3.2 Basic Instruction

Comparison operation instruction

■Comparing 16-bit binary data

Instruction symbol	Description	Reference
LD=, AND=, OR=	(s1)=(s2): Conductive (s1)≠(s2): Non-Conductive	Page 189
LD=_U, AND=_U, OR=_U		
LD<>, AND<>, OR<>	(s1)≠(s2): Conductive (s1)=(s2): Non-Conductive	
LD<>_U, AND<>_U, OR<>_U		
LD>, AND>, OR>	(s1)>(s2): Conductive (s1)≤(s2): Non-Conductive	
LD>_U, AND>_U, OR>_U		
LD<=, AND<=, OR<=	(s1)≤(s2): Conductive (s1)>(s2): Non-Conductive	
LD<=_U, AND<=_U, OR<=_U		
LD<, AND<, OR<	(s1)<(s2): Conductive (s1)≥(s2): Non-Conductive	
LD<_U, AND<_U, OR<_U		
LD>=, AND>=, OR>=	(s1)≥(s2): Conductive (s1)<(s2): Non-Conductive	
LD>=_U, AND>=_U, OR>=_U		

■Comparing 32-bit binary data

Instruction symbol	Description	Reference
LDD=, ANDD=, ORD=	[(s1)+1, (s1)] = [(s2)+1, (s2)]: Conductive [(s1)+1, (s1)] ≠ [(s2)+1, (s2)]: Non-Conductive	Page 192
LDD=_U, ANDD=_U, ORD=_U		
LDD<>, ANDD<>, ORD<>	[(s1)+1, (s1)] ≠ [(s2)+1, (s2)]: Conductive [(s1)+1, (s1)] = [(s2)+1, (s2)]: Non-Conductive	
LDD<>_U, ANDD<>_U, ORD<>_U		
LDD>, ANDD>, ORD>	[(s1)+1, (s1)] > [(s2)+1, (s2)]: Conductive [(s1)+1, (s1)] ≤ [(s2)+1, (s2)]: Non-Conductive	
LDD>_U, ANDD>_U, ORD>_U		
LDD<=, ANDD<=, ORD<=	[(s1)+1, (s1)] ≤ [(s2)+1, (s2)]: Conductive [(s1)+1, (s1)] > [(s2)+1, (s2)]: Non-Conductive	
LDD<=_U, ANDD<=_U, ORD<=_U		
LDD<, ANDD<, ORD<	[(s1)+1, (s1)] < [(s2)+1, (s2)]: Conductive [(s1)+1, (s1)] ≥ [(s2)+1, (s2)]: Non-Conductive	
LDD<_U, ANDD<_U, ORD<_U		
LDD>=, ANDD>=, ORD>=	[(s1)+1, (s1)] ≥ [(s2)+1, (s2)]: Conductive [(s1)+1, (s1)] < [(s2)+1, (s2)]: Non-Conductive	
LDD>=_U, ANDD>=_U, ORD>=_U		

■Comparison output 16-bit binary data

Instruction symbol	Description	Reference
CMP	(s1)>(s2): (d) is on (s1)=(s2): (d) +1 is on (s1)<(s2): (d) +2 is on	Page 194
CMPP		
CMP_U		
CMPP_U		

■Comparison output 32-bit binary data

Instruction symbol	Description	Reference
DCMP	[(s1)+1, (s1)] > [(s2)+1, (s2)]: (d) is on [(s1)+1, (s1)] = [(s2)+1, (s2)]: (d) + 1 is on [(s1)+1, (s1)] < [(s2)+1, (s2)]: (d) + 2 is on	Page 196
DCMPP		
DCMP_U		
DCMPP_U		

■Comparing 16-bit binary data band

Instruction symbol	Description	Reference
ZCP	(s1)>(s3): (d) is on (s1)≤(s3)≤(s2): (d) + 1 is on (s3)>(s2): (d) + 2 is on	Page 198
ZCPP		
ZCP_U		
ZCPP_U		

■Comparing 32-bit binary data band

Instruction symbol	Description	Reference
DZCP	[(s1)+1, (s1)] > [(s3)+1, (s3)]: (d) is on [(s1)+1, (s1)]≤[(s3)+1, (s3)]≤[(s2)+1, (s2)]: (d) + 1 is on [(s3)+1, (s3)]>[(s2)+1, (s2)]: (d) + 2 is on	Page 200
DZCPP		
DZCP_U		
DZCPP_U		

