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## Ladder Library

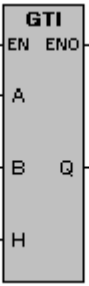
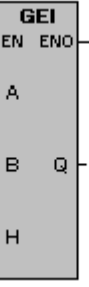
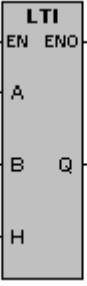
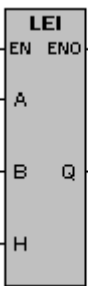
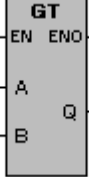
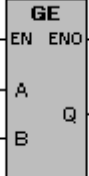
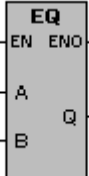
### 0.1 Funzioni per contatti

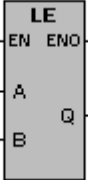
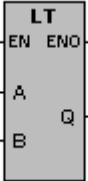
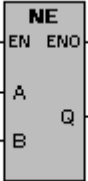
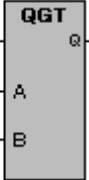
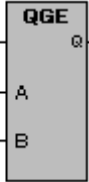
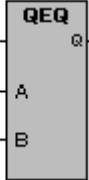
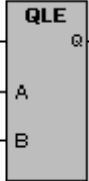
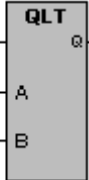
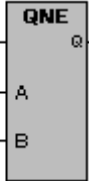
Simbolo	Descrizione
reference —   —	Contatto normalmente aperto
reference —  / —	Contatto normalmente chiuso
reference —  P  —	Contatto rilevatore di transizione positiva
reference —  N  —	Contatto rilevatore di transizione negativa
reference —  PT  —	Contatto bistabile rilevatore di transizione positiva
reference —  NT  —	Contatto bistabile rilevatore di transizione negativa

### 0.2 Funzioni per bobine

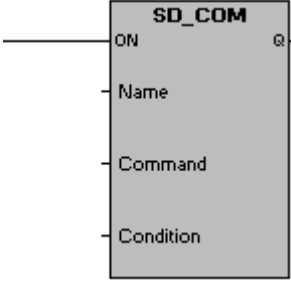
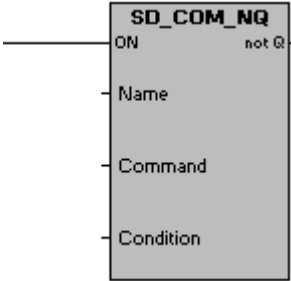
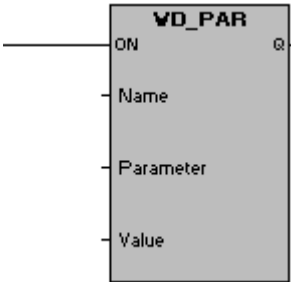
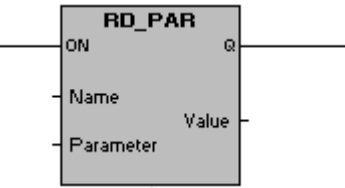
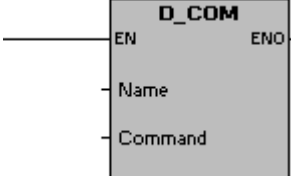
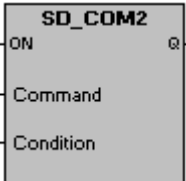
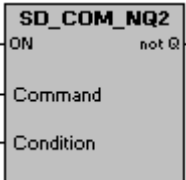
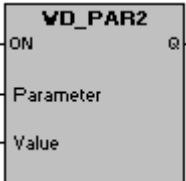
Simbolo	Descrizione
reference — ( ) —	Bobina normalmente aperta
reference — ( / ) —	Bobina normalmente chiusa
reference — ( P ) —	Bobina rivelatrice di transizione positiva
reference — ( N ) —	Bobina rivelatrice di transizione negativa
reference — ( N ) —	Bobina bistabile rivelatrice di transizione positiva
reference — ( NT ) —	Bobina bistabile rivelatrice di transizione negativa
reference — ( S ) —	Bobina SET ( ritenuta )
reference — ( R ) —	Bobina RESET ( non ritenuta )



