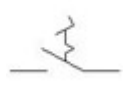
HPC12L



HFT11



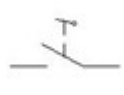
HFT12



HFT11L



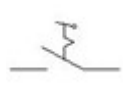
HFT12L



HPB11LS



HPB12LS



HPB11LSL



HPB12LSL



HFS11



VPC11L



VPC12L



VFT11



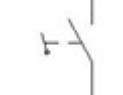
VFT12



VFT11L



VFT12L



VPB11LS



VPB12LS



VPB11LSL



VPB12LSL



VFS11

Pull Cord Switch Latched, Normally Open

Pull Cord Switch Latched, Normally Closed

Pedal Switch, Normally Open

Pedal Switch, Normally Closed

Pedal Switch Latched, Normally Open

Pedal Switch Latched, Normally Closed

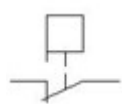
Lever Switch, Normally Open

Lever Switch, Normally Closed

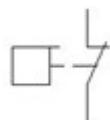
Lever Switch Latched, Normally Open

Lever Switch Latched, Normally Closed

Flow Switch Normally Open

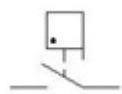


HFS12



VFS12

Flow Switch Normally Closed

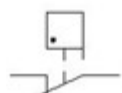


HFS11S20

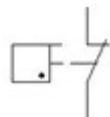


VFS11S20

Flow Switch Normally Open - Gas

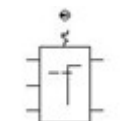


HFS12S20

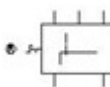


VFS12S20

Flow Switch Normally Closed - Gas

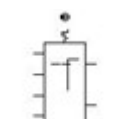


HSW1S90

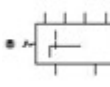


VSW1S90

3 Voltage Phase Switch

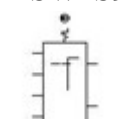


HSW1S91

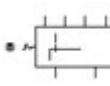


VSW1S91

3 Voltage Phase-to-Neutral Switch



HSW1S92

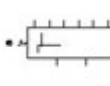


VSW1S92

3 Voltage Phase-to-Phase and Phase-to-Neutral Switch

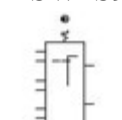


HSW1S93

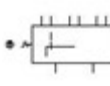


VSW1S93

3 Voltage, 2-Network Phase-to-Phase Switch

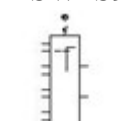


HSW1S94

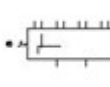


VSW1S94

Current Switch For 3 Measurement Points



HSW1S95

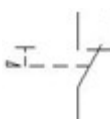


VSW1S95

Current Switch For 4 Measurement Points



HSW1SC21\_F



VSW1SC21\_F

Change-Over Contact with Mechanical Block and Manual Unlatching



HSW1SC7\_F



VSW1SC7\_F

Transfer Make Before Break Contact



HSW21



HSW22



VSW21

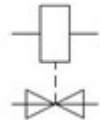
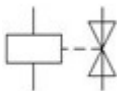
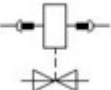
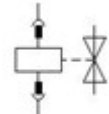
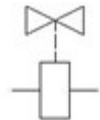
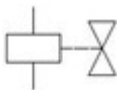
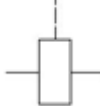
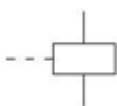
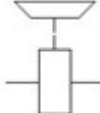
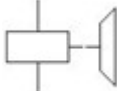








VSW22

2nd+ Normally Open Contact

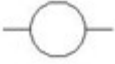

















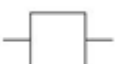

2nd+ Normally Closed Contact

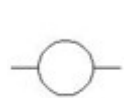
# Solenoids

Horizontal Symbol	Vertical Symbol	Description
		Standard Solenoid Valve
HSV1	VSV1	
		Standard Solenoid Valve with Connection
HSVC1	VSVC1	
		Open Solenoid Valve - Closing
HSV1Y1	VSV1Y1	
		Open Solenoid Valve - Closing According to Solenoid
HSV1Y1A	VSV1Y1A	
		Magnetic Brake
HSV1Y3	VSV1Y3	
		Electromagnetic Brake
HSV1Y4	VSV1Y4	
		Solenoid Valve Auxiliary Normally Open Contact
HSV21	VSV21	
		Solenoid Valve Auxiliary Normally Closed Contact
HSV22	VSV22	