■Comparing 16-bit binary block data

Instruction symbol	Description	Reference
BKCMP=, BKCMP<>, BKCMP>, BKCMP<=, BKCMP<, BKCMP>=	Compares the 16-bit binary data in the device area ((n) points) from (s1) with the 16-bit binary data in the device area ((n) points) from (s2), and stores the result in the device area ((n) points) from (d).	Page 202
BKCMP=P, BKCMP<>P, BKCMP>P, BKCMP<=P, BKCMP<P, BKCMP>=P		
BKCMP=_U, BKCMP<>_U, BKCMP>_U, BKCMP<=_U, BKCMP<_U, BKCMP>=_U		
BKCMP=P_U, BKCMP<>P_U, BKCMP>P_U, BKCMP<=P_U, BKCMP<P_U, BKCMP>=P_U		

■Comparing 32-bit binary block data

Instruction symbol	Description	Reference
DBKCMP=, DBKCMP<>, DBKCMP>, DBKCMP<=, DBKCMP<, DBKCMP>=	Compares the 32-bit binary data in the device area ((n) points) from (s1) with the 32-bit binary data in the device area ((n) points) from (s2), and stores the result in the device area ((n) points) from (d).	Page 205
DBKCMP=P, DBKCMP<>P, DBKCMP>P, DBKCMP<=P, DBKCMP<P, DBKCMP>=P		
DBKCMP=_U, DBKCMP<>_U, DBKCMP>_U, DBKCMP<=_U, DBKCMP<_U, DBKCMP>=_U		
DBKCMP=P_U, DBKCMP<>P_U, DBKCMP>P_U, DBKCMP<=P_U, DBKCMP<P_U, DBKCMP>=P_U		

Arithmetic operation instruction

■Adding/subtracting 16-bit binary data

Instruction symbol	Description	Reference
+	(d)+(s) → (d)	Page 208
+P		
+_U		
+P_U		
+	(s1)+(s2) → (d)	Page 210
+P		
+_U		
+P_U		
ADD	(s1)+(s2) → (d)	Page 212
ADDP		
ADD_U		
ADDP_U		
-	(d)-(s) → (d)	Page 214
-P		
-_U		
-P_U		
-	(s1)-(s2) → (d)	Page 216
-P		
-_U		
-P_U		
SUB	(s1)-(s2) → (d)	Page 218
SUBP		
SUB_U		
SUBP_U		

■Adding/subtracting 32-bit binary data

Instruction symbol	Description	Reference
D+	[(d)+1, (d)] + [(s)+1, (s)] → [(d)+1, (d)]	Page 220
D+P		
D+_U		
D+P_U		
D+	[(s1)+1, (s1)] + [(s2)+1, (s2)] → [(d)+1, (d)]	Page 222
D+P		
D+_U		
D+P_U		
DADD	[(s1)+1, (s1)] + [(s2)+1, (s2)] → [(d)+1, (d)]	Page 224
DADDP		
DADD_U		
DADDP_U		
D-	[(d)+1, (d)] - [(s)+1, (s)] → [(d)+1, (d)]	Page 226
D-P		
D-_U		
D-P_U		
D-	[(s1)+1, (s1)] - [(s2)+1, (s2)] → [(d)+1, (d)]	Page 228
D-P		
D-_U		
D-P_U		
DSUB	[(s1)+1, (s1)] - [(s2)+1, (s2)] → [(d)+1, (d)]	Page 230
DSUBP		
DSUB_U		
DSUBP_U		

■Multiplying/dividing 16-bit binary data

Instruction symbol	Description	Reference
*	(s1) × (s2) → [(d)+1, (d)]	Page 232
*P		
*_U		
*P_U		
MUL	(s1) × (s2) → [(d)+1, (d)]	Page 234
MULP		
MUL_U		
MULP_U		
/	(s1) ÷ (s2) → quotient (d), remainder (d)+1	Page 236
/P		
/_U		
/P_U		
DIV	(s1) ÷ (s2) → quotient (d), remainder (d)+1	Page 238
DIVP		
DIV_U		
DIVP_U		