### 0.3 Funzioni di comparazione

Simbolo	Descrizione
	GTI ( maggiore di con isteresi)
	GEI ( maggiore uguale con isteresi)
	LTI ( minore di con isteresi)
	LEI ( minore uguale con isteresi)
	GT ( maggiore di )
	GE ( maggiore uguale a )
	EQ ( eguale a )

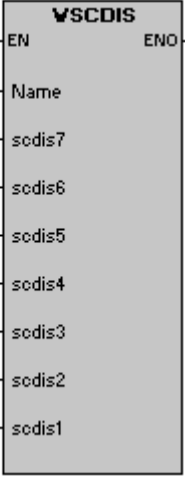
Simbolo	Descrizione
	LE ( minore eguale a )
	LT ( minore di )
	NE ( diverso da )
	QGT ( maggiore di )
	QGE ( maggiore eguale a )
	QEQ ( eguale a )
	QLE ( minore eguale a )
	QLT ( minore di )
	QNE ( diverso da )

## 0.4 Funzioni per devices

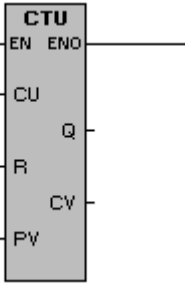
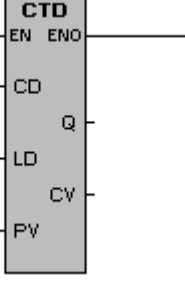
Simbolo	Descrizione
	<p>SD_COM ( invia un comando al device )</p> <p><b>OBSOLETA</b></p>
	<p>SD_COM_NQ ( invia un comando al device con Q negata )</p> <p><b>OBSOLETA</b></p>
	<p>WD_PAR ( scrive un parametro del device )</p> <p><b>OBSOLETA</b></p>
	<p>RD_PAR ( legge un parametro del device )</p> <p><b>OBSOLETA</b></p>
	<p>D_COM ( comando device )</p> <p><b>OBSOLETA</b></p>
	<p>SD_COM2 ( invia un comando al device )</p>
	<p>SD_COM_NQ2 ( invia un comando al device con Q negata )</p>
	<p>WD_PAR2 ( scrive un parametro del device )</p>


Simbolo	Descrizione
	RD_PAR2 ( legge un parametro del device )
	D_COM2 ( comando device )

## 0.5 Funzioni per devices HMI

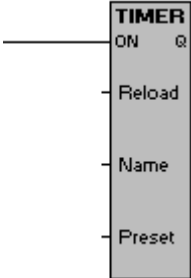
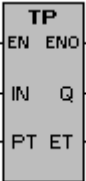
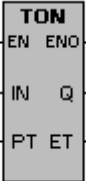
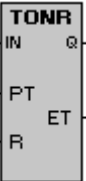
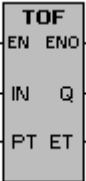

Simbolo	Descrizione
	WSCDIS ( scrive lo schermo display a caratteri )

## 0.6 Funzioni per contatori

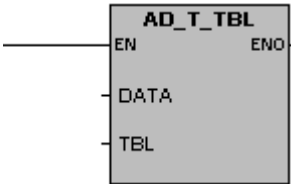
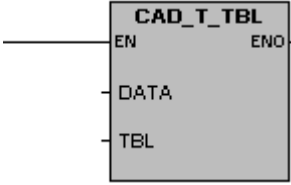
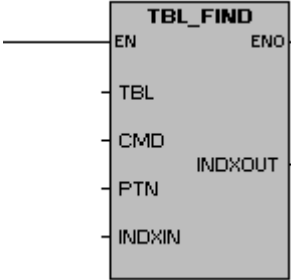
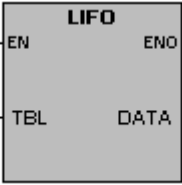
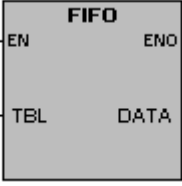
Simbolo	Descrizione
	CTU ( contatore in avanti )
	CTD ( contatore in indietro )

Simbolo	Descrizione
	CTUD ( contatore in avanti / indietro )

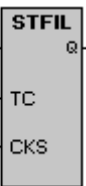
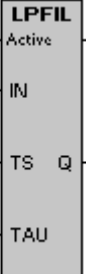
## 0.7 Funzioni per temporizzatori