# Instrumentation and Sensors

*Horizontal Symbol    Vertical Symbol    Description*

		Voltage Meter
HVM1	VVM1	
		Amperage Meter
HAM1	VAM1	
		Power Factor Meter
HIN1PFM	VIN1PFM	
		Phase Meter
HIN1PHM	VIN1PHM	
		Frequency Meter
HIN1FRM	VIN1FRM	
		Thermometer
HIN1THM	VIN1THM	
		Tachometer
HIN1TAC	VIN1TAC	
		Hour Meter
HIN1HRM	VIN1HRM	
		Ampere-Hour meter
HIN1AHM	VIN1AHM	
		Recording Wattmeter
HIN1P17	VIN1P17	



HIN1P21



VIN1P21

Varmeter



HIN1P11



VIN1P11

Synchronoscope



HTC1L



VTC1L

Thermocouple

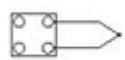


HTC1R



VTC1R

Thermocouple

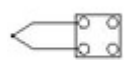


HTC1LTB



VTC1LTB

Thermocouple with Terminal Board

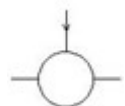


HTC1RTB

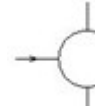


VTC1RTB

Thermocouple with Terminal Board

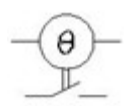


HIN1P19

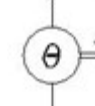


VIN1P19

Active Power Indicator



HIN1P25



VIN1P25

Thermometer/Pyrometer



HIN1P29



VIN1P29

Clock



HIN1P33



VIN1P33

Normally Open Clock Closing Every Minute



HVM1P7



VVM1P7

Differential Voltmeter

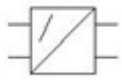


HPW1G4

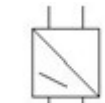


VPW1G4

Accumulator Battery

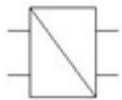


HIN1B10



VIN1B10

Pressure/Current Converter



HIN1G1



VIN1G1

AC-DC Current Converter Single Phase



HIN1B11



VIN1B11

Tachometric Dynamo

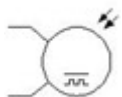


HIN1B12



VIN1B12

Tachometric Dynamo - Impulse



HIN1B13



VIN1B13

Tachometric Dynamo - Optical Type






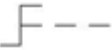

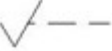




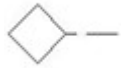
# Qualifying Symbols

## Topics in this section

- [Operating Devices](#)
- [Linear Direction of Force or Motion](#)
- [Rotative Direction of Force or Motion](#)
- [Propagation Flow or Signal](#)
- [Energy Flow](#)
- [Effect](#)
- [Radiation](#)
- [Fault](#)
- [Winding](#)
- [Mechanical Controls](#)
- [Mechanical Controls, Latching Device](#)
- [Mechanical Controls, Coupling](#)

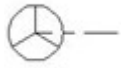
# Operating Devices

<i>Symbol</i>	<i>Description</i>
	Positive Operation Direction
Q070109	
	Manual Command General Sign
Q021301	
	Manual Command with Protected Access
Q021302	
	Push Button Command
Q021305	
	Emergency Command
Q021308	
	Rotary Command
Q021304	
	Command with Key
Q021313	
	Foot Actuated Command
Q021310	
	Lever Command
Q021311	
	Crank Command
Q021214	



Fixed Manual Command

Q021312



Manual Command with Wheel

Q021309



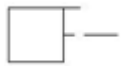
Actuated by the Level of a Fluid

Q021401



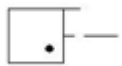
Actuated by the Number of Events

Q021402



Actuated by a Flow of Fluid

Q021403



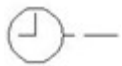
Actuated by a Gas Flow

Q021404



Motorized Command

Q021326



Timing Command

Q021327



Command with Roll

Q021315



Command with Cam

Q021316



Cam Profile

Q021317



Switch Position Function

Q070106



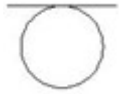
Switch Position (Flipped)