■Multiplying/dividing 32-bit binary data

Instruction symbol	Description	Reference
D*	[(s1)+1, (s1)] × [(s2)+1, (s2)] → [(d)+3, (d)+2, (d)+1, (d)]	Page 240
D*P		
D*_U		
D*P_U		
DMUL	[(s1)+1, (s1)] × [(s2)+1, (s2)] → [(d)+3, (d)+2, (d)+1, (d)]	Page 242
DMULP		
DMUL_U		
DMULP_U		
D/	[(s1)+1, (s1)] ÷ [(s2)+1, (s2)] → quotient [(d)+1, (d)], remainder [(d)+3, (d)+2]	Page 244
D/P		
D/_U		
D/P_U		
DDIV	[(s1)+1, (s1)] ÷ [(s2)+1, (s2)] → quotient [(d)+1, (d)], remainder [(d)+3, (d)+2]	Page 246
DDIVP		
DDIV_U		
DDIVP_U		

■Adding/subtracting BCD 4-digit data

Instruction symbol	Description	Reference
B+	(d) + (s) → (d)	Page 248
B+P		
B+	(s1) + (s2) → (d)	Page 249
B+P		
B-	(d) - (s) → (d)	Page 250
B-P		
B-	(s1) - (s2) → (d)	Page 251
B-P		

■Adding/subtracting BCD 8-digit data

Instruction symbol	Description	Reference
DB+	[(d)+1, (d)] + [(s)+1, (s)] → [(d)+1, (d)]	Page 253
DB+P		
DB+	[(s1)+1, (s1)] + [(s2)+1, (s2)] → [(d)+1, (d)]	Page 254
DB+P		
DB-	[(d)+1, (d)] - [(s)+1, (s)] → [(d)+1, (d)]	Page 256
DB-P		
DB-	[(s1)+1, (s1)] - [(s2)+1, (s2)] → [(d)+1, (d)]	Page 257
DB-P		

■Multiplying/dividing BCD 4-digit data

Instruction symbol	Description	Reference
B*	(s1) × (s2) → [(d)+1, (d)]	Page 259
B*P		
B/	(s1) ÷ (s2) → quotient (d), remainder (d)+1	Page 261
B/P		

■Multiplying/dividing BCD 8-digit data

Instruction symbol	Description	Reference
DB*	[(s1)+1, (s1)] × [(s2)+1, (s2)] → [(d)+3, (d)+2, (d)+1, (d)]	Page 263
DB*P		
DB/	[(s1)+1, (s1)] ÷ [(s2)+1, (s2)] → quotient [(d)+1, (d)], remainder [(d)+3, (d)+2]	Page 265
DB/P		

■Adding/subtracting 16-bit binary block data

Instruction symbol	Description	Reference
BK+	Adds the 16-bit binary bit data in the device area ((n) points) from (s1) and the data or constants in the device area ((n) points) from (s2) at once, and stores the result in the device area ((n) points) from (d).	Page 267
BK+P		
BK+_U		
BK+P_U		
BK-	Subtracts the 16-bit binary bit data in the device area ((n) points) from (s1) and the data or constants in the device area ((n) points) from (s2) at once, and stores the result in the device area ((n) points) from (d).	Page 269
BK-P		
BK-_U		
BK-P_U		

■Adding/subtracting 32-bit binary block data

Instruction symbol	Description	Reference
DBK+	Adds the 32-bit binary bit data in the device area ((n) points) from (s1) and the 32-bit data or constants in the device area ((n) points) from (s2), and stores the result in the device area specified by (d) and later.	Page 271
DBK+P		
DBK+_U		
DBK+P_U		
DBK-	Subtracts the 32-bit binary bit data in the device area ((n) points) from (s1) and the 32-bit data or constants in the device area ((n) points) from (s2) and later, and stores the result in the device area specified by (d) and later.	Page 273
DBK-P		
DBK-_U		
DBK-P_U		

■Incrementing/decrementing 16-bit binary data

Instruction symbol	Description	Reference
INC	(d) + 1 → (d)	Page 275
INCP		
INC_U		
INCP_U		
DEC	(d) - 1 → (d)	Page 277
DECP		
DEC_U		
DECP_U		

