

SYSMAC CS/CJ Series

CS1G/H-CPU□□-EV1

CS1G/H-CPU□□H

CJ1G-CPU□□

CJ1G/H-CPU□□H

Programmable Controllers

PROGRAMMING MANUAL

OMRON

SYSMAC CS/CJ Series

CS1G/H-CPU□□-EV1

CS1G/H-CPU□□H

CJ1G-CPU□□

CJ1G/H-CPU□□H

Programmable Controllers

Programming Manual

Revised October 2001

TABLE OF CONTENTS

PRECAUTIONS	xi
1 Intended Audience	xii
2 General Precautions	xii
3 Safety Precautions	xii
4 Operating Environment Precautions	xiv
5 Application Precautions	xiv
6 Conformance to EC Directives	xix
 SECTION 1	
CPU Unit Operation	1
1-1 Initial Setup (CS1 CPU Units Only)	2
1-2 Using the Internal Clock (CS1 CPU Units Only)	5
1-3 Internal Structure of the CPU Unit	6
1-4 Operating Modes	8
1-5 Programs and Tasks	12
1-6 Description of Tasks	14
 SECTION 2	
Programming	19
2-1 Basic Concepts	20
2-2 Precautions	54
2-3 Checking Programs	63
 SECTION 3	
Instruction Functions	69
3-1 Sequence Input Instructions	70
3-2 Sequence Output Instructions	72
3-3 Sequence Control Instructions	75
3-4 Timer and Counter Instructions	78
3-5 Comparison Instructions	81
3-6 Data Movement Instructions	84
3-7 Data Shift Instructions	87
3-8 Increment/Decrement Instructions	91
3-9 Symbol Math Instructions	92
3-10 Conversion Instructions	97
3-11 Logic Instructions	103
3-12 Special Math Instructions	105
3-13 Floating-point Math Instructions	106
3-14 Double-precision Floating-point Instructions (CS1-H or CJ1-H Only)	110
3-15 Table Data Processing Instructions	114
3-16 Data Control Instructions	118
3-17 Subroutine Instructions	121
3-18 Interrupt Control Instructions	123
3-19 Step Instructions	124
3-20 Basic I/O Unit Instructions	125
3-21 Serial Communications Instructions	126
3-22 Network Instructions	127
3-23 File Memory Instructions	129
3-24 Display Instructions	130

TABLE OF CONTENTS

3-25	Clock Instructions	130
3-26	Debugging Instructions	131
3-27	Failure Diagnosis Instructions	132
3-28	Other Instructions	133
3-29	Block Programming Instructions	134
3-30	Text String Processing Instructions	140
3-31	Task Control Instructions	143

SECTION 4

Tasks	145
4-1 Task Features	146
4-2 Using Tasks	154
4-3 Interrupt Tasks	164
4-4 Programming Device Operations for Tasks	175

SECTION 5

File Memory Functions	177
5-1 File Memory	178
5-2 Manipulating Files	192
5-3 Using File Memory	219

SECTION 6

Advanced Functions	225
6-1 Cycle Time/High-speed Processing	227
6-2 Index Registers	244
6-3 Serial Communications	253
6-4 Startup Settings and Maintenance	262
6-5 Diagnostic Functions	272
6-6 CPU Processing Modes	277
6-7 Peripheral Servicing Priority Mode	282
6-8 Battery-free Operation	287
6-9 Other Functions	289

SECTION 7

Program Transfer, Trial Operation, and Debugging	291
7-1 Program Transfer	292
7-2 Trial Operation and Debugging	292

Appendices

A	PC Comparison Charts: CJ-series, CS-series, C200HG/HE/HX, CQM1H, CVM1, and CV-series PCs	301
B	Changes from Previous Host Link Systems	323