Q070106R



Disconnecter Isolator

Q070103



Switch Disconnecter Isolator

Q070104



Circuit Breaker Function

Q070102



Power Contactor Function

Q070101



Auto Trip Function

Q070105



Auto Return (Spring Return)







Q070107



Non Auto Return (Stay)

Q070108

# Linear Direction of Force or Motion


<i>Symbol</i>	<i>Description</i>
 Q020401U	One Way Force/Movement Up
 Q020401D	One Way Force/Movement Down
 Q020401L	One Way Force/Movement Left
 Q020401R	One Way Force/Movement Right
 Q020402	Two Way Force Or Movement
 Q101101	Transition

# Rotative Direction of Force or Motion


*Symbol    Description*

 One Way Force Or Movement

Q020403

 Two Way Force Or Movement


Q020404

 Limited Two Way Force Or Movement


Q020405

# Propagation Flow or Signal

*Symbol    Description*

 One Way Propagation

Q020501

 Two Way Simultaneous Transmission Propagation

Q020502

 Two Way Alternate Transmission Propagation

Q020503

 Signal Transmission


Q020504

 Signal Reception

Q020505

# Energy Flow

*Symbol    Description*

 Outbound Energy Flux

Q020506

 Inbound Energy Flux



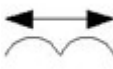

Q020507

 Inbound and Outbound Energy Flux




Q020508





# Effect

<i>Symbol</i>	<i>Description</i>
	Thermal Effect
Q020801	
	Magnetic Effect
Q020802	
	Magnetostriction Effect
Q020803	
	Magnetic Field Effect
Q020804	









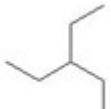

# Radiation

<i>Symbol</i>	<i>Description</i>
	Non Ionizing Coherent Electromagnetic Radiation
Q020901	
	Non Ionizing Coherent Radiation
Q020902	
	Ionizing Radiation
Q020903	

# Fault

<i>Symbol</i>	<i>Description</i>
	Indication Of Presumed Location Of Failure
Q021701	
	Failure For Lack Of Insulation
Q021702	

# Winding

Symbol	Description
	2 Phase Winding
Q060201	
	3 Phase Partial V Winding
Q060202	
	4 Phase Winding with Accessible Ground
Q060203	
	3 Phase T Winding
Q060204	
	3 Phase Delta Winding
Q060205	
	3 Phase Open Delta Winding
Q060206	
	3 Phase Star Winding
Q060207	
	3 Phase Star Winding with Accessible Ground
Q060208	
	3 Phase Zigzag Winding
Q060209	
	Esaphase Winding with Double Delta
Q060210	



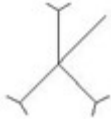
Esaphase Polygonal Winding

Q060211



Esaphase Star Winding

Q060212



Esaphase Double Zigzag Winding with Accessible Ground

Q060213



DC Direct Current Indication

Q020201



DC Direct Current Indication

Q020203



Indication of Rectified Current with an Alternate Component

Q020212



AC Alternate Current Indication

Q020204

# Mechanical Controls


*Symbol    Description*

 Auto Return

Q021207

 Auto Non Return Stop Latch

Q021208

 Stop Latch in Neutral Position

Q021209



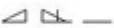
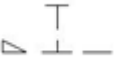

 Stop Latch Engaged

Q021210

 Interlock Between Two Devices

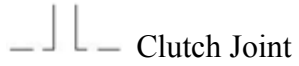
Q021211

# Mechanical Controls, Latching Device

<i>Symbol</i>	<i>Description</i>
	Latch Device Engaged
Q021212	
	Latch Device in Neutral Position
Q021213	
	Two Ways Latch Device
Q1020603	
	Latch Device with Manual Unlatching
Q1020604	
	Two Ways Latch Device with Key
Q1029603	

# Mechanical Controls, Coupling

*Symbol*   *Description*



Clutch Joint

Q021216



Disconnected Joint

Q021217



Engaged Joint

Q021218



Engaged Joint

Q021219



Gear Joint

Q021223

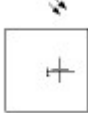

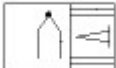
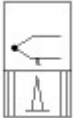
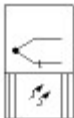
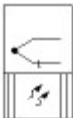
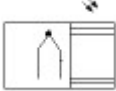
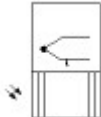