■Incrementing/decrementing 32-bit binary data

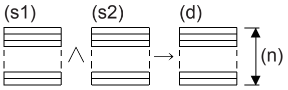
Instruction symbol	Description	Reference
DINC	[(d)+1, (d)] + 1 → [(d)+1, (d)]	Page 278
DINCP		
DINC_U		
DINCP_U		
DDEC	[(d)+1, (d)] -1 → [(d)+1, (d)]	Page 279
DDECP		
DDEC_U		
DDECP_U		

Logical operation instruction

■Performing an AND operation on 16-bit/32-bit data

Instruction symbol	Description	Reference
WAND	(d)∧(s) → (d)	Page 280
WANDP		
WAND	(s1)∧ (s2) → (d)	Page 281
WANDP		
DAND	[(d)+1, (d)] ∧[(s)+1, (s)] → [(d)+1, (d)]	Page 282
DANDP		
DAND	[(s1)+1, (s1)]∧ [(s2)+1, (s2)] → [(d)+1, (d)]	Page 283
DANDP		

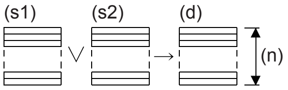
■Performing an AND operation on 16-bit block data

Instruction symbol	Description	Reference
BKAND		Page 285
BKANDP		

■Performing an OR operation on 16-bit/32-bit data

Instruction symbol	Description	Reference
WOR	(d)∨(s) → (d)	Page 287
WORP		
WOR	(s1) ∨(s2) → (d)	Page 288
WORP		
DOR	[(d)+1, (d)] ∨ [(s)+1, (s)] → [(d)+1, (d)]	Page 289
DORP		
DOR	[(s1)+1, (s1)] ∨ [(s2)+1, (s2)] → [(d)+1, (d)]	Page 290
DORP		

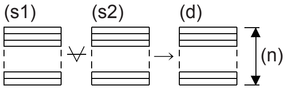
■Performing an OR operation on 16-bit block data

Instruction symbol	Description	Reference
BKOR		Page 292
BKORP		

■Performing an XOR operation on 16-bit/32-bit data

Instruction symbol	Description	Reference
WXOR	(d) ∀ (s) → (d)	Page 294
WXORP		
WXOR	(s1) ∀ (s2) → (d)	Page 295
WXORP		
DXOR	[(d)+1, (d)] ∀ [(s)+1, (s)] → [(d)+1, (d)]	Page 296
DXORP		
DXOR	[(s1)+1, (s1)] ∀ [(s2)+1, (s2)] → [(d)+1, (d)]	Page 297
DXORP		

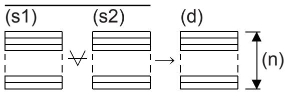
■Performing an XOR operation on 16-bit block data

Instruction symbol	Description	Reference
BKXOR		Page 299
BKXORP		

■Performing an XNOR operation on 16-bit/32-bit data

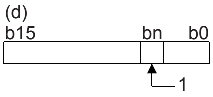
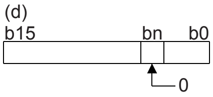
Instruction symbol	Description	Reference
WXNR	$\overline{(d) \veebar (s)} \rightarrow (d)$	Page 301
WXNRP		
WXNR	$\overline{(s1) \veebar (s2)} \rightarrow (d)$	Page 302
WXNRP		
DXNR	$\overline{[(d)+1, (d)] \veebar [(s)+1, (s)]} \rightarrow [(d)+1, (d)]$	Page 303
DXNRP		
DXNR	$\overline{[(s1)+1, (s1)] \veebar [(s2)+1, (s2)]} \rightarrow [(d)+1, (d)]$	Page 304
DXNRP		

■Performing an XNOR operation on 16-bit block data

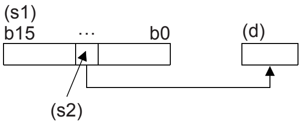
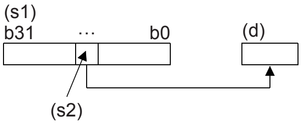
Instruction symbol	Description	Reference
BKXNR		Page 306
BKXNRP		

Bit processing instruction

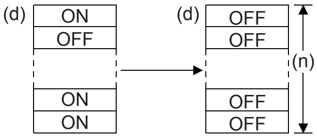
■Setting/resetting a bit in the word device

Instruction symbol	Description	Reference
BSET		Page 308
BSETP		
BRST		Page 309
BRSTP		

