

Appendix 3. Function/Function Block List

1) Function List

Name	Function	Size of PB (byte) *1	Size of library (byte) *2	Processing speed (msec) *3
				GM6
ABS (int)	Absolute value operation	24	—	1.2
ADD(int)	Addition	24	—	1.7
AND (word)	Logical multiplication	16	—	4.3
DIV(int)	Division	32	—	32.9
DIV(dint)	Division	32	—	62.9
EQ (int)	'Equality' comparison	20	—	1.6
LIMIT(int)	To output upper and lower limits	48	794	11.8
MAX(int)	To output the maximum input value	48	738	12.9
MOVE	To copy data	8		1.0
MUL(dint)	Multiplication	24		65.9
MUL (int)	Multiplication	24		35.9
MUX (int)	To output a selected input value	56	682	15.8
MUX(dint)	To output a selected input value	84	682	53.2
ROL	To rotate left	40	160	9.7
BCD_TO_DINT	Conversion of BCD type into DINT type	12	300	273.9
BCD_TO_INT	Conversion of BCD type into INT type	12	200	111.9
BCD_TO_SINT	Conversion of BCD type into SINT type	12	140	40.9
BYTE_TO_SINT	Conversion of BCD type into SINT type	8		0.4
DATE_TO_STRING	Conversion of DATE type into string	48	458	205.9
DINT_TO_INT	Conversion of DINT type into INT type	8		1.3
DINT_TO_BCD	Conversion of DINT type into BCD type	12	278	446.9
DT_TO_DATE	Conversion of DT type into DATE type	16		3.3
DT_TO_TOD	Conversion of DT type into TOD type	16	12	4.1
DT_TO_STRING	Conversion of DT type into string	48	780	524.9
DWORD_TO_WORD	Conversion of DWORD type into WORD type	8		1.3
INT_TO_DINT	Conversion of INT type into DINT type	12		0.9
INT_TO_BCD	Conversion of INT type into BCD type	12	180	129.9
NUM_TO_STRING (int)	Conversion of number into string	52	808	159.9
SINT_TO_BCD	Conversion of SINT type into BCD type	12	140	67.9
STRING_TO_INT	Conversion of string into INT type	16	1308	281.9
CONCAT	To concatenate strings	72	248	54.9
DELETE	To delete string	68	298	63.9
EQ	'Equality' comparison	20	788	38.3
FIND	To find a string	40	222	73.9
INSERT	To insert a string	68	524	418.9
LEFT	To obtain the left part of a string	56	158	33.4
LEN	To obtain the length of a string	16	48	17.5
LIMIT (str)	To output upper or lower limits	80	794	80.9
MAX (str)	To output the maximum input value	76	738	68.4
MID	To obtain the middle part of a string	64	236	47.1
REPLACE	To replace a string with another	73	584	97.9
RIGHT	To obtain the right part of a string	56	226	53.9
ADD_TIME (time)	Time addition	40	280	11.6
DIV_TIME(i1 = time)	Time division	40	266	67.9

REMARK

1) The items marked with '*' has following meaning.

*1 : The size of the program memory which a program occupies when it uses the function once.

*2 : The size of the program memory which a program occupies only one time though it uses the function many times.

*3: of IL programs (2 input variables, 10 strings)

2) The above shows the function list when programs are written with IL(Instruction List) language. If programs are written with LD(Ladder diagram), the following differences occur.

(1) 16 byte will be added to the size of the PB.

(2) In non-execution, 0.4 will be added to the processing speed. In execution, 0.8 μ sec will be added.

Appendix 3. Function/Function Block List

2) Function Block List

Name	Function	Size of PB (byte) *1	Size of library		Processing speed (msec)	
			Size (byte) *2	Size of instance memory *3	GM3	GM4
CTU	Addition counter	72	110	6	10.2	12.8
CTUD	Addition/subtraction counter	112	186	6	15.6	18.4
F_TRIG	Descending edge detection	40	38	1	5.7	6.6
RS	Preference reset table	48	72	2	7.5	8.7
TON	ON delay timer	56	200	2000	8.5	11.1

REMARK

1) The items marked with '*' has following meaning.

*1 : The size of the program memory which a program occupies when it uses the function once.

*2 : The size of the program memory which a program occupies only one time though it uses the function many times.

*3: The size of the program memory which a program occupies whenever it uses the function block once.

2) The occupied memory size and processing speed of IL programs are same as LD programs.