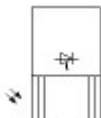
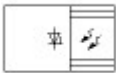



# Electronics





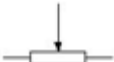

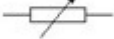









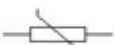


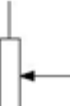
## Topics in this section

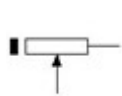
- [Resistive Components](#)
- [Capacitive Components](#)
- [Semiconductor Components](#)

# Electronics

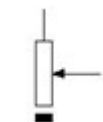
<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Photovoltaic Generator
HPW1_S00908	VPW1_S00908	
		Thermoelectric Generator w/Combustion Heat Source
HPW1_S00903	VPW1_S00903	
		Thermoelectric Generator w/Radio-isotope Heat Source
HPW1_S00905	VPW1_S00905	
		Thermoelectric Generator w/Non-ionizing Radiation Heat Source
HPW1_S00904	VPW1_S00904	
		Thermonic Diode Generator w/Non-ionizing Radiation Heat Source
HPW1_S00906	VPW1_S00906	
		Thermonic Diode Generator w/Radio-isotope Heat Source
HPW1_S00907	VPW1_S00907	

# Resistive Components

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Fixed Resistor
HRE1B	VRE1B	
		Variable Resistor
HVR1B	VVR1B	
		Variable Resistor
HVR1BR	VVR1BR	
		Variable Resistor 2
HVR1R2	VVR1R2	
		Light dependent
HRE1LDR	VRE1LDR	
		Heater Element
HRE1HT	VRE1HT	
		2nd+ Element
HRE2HT	VRE2HT	
		RC Network
HRE1RCN	VRE1RCN	
		Varistor
HVR1R3	VVR1R3	
		Resistor with Mobile Contact
HVR1R4	VVR1R4	



HVR1R5

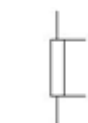


VVR1R5

Resistor with Mobile Contact and Disconnecting Position

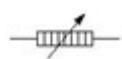


HVR1R7

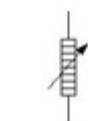


VVR1R7

Shunt

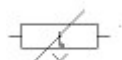


HVR1R8

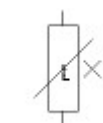


VVR1R8

Variable Resistor with Carbon Disks




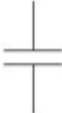

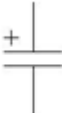

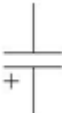
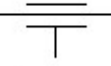
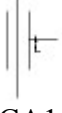
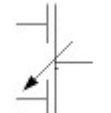







HVR1S00689



VVR1S00689











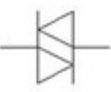
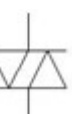







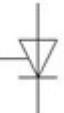
Magnetoresistor

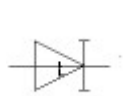
# Capacitive Components

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Capacitor
HCA1	VCA1	
		Electrolytic
HCA1EL	VCA1EL	
		Electrolytic 180
HCA1ELR	VCA1ELR	
		Feedthrough Capacitor
HCA1C2	VCA1C2	
		Capacitor,Differential
HCA1_S00573	VCA1_S00573	
		Capacitor w/Pre-set Adjustment
HCA1_S00575	VHCA1_S0055	
		Capacitor,Adjustable
HCA1C2	VCA1C2	
		Capacitor, Split and Adjustable
HCA1_S00579	VCA1_S00579	

# Semiconductor Components

*Horizontal Symbol    Vertical Symbol    Description*

		Diode
HDI1	VDI1	
		Diode 180
HDI1R	VDI1R	
		Diode Photosensitive
HDI1B4	VDI1B4	
		Diode Photosensitive 2
HDI1B5	VDI1B5	
		Zener Diode - One Way
HDI1V2	VDI1V2	
		Diac Diode - Two Way
HDI1V3	VDI1V3	
		Photosensitive PNP Transistor
HDV1B6	VDV1B6	
		Bridge rectifier
HDI1BR	VDI1BR	
		3 Phase Bridge Rectifier
HDI1V5	VDI1V5	
		SCR
HDI1V4	VDI1V4	