Simbolo	Descrizione
	TIMER ( ritardo all'inserzione )
	TP ( impulsivo )
	TON ( ritardo all'inserzione )
	TONR (Avvia temporizzazione come ritardo all'inserzione con memoria)
	TOF ( ritardo all'estrazione )
	TV ( impulso prolungato )

## 0.8 Funzioni per tabelle

Simbolo	Descrizione
	AD_T_TBL ( aggiungi dato alla tabella )
	CAD_T_TBL ( aggiungi dato alla tabella in modo circolare )
	TBL_FIND ( ricerca dato nella tabella )
	LIFO ( ultimo dato ad entrare primo dato ad uscire )
	FIFO ( primo dato ad entrare primo dato ad uscire )

## 0.9 Funzioni per filtri

Simbolo	Descrizione
	STFIL ( filtro stati )
	LPFIL ( filtro passa basso del 1° ordine )

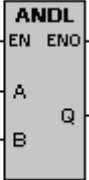
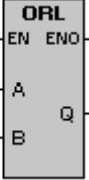
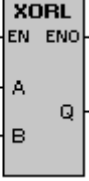
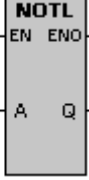
## 0.10 Funzioni per gestione dei bitfield

Simbolo	Descrizione
<p>The symbol for TSTB is a vertical rectangle. At the top, it is labeled 'TSTB'. Below the label, there are two terminals: 'EN' on the left and 'ENO' on the right. Below these, there are two input terminals: 'Data' on the left and 'Q' on the right. At the bottom, there is an output terminal labeled 'Bit'.</p>	Test bit
<p>The symbol for CLRB is a vertical rectangle. At the top, it is labeled 'CLRB'. Below the label, there are two terminals: 'EN' on the left and 'ENO' on the right. Below these, there are two input terminals: 'Data' on the left and 'Bit' on the right.</p>	Cancellazione bit
<p>The symbol for SETB is a vertical rectangle. At the top, it is labeled 'SETB'. Below the label, there are two terminals: 'EN' on the left and 'ENO' on the right. Below these, there are two input terminals: 'Data' on the left and 'Bit' on the right.</p>	Impostazione bit
<p>The symbol for QTSTB is a vertical rectangle. At the top, it is labeled 'QTSTB'. Below the label, there is an output terminal labeled 'Q' on the right. Below this, there are two input terminals: 'Data' on the left and 'Bit' on the right.</p>	Test bit

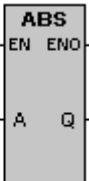
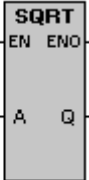
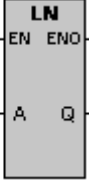
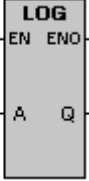
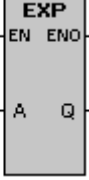
## 0.11 Funzioni booleane sui bits

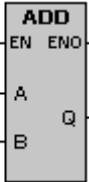
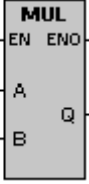
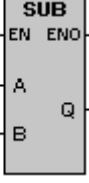
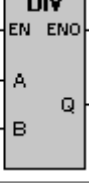
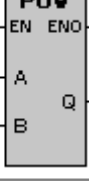
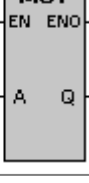
Simbolo	Descrizione
<p>The symbol for AND is a vertical rectangle. At the top, it is labeled 'AND'. Below the label, there are two terminals: 'EN' on the left and 'ENO' on the right. Below these, there are two input terminals: 'A' on the left and 'B' on the right. At the bottom, there is an output terminal labeled 'Q'.</p>	And dei bit di due variabili d'ingresso
<p>The symbol for OR is a vertical rectangle. At the top, it is labeled 'OR'. Below the label, there are two terminals: 'EN' on the left and 'ENO' on the right. Below these, there are two input terminals: 'A' on the left and 'B' on the right. At the bottom, there is an output terminal labeled 'Q'.</p>	Or dei bit di due variabili d'ingresso
<p>The symbol for XOR is a vertical rectangle. At the top, it is labeled 'XOR'. Below the label, there are two terminals: 'EN' on the left and 'ENO' on the right. Below these, there are two input terminals: 'A' on the left and 'B' on the right. At the bottom, there is an output terminal labeled 'Q'.</p>	Xor dei bit di due variabili d'ingresso
<p>The symbol for NOT is a vertical rectangle. At the top, it is labeled 'NOT'. Below the label, there are two terminals: 'EN' on the left and 'ENO' on the right. Below these, there is one input terminal labeled 'A' on the left. At the bottom, there is an output terminal labeled 'Q'.</p>	Not dei bit di una variabile d'ingresso