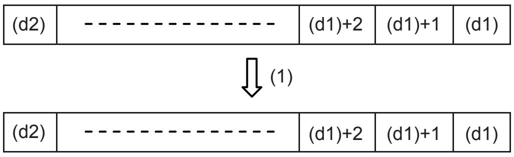
■Performing a bit test

Instruction symbol	Description	Reference
TEST	Extracts the 'n'th bit in the specified word device. 	Page 310
TESTP		
DTEST	Extracts the 'n'th bit in the specified word device. 	Page 312
DTESTP		

■Batch-resetting bit devices

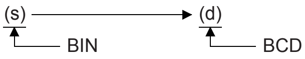
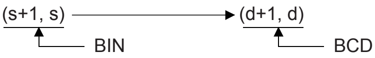
Instruction symbol	Description	Reference
BKRST	Resets the (n) points of bit devices starting from the bit device specified.  (d) ON OFF ON ON (d) OFF OFF OFF OFF (n)	Page 314
BKRSTP		

■Batch-resetting devices

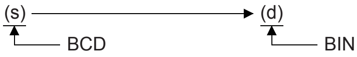
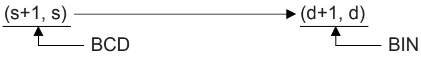
Instruction symbol	Description	Reference
ZRST	 (d2) (d1)+2 (d1)+1 (d1) (1) (d2) (d1)+2 (d1)+1 (d1) (1): (d1), (d2) are bit devices: Writes off (reset) from (d1) to (d2) (d1), (d2) are word devices: Writes K0 from (d1) to (d2)	Page 315
ZRSTP		

Data conversion instruction

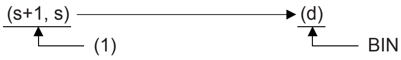
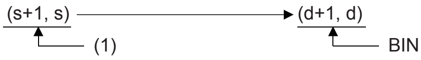
■Converting binary data to BCD 4-digit/8-digit data

Instruction symbol	Description	Reference
BCD	Converts the specified 16-bit binary data (0 to 9999) to BCD 4-digit data. 	Page 318
BCDP		
DBCD	Converts the specified 32-bit binary data (0 to 99999999) to BCD 8-digit data. 	Page 320
DBCDP		

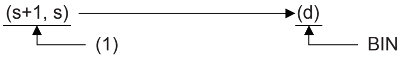
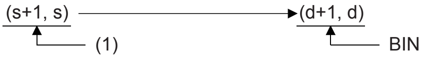
■Converting BCD 4-digit/8-digit data to binary data

Instruction symbol	Description	Reference
BIN	Converts the specified BCD 4-digit data (0 to 9999) to 16-bit binary data. 	Page 322
BINP		
DBIN	Converts the specified BCD 8-digit data (0 to 99999999) to 32-bit binary data. 	Page 324
DBINP		

■Converting single-precision real number to 16-bit/32-bit signed binary data

Instruction symbol	Description	Reference
FLT2INT	Converts the specified single-precision real number (-32768 to 32767) to 16-bit signed binary data.  (1): Real number	Page 326
FLT2INTP		
FLT2DINT	Converts the specified single-precision real number (-2147483648 to 2147483647) to 32-bit signed binary data.  (1): Real number	Page 330
FLT2DINTP		

■Converting single-precision real number to 16-bit/32-bit unsigned binary data

Instruction symbol	Description	Reference
FLT2UINT	Converts the specified single-precision real number (0 to 65535) to 16-bit unsigned binary data.  (1): Real number	Page 328
FLT2UINTP		
FLT2UDINT	Converts the specified single-precision real number (0 to 4294967295) to 16-bit unsigned binary data.  (1): Real number	Page 332
FLT2UDINTP		

■Converting 16-bit signed binary data to 16-bit/32-bit unsigned binary data

Instruction symbol	Description	Reference
INT2UINT INT2UINTP	Converts 16-bit signed data in the device specified by (s) to 16-bit unsigned data, and stores the converted data in the device specified by (d).	Page 334
INT2UDINT INT2UDINTP	Converts 16-bit signed data in the device specified by (s) to 32-bit unsigned data, and stores the converted data in the device specified by (d).	Page 336