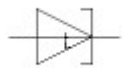


HDI1\_S00648



VDI1\_S00648

Backward (Unitunnel) Diode



HDI1\_S00645



VDI1\_S00645

Tunnel Diode

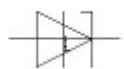


HDI1\_S00647



VDI1\_S00647

Breakdown Diode, Bidirectional

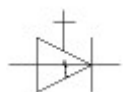


HDI1\_S00651



VDI1\_S00651

Reverse Conducting Diode Thyristor



HDI1\_S00655



VDI1\_S00655

Turn-off Thyristor



HDI1\_S00650



VDI1\_S00650

Reverse Blocking Diode Thyristor

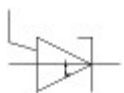


HDI1\_S00653



VDI1\_S00653

Reverse Blocking Diode Thyristor, N-gate

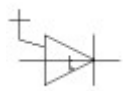


HDI1\_S00661



VDI1\_S00661

Reverse Conducting Diode Thyristor, N-gate

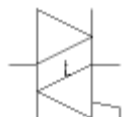


HDI1\_S00656



VDI1\_S00656

Turn-off Diode Thyristor, N-gate

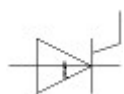


HDI1\_S00659



VDI1\_S00659

Bidirectional Triode Thyristor, Triac

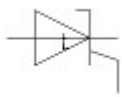


HDI1\_S00654

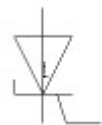


VDI1\_S00654

Reverse Blocking Triode Thyristor, P-gate

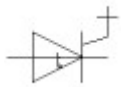


HDI1\_S00662

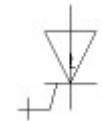


VDI1\_S00662

Turn-off Triode Thyristor,P-gate



HDI1\_S00657

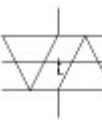


VDI1\_S00657

Turn-off Triode Thyristor,P-gate

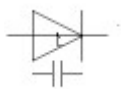


HDI1\_S00652

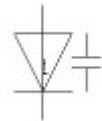


VDI1\_S00652

Bidirectional Diode Thyristor, Diac



HCA1\_S00644



VCA1\_S00644

Variable Capacitance Diode






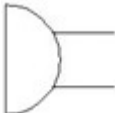







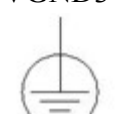

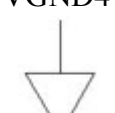
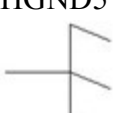
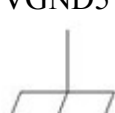

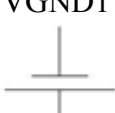

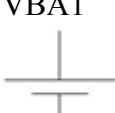
# Miscellaneous

## Topics in this section

- [Miscellaneous](#)
- [Cable Markers](#)
- [Power Receptacles](#)
- [Generic Device Boxes](#)
- [Stand-alone Cross-reference Symbols](#)
- [Wire Arrows - Reference Only](#)
- [Splice Symbols](#)
- [Annunciations](#)







# Miscellaneous

*Horizontal Symbol    Vertical Symbol    Description*

		Bell
HAN1B	VAN1B	
		Buzzer
HAN1Z	VAN1Z	
		Siren
HAN1S	VAN1S	
		Earth/Ground
HGND2	VGND2	
		Functional Earth
HGND3	VGND3	
		Protective Earth
HGND4	VGND4	
		Protective equipotential bond
HGND5	VGND5	
		Functional Equipotential Bond
HGND1	VGND1	
		Battery
HBA1	VBA1	
		Battery (Flipped)
HBA1R	VBA1R	


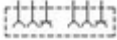


		Power Source 1 Phase
HPW1_1PH	VPW1_1PH	
		Power Source 3 Phase
HPW1_3PH	VPW1_3PH	
		Laser
HVD1_S01214	VDV1_S01214	
		Laser as Generator
HVD1_S01215	VDV1_S01215	
		Master
HVD1_S01212	VDV1_S01212	
		Master as Amplifier
HVD1_S01213	VDV1_S01213	
		Spark Gap
HFU1_S00371	VFU1_S00371	
		Spark Gap, Double
HFU1_S00372	VFU1_S00372	
		Surge Diverter, Lightning Arrester
HFU1_S00373	VFU1_S00373	
		Protective Gas Discharge Tube, Symmetric
HFU1_S00375	VFU1_S00375	
		Protective Gas Discharge Tube
HFU1_S00374	VFU1_S00374	