## 0.12 Funzioni booleane logiche

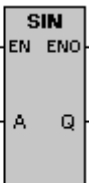
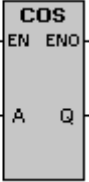
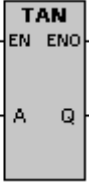
Simbolo	Descrizione
	And di due variabili d'ingresso
	Or di due variabili d'ingresso
	Xor di due variabili d'ingresso
	Not di una variabile d'ingresso

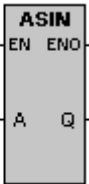
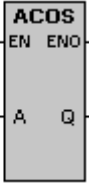
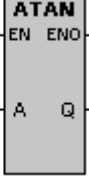
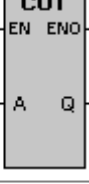
### 0.13 Funzioni matematiche

Simbolo	Descrizione
	ABS (valore assoluto)
	SQRT (radice quadrata)
	LN (logaritmo naturale)
	LOG (logaritmo in base 10)
	EXP (esponenziale naturale)



Simbolo	Descrizione
	ADD (somma di due variabili)
	MUL (moltiplicazione di due variabili)
	SUB (sottrazione di due variabili)
	DIV (divisione di due variabili)
	POW (X alla potenza di Y)
	MOV (muove dato)

## 0.14 Funzioni trigonometriche

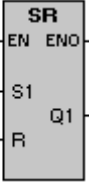
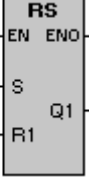
Simbolo	Descrizione
	SIN (seno in radianti)
	COS (coseno in radianti)
	TAN (tangente in radianti)

Simbolo	Descrizione
	ASIN (arcoseno)
	ACOS (arcocoseno)
	ATAN (arcotangente)
	COT (cotangente in radianti)

## 0.15 Funzioni rilevamento fronti

Simbolo	Descrizione
	R_TRIG (rivelatore fronte di salita)
	F_TRIG (rivelatore fronte di discesa)

## 0.16 Funzioni bistabili

Simbolo	Descrizione
	SR (bistable function set dominant)
	RS (bistable function reset dominant)

## 0.17 Funzioni di selezione

Simbolo	Descrizione
<p>The symbol for SEL (binary selection) consists of a vertical rectangle. At the top, it is labeled 'SEL'. Below this, there are two terminals: 'EN' on the left and 'ENO' on the right. Further down, there are two more terminals: 'S' on the left and 'Q' on the right. At the bottom, there are two terminals: 'A' on the left and 'B' on the right.</p>	SEL (selezione binaria)
<p>The symbol for MAX (maximum value) consists of a vertical rectangle. At the top, it is labeled 'MAX'. Below this, there are two terminals: 'EN' on the left and 'ENO' on the right. Further down, there are two terminals: 'A' on the left and 'Q' on the right. At the bottom, there is one terminal: 'B' on the left.</p>	MAX (valore massimo)
<p>The symbol for MIN (minimum value) consists of a vertical rectangle. At the top, it is labeled 'MIN'. Below this, there are two terminals: 'EN' on the left and 'ENO' on the right. Further down, there are two terminals: 'A' on the left and 'Q' on the right. At the bottom, there is one terminal: 'B' on the left.</p>	MIN (valore minimo)
<p>The symbol for LIMIT (limiter) consists of a vertical rectangle. At the top, it is labeled 'LIMIT'. Below this, there are two terminals: 'EN' on the left and 'ENO' on the right. Further down, there are three terminals: 'A (Min)' on the left, 'B (In) Q' on the right, and 'C (Max)' on the left.</p>	LIMIT (limitatore)
<p>The symbol for MUX (multiplexer) consists of a vertical rectangle. At the top, it is labeled 'MUX'. Below this, there are two terminals: 'EN' on the left and 'ENO' on the right. Further down, there are three terminals: 'S' on the left, 'A' on the left, and 'B' on the left. At the bottom, there are two terminals: 'Q' on the right and 'C' on the left.</p>	MUX (multiplexer)

## 0.18 Legenda dei simboli riportati negli elementi LADDER

### Legenda

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