■Converting 16-bit signed binary data to 32-bit signed binary data

Instruction symbol	Description	Reference
INT2DINT INT2DINTP	Converts 16-bit signed data in the device specified by (s) to 32-bit signed data, and stores the converted data in the device specified by (d).	Page 335

■Converting 16-bit unsigned binary data to 16-bit/32-bit signed binary data

Instruction symbol	Description	Reference
UINT2INT UINT2INTP	Converts 16-bit unsigned data in the device specified by (s) to 16-bit signed data, and stores the converted data in the device specified by (d).	Page 337
UINT2DINT UINT2DINTP	Converts 16-bit unsigned data in the device specified by (s) to 32-bit signed data, and stores the converted data in the device specified by (d).	Page 338

■Converting 16-bit unsigned binary data to 32-bit unsigned binary data

Instruction symbol	Description	Reference
UINT2UDINT UINT2UDINTP	Converts 16-bit unsigned data in the device specified by (s) to 32-bit unsigned data, and stores the converted data in the device specified by (d).	Page 339

■Converting 32-bit signed binary data to 16-bit signed binary data

Instruction symbol	Description	Reference
DINT2INT DINT2INTP	Converts 32-bit signed data in the device specified by (s) to 16-bit signed data, and stores the converted data in the device specified by (d).	Page 340

■Converting 32-bit signed binary data to 16-bit/32-bit unsigned binary data

Instruction symbol	Description	Reference
DINT2UINT DINT2UINTP	Converts 32-bit signed data in the device specified by (s) to 16-bit unsigned data, and stores the converted data in the device specified by (d).	Page 341
DINT2UDINT DINT2UDINTP	Converts 32-bit signed data in the device specified by (s) to 32-bit unsigned data, and stores the converted data in the device specified by (d).	Page 342

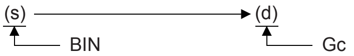
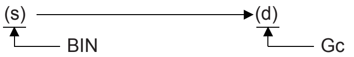
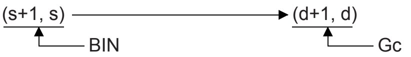
■Converting 32-bit unsigned binary data to 16-bit/32-bit signed binary data

Instruction symbol	Description	Reference
UDINT2INT UDINT2INTP	Converts 32-bit unsigned data in the device specified by (s) to 16-bit signed data, and stores the converted data in the device specified by (d).	Page 343
UDINT2DINT UDINT2DINTP	Converts 32-bit unsigned data in the device specified by (s) to 32-bit signed data, and stores the converted data in the device specified by (d).	Page 345

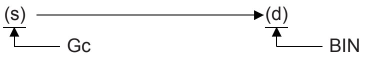
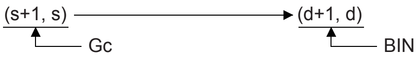
■Converting 32-bit unsigned binary data to 16-bit unsigned binary data

Instruction symbol	Description	Reference
UDINT2UINT UDINT2UINTP	Converts 32-bit unsigned data in the device specified by (s) to 16-bit unsigned data, and stores the converted data in the device specified by (d).	Page 344

■Converting 16-bit/32-bit binary data to Gray code

Instruction symbol	Description	Reference
GRY	Converts the specified 16-bit binary data (-32768 to 32767) to 16-bit binary Gray code data.  Gc: Gray code	Page 346
GRYP		
GRY_U	Converts the specified 16-bit binary data (0 to 65535) to 16-bit binary Gray code data.  Gc: Gray code	
GRYP_U		
DGRY	Converts the specified 32-bit binary data (-2147483648 to 2147483647) to 32-bit binary Gray code data.  Gc: Gray code	Page 347
DGRYP		
DGRY_U	Converts the specified 32-bit binary data (0 to 4294967295) to 32-bit binary Gray code data. (s+1, s) (d+1, d) BIN Gc Gc: Gray code	
DGRYP_U		

■Converting Gray code to 16-bit/32-bit binary data

Instruction symbol	Description	Reference
GBIN	Converts the specified 16-bit binary Gray code data (-32768 to 32767) to 16-bit binary data. Gc: Gray code	Page 349
GBINP		
GBIN_U	Converts the specified 16-bit binary Gray code data (0 to 65535) to 16-bit binary data.  Gc: Gray code	
GBINP_U		
DGBIN	Converts the specified 32-bit binary Gray code data (-2147483648 to 2147483647) to 32-bit binary data.  Gc: Gray code	Page 350
DGBINP		
DGBIN_U	Converts the specified 32-bit binary Gray code data (0 to 4294967295) to 32-bit binary data. (s+1, s) (d+1, d) Gc BIN Gc: Gray code	
DGBINP_U		