# Cable Markers

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Cable Marker
HW01	VW01	
		2nd+ Child Marker
HW02	VW02	
		Extra Marker
HT0_CABLE	VT0_CABLE	
		Twisted Pair
HT0_TW	VT0_TW	

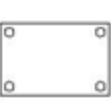













# Power Receptacles

*Horizontal Symbol    Vertical Symbol    Description*







		Duplex Receptacle
HCN1RDUP	VCN1RDUP	
		Single Receptacle
HCN1RSGL	VCN1RSGL	

# Generic Device Boxes









*Horizontal Symbol    Vertical Symbol    Description*

		4 Terminals
HDV1TFL	VDV1TFL	
		3 Terminals
HDV1TC	VDV1TC	
		3 Terminals
HDV1TB	VDV1TB	
		2 Terminals
HDV1T6	VDV1T6	
		4 Terminals
HDV1TF	VDV1TF	
		3 Terminals
HDV1TE	VDV1TE	
		3 Terminals
HDV1T7	VDV1T7	

# tand-alone Cross-reference Symbols

<i>Symbol</i>	<i>Description</i>
	Source Rectangle
HA2S1_REF	
	Source Hexagon
HA3S1_REF	
	Source Ellipse
HA5S1_REF	
	Destination Rectangle
HA2D1_REF	
	Destination Hexagon
HA3D1_REF	
	Destination Ellipse
HA5D1_REF	

# Wire Arrows - Reference Only

<i>Symbol</i>	<i>Description</i>
	Generic Arrow - Left
HA1X1	
	Generic Arrow - Up
HA1X2	
	Generic Arrow - Right
HA1X3	
	Generic Arrow - Down
HA1X4	
	Arrow Tail - Left
HA1X1Y	
	Arrow Tail - Up
HA1X2Y	
	Arrow Tail - Right
HA1X3Y	
	Arrow Tail - Down
HA1X4Y	



# Splice Symbols

*Horizontal Symbol    Vertical Symbol    Description*



HSP1001



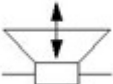
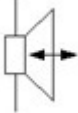
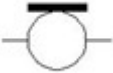



VSP1001

Splice

# Annunciations

*Horizontal Symbol    Vertical Symbol    Description*

		Loudspeaker
HAN1B7	VAN1B7	
		Loudspeaker - Microphone
HAN1B8	VAN1B8	
		Microphone
HAN1B9	VAN1B9	

# One-Line Components

## Topics in this section

- [Connector](#)
- [Motor Control](#)
- [Transformer](#)
- [Terminal](#)
- [Cable Marker](#)
- [Bus-tap](#)
- [Miscellaneous](#)

# Connector

*Horizontal Symbol    Vertical Symbol    Description*



HC01PJ\_1-

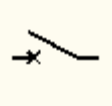


VC01PJ\_1-

Jack/Plug

# Motor Control

*Horizontal Symbol    Vertical Symbol    Description*

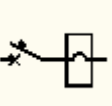


HCB11\_1-

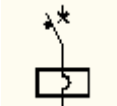


VCB11\_1-

Circuit breaker

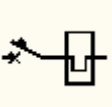


HCB11\_1M-



VCB11\_1M-

Motor circuit protector

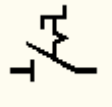


HCB11TH\_1-

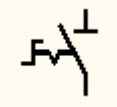


VCB11TH\_1-

Thermal circuit breaker



HDS11\_1-



VDS11\_1-

Disconnect



HDS11F\_1-



VDS11F\_1-

Fused disconnect



HFU1\_1-



VFU1\_1-

Fuse



HMO13\_1-

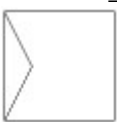


VMO13\_1-

Motor



HMS11\_1-



VMS11\_1-

Motor starter



HOL1\_1-

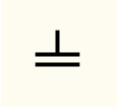


VOL1\_1-

Overload



HCA113\_1-







VCA113\_1-

Vertical Capacitor

# Transformer

*Horizontal Symbol    Vertical Symbol    Description*

		Transformer 1
HXF1_1-	VXF1_1-	
		Transformer 2
HXF2_1-	VXF2_1-	

# Terminal

*Horizontal Symbol    Vertical Symbol    Description*



HT0001\_1-



VT0001\_1-

Square terminal





HT0002\_1-



VT0002\_1-

Round terminal







# Cable Marker

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Cable marker
HW01_1-	VW01_1-	



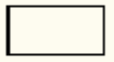
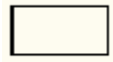


# Bus-tap








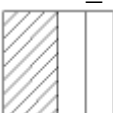
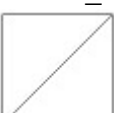
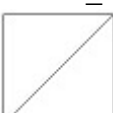
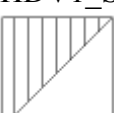
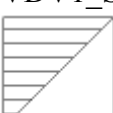
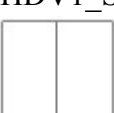







*Horizontal Symbol    Vertical Symbol    Description*

		Bus-tap - main/dot
HDV1_BT_1-	VDV1_BT_1-	
		Bus-tap - dual/tee
HDV1_BTT_1-	VDV1_BTT_1-	
		Bus-tap - dual/corner
HDV1_BTL_1-	VDV1_BTL_1-	

# Miscellaneous

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Power receptacle
HC01WR_1-	VC01WR_1-	
		Generic load
HDV1_1-	VDV1_1-	

# Power Stations

<i>Horizontal Symbol</i>	<i>Vertical Symbol</i>	<i>Description</i>
		Generating Station, Planned
HDTV1_S00385	VDV1_S00385	
		Generating Station, In Service Or Unspecified
HDTV1_S00386	VDV1_S00386	
		Combined Electric And Heat Generating Station, Planned
HDTV1_S01419	VDV1_S01419	
		Combined Electric And Heat Generating Station, In Service Or Unspecified
HDTV1_S01420	VDV1_S01420	
		Hydroelectric Generating Station, Planned
HDTV1_S00391	VDV1_S00391	
		Hydroelectric Generating Station, In Service Or Unspecified
HDTV1_S00392	VDV1_S00392	
		Thermoelectric Generating Station,Planned
HDTV1_S00393	VDV1_S00393	
		Thermoelectric Generating Station, In Service Or Unspecified
HDTV1_S00394	VDV1_S00394	
		Nuclear Energy Generating Station,Planned
HDTV1_S00395	VDV1_S00395	
		Nuclear Energy Generating Station, In Service Or Unspecified
HDTV1_S00396	VDV1_S00396	



HDV1\_S00397

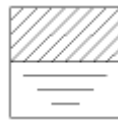


VDV1\_S00397

Geothermal Generating Station, Planned

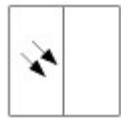


HDV1\_S00398



VDV1\_S00398

Geothermal Generating Station, In Service Or Unspecified



HDV1\_S00399



VDV1\_S00399

Solar Generating Station, Planned

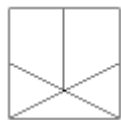


HDV1\_S00400



VDV1\_S00400

Solar Generating Station, In Service Or Unspecified

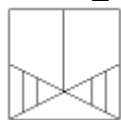


HDV1\_S00401

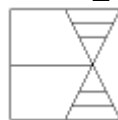


VDV1\_S00401

Wind Generating Station,Planned

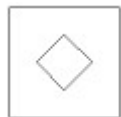


HDV1\_S00402



VDV1\_S00402

Wind Generating Station, In Service Or Unspecified



HDV1\_S00403



VDV1\_S00403

Plasma Generating Station,Planned

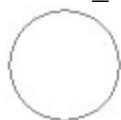


HDV1\_S00404

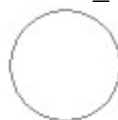


VDV1\_S00404

Plasma Generating Station, In Service Or Unspecified



HDV1\_S00389



VDV1\_S00389

Substation, Planned



HDV1\_S00390



VDV1\_S00390

Substation, In Service Or Unspecified



HDV1\_S00405



VDV1\_S00405

Converting Substation, Planned



HDV1\_S00406



VDV1\_S00406

Converting Substation, In Service Or Unspecified