■Converting decimal ASCII to 16-bit/32-bit binary data

Instruction symbol	Description	Reference
DABIN	Converts a 5-digit decimal ASCII value in the device specified by (s) to a 1 word binary value, and stores the converted data in the word device number specified by (d).	Page 352
DABINP		
DABIN_U		
DABINP_U		
DDABIN	Converts a 10-digit decimal ASCII value in the device specified by (s) to a 2 word binary value, and stores the converted data in the word device number specified by (d).	Page 356
DDABINP		
DDABIN_U		
DDABINP_U		

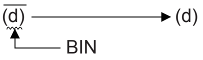
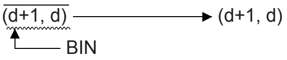
■Converting ASCII to HEX

Instruction symbol	Description	Reference
HEXA	Converts the ASCII data stored in the number of characters specified by (n) starting from device specified in (s), and stores the converted data in the device specified by (d) onwards.	Page 360
HEXAP		

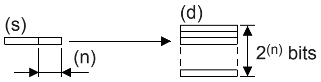
■Converting character string to 16-bit/32-bit binary data

Instruction symbol	Description	Reference
VAL	Converts a character string including decimal point in the device specified by (s) to a 1 word binary value and number of decimal fraction digits, and stores the converted data in the devices specified by (d1) and (d2).	Page 364
VALP		
VAL_U		
VALP_U		
DVAL	Converts a character string including decimal point in the device specified by (s) to a 2 words binary value and number of decimal fraction digits, and stores the converted data in the devices specified by (d1) and (d2).	Page 367
DVALP		
DVAL_U		
DVALP_U		

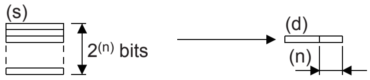
■Two's complement of 16-bit/32-bit binary data (sign inversion)

Instruction symbol	Description	Reference
NEG		Page 370
NEGP		
DNEG		Page 372
DNEGP		

■Decoding from 8 to 256 bits

Instruction symbol	Description	Reference
DECO		Page 373
DECOP		

■Encoding from 256 to 8 bits

Instruction symbol	Description	Reference
ENCO		Page 375
ENCOP		

■Seven-segment decoding

Instruction symbol	Description	Reference
SEGD	Decoded to data for the seven-segment display unit in the device specified by (s),and stores in the device specified by (d).	Page 377
SEGDP		

■Seven-segment with latch

Instruction symbol	Description	Reference
SEGL	The 4-digit numeric value stored in (s) is converted into BCD data, and each digit is output to the seven-segment display unit with the BCD decoder by the time division method.	Page 379

■Separating 4 bits from 16-bit data

Instruction symbol	Description	Reference
DIS	Separates the 16-bit data specified by (s) into 4-bit units and stores in the lower 4 bits of (n) points from (d). (n < 4)	Page 382
DISP		

■Connecting 4 bits to 16-bit data

Instruction symbol	Description	Reference
UNI	Connects the lower 4 bits of (n) points from the device specified by (s), and stores the result in the device specified by (d). (n < 4)	Page 384
UNIP		

■Separating/connecting the specified number of bits

Instruction symbol	Description	Reference
NDIS	Separates the data in the devices starting from the one specified by (s1) into bits specified by the devices from (s2), and stores them to the devices starting from the one specified by (d).	Page 386
NDISP		
NUNI	Connects the data in the devices starting from the one specified by (s1) with bits specified by the devices from (s2), and stores them to the devices starting from the one specified by (d).	Page 388
NUNIP		

■Separating/connecting data in byte units

Instruction symbol	Description	Reference
WTOB	Breaks (n) points of 16 bit data from the device specified by (s) into 8-bit units, and stores in the devices starting from the one specified by (d).	Page 390
WTOBP		
BTOW	Connects the lower 8 bits of 16-bit data of (n) points from the device specified by (s) into 16-bit units, and stores in the devices starting from the one specified by (d).	Page 392
BTOWP		

Digital Switch

Instruction symbol	Description	Reference
DSW	Stores the value of the (n) sets of digital switches connected to (s) to (d2).	Page 395

Data transfer instruction

■Transferring 16-bit/32-bit data

Instruction symbol	Description	Reference
MOV	(s) → (d)	Page 397
MOVP		
DMOV	(s+1, s) → (d+1, d)	Page 399
DMOVP		

■Inverting and transferring 16-bit/32-bit data

Instruction symbol	Description	Reference
CML	$\overline{\text{(s)}}$ → (d)	Page 401
CMLP		
DCML	$\overline{\text{(s+1, s)}}$ → (d+1, d)	Page 403
DCMLP		

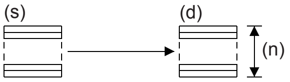
■Shift move

Instruction symbol	Description	Reference
SMOV	Shifts the specified no. of digits from the word device specified by (s), and store in (d).	Page 404
SMOVP		

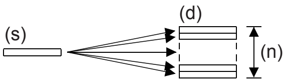
■Inverting and transferring 1-bit data

Instruction symbol	Description	Reference
CMLB	Inverts the bit data specified by (s), and store in (d).	Page 406
CMLBP		

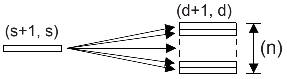
■Transferring 16-bit block data

Instruction symbol	Description	Reference
BMOV	 (n) = 1 to 65535	Page 407
BMOVP		

■Transferring identical 16-bit block data

Instruction symbol	Description	Reference
FMOV	 (n) = 1 to 65535	Page 409
FMOVP		

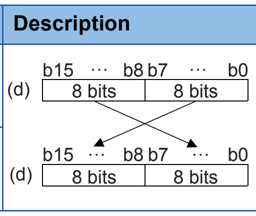
■Transferring identical 32-bit block data

Instruction symbol	Description	Reference
DFMOV	 (n) = 1 to 65535	Page 411
DFMOVP		

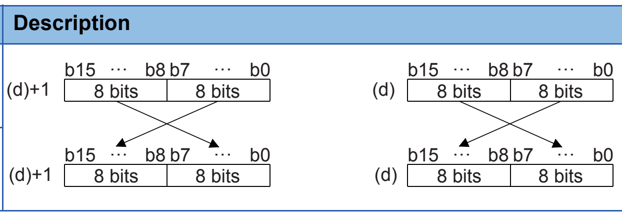
■Exchanging 16-bit/32-bit data

Instruction symbol	Description	Reference
XCH	(d1) ↔ (d2)	Page 413
XCHP		
DXCH	(d1+1, d1) ↔ (d2+1, d2)	Page 415
DXCHP		

■Exchanging the upper and lower bytes of 16-bit data

Instruction symbol	Description	Reference
SWAP	 (d) b15 ··· b8 b7 ··· b0 8 bits 8 bits (d) b15 ··· b8 b7 ··· b0 8 bits 8 bits	Page 417
SWAPP		

■Exchanging the upper and lower bytes of 32-bit data

Instruction symbol	Description	Reference
DSWAP	 (d)+1 b15 ··· b8 b7 ··· b0 8 bits 8 bits (d)+1 b15 ··· b8 b7 ··· b0 8 bits 8 bits (d) b15 ··· b8 b7 ··· b0 8 bits 8 bits (d) b15 ··· b8 b7 ··· b0 8 bits 8 bits	Page 418
DSWAPP		

■Transferring 1-bit data

Instruction symbol	Description	Reference
MOVB	Stores the bit data specified by (s) in (d).	Page 419
MOVBP		

■Parallel run (octal mode) (16-bit data)

Instruction symbol	Description	Reference
PRUN	Handles device number specified by (s) in digit specification and (d) as octal, and stores into (d) from (s).	Page 420
PRUNP		

■Parallel run (octal mode) (32-bit data)

Instruction symbol	Description	Reference
DPRUN	Handles device number specified by (s) in digit specification and (d) as octal, and stores into (d) from (s).	Page 422
DPRUNP		

■Transferring n-bit data

Instruction symbol	Description	Reference
BLKMOVB	Block transfers bit data for (n) points from (s) to bit data for (n) points from (d).	Page 424
BLKMOVBP		