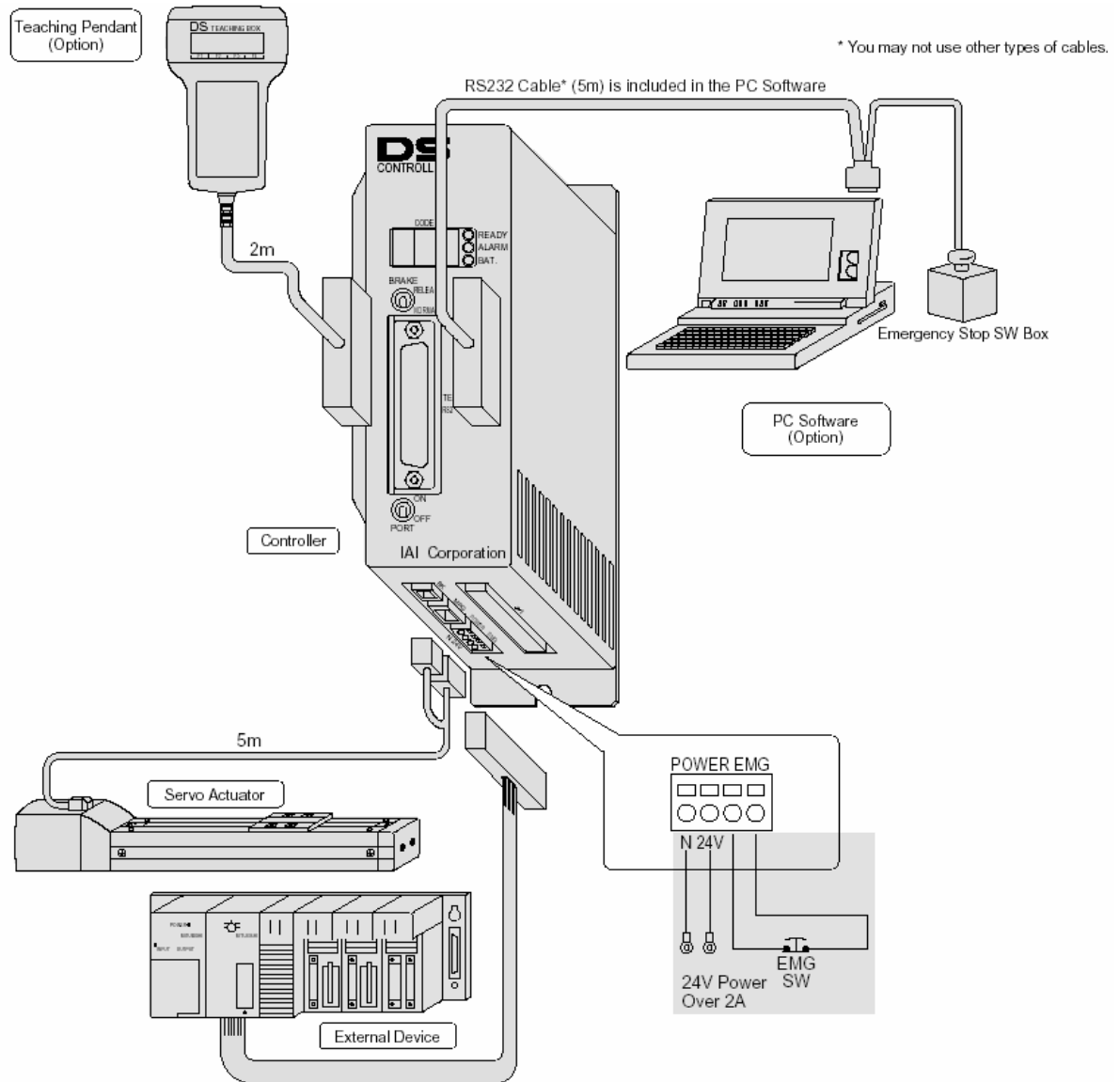
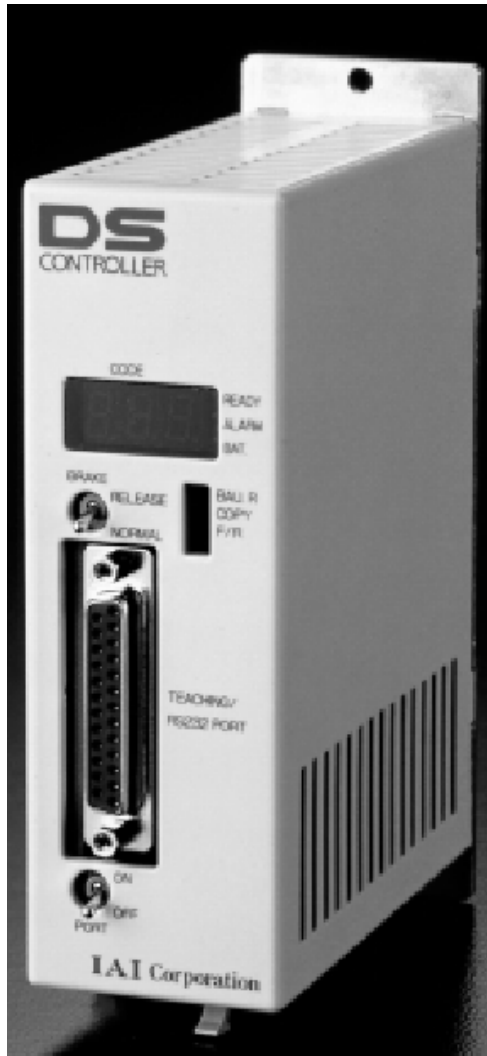
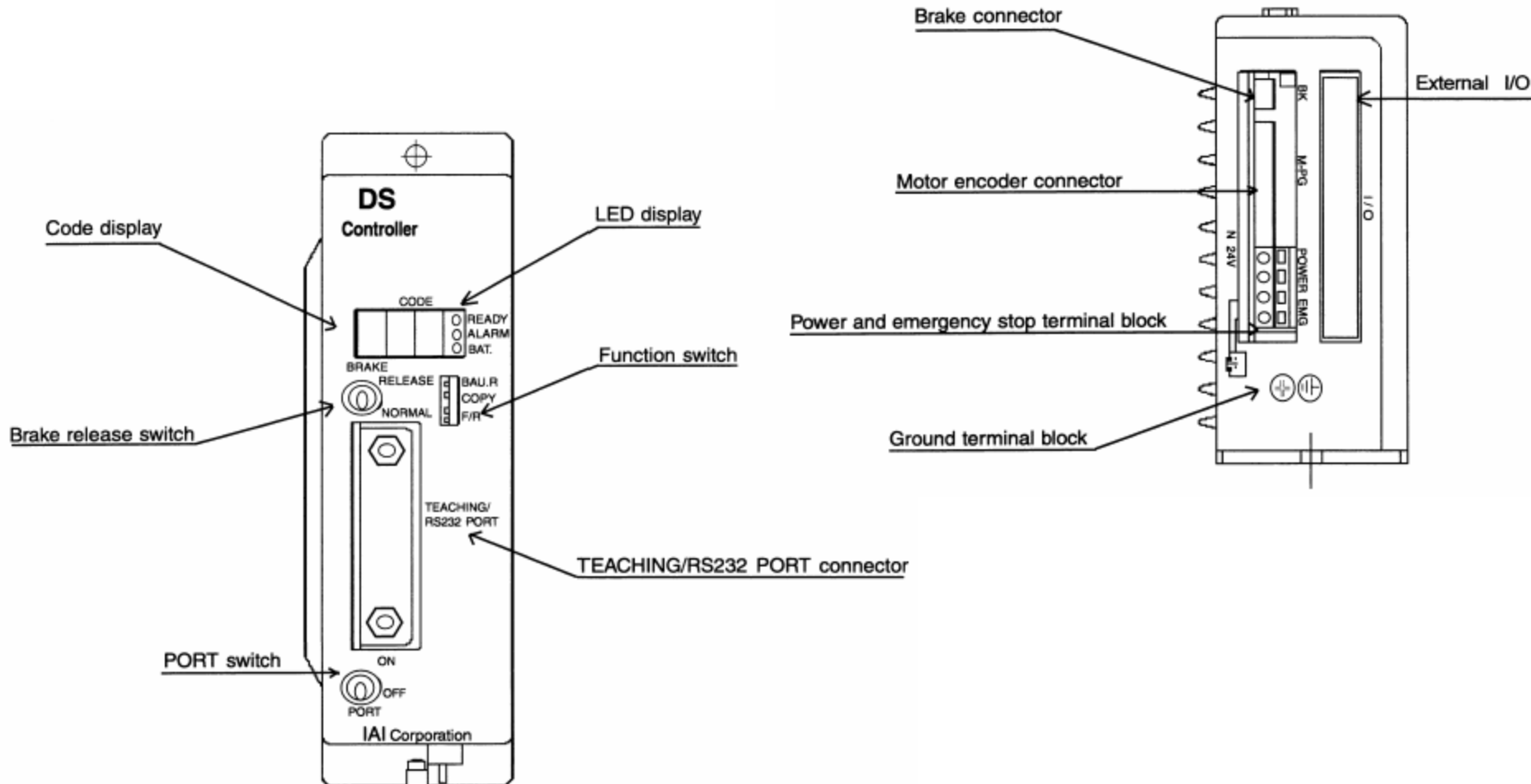


Intelligent Actuator Motion Ctrl



IAI DS Controller



IAI DS Controller

Standard NPN (Sinking)

Program Mode

Terminal Block (4pin)

Pin No.	Signal Name
1	N
2	24V
3	24V
4	EMG SW

EMG SW

I/O Connector (34 pin)

Pin No.	Section	Port No.	Function
1A	P24		External current + 24V in out
1B	Input		PRG No. 1 Input
2A			PRG No. 2 Input
2B			PRG No. 4 Input
3A			PRG No. 8 Input
3B			PRG No. 10 Input
4A			PRG No. 20 Input
4B			NC
5A			CPU Reset
5B		000	External Start Input
6A		001	User Input
6B		002	User Input
7A		003	User Input
7B		004	User Input
8A		005	User Input
8B		006	User Input
9A		007	User Input
9B		008	User Input
10A		009	User Input
10B		010	User Input
11A		011	User Input
11B		012	User Input
12A		013	User Input
12B		014	User Input
13A		015	User Input
13B	Output	300	Alarm Output
14A		301	Ready Output
14B		302	User Output
15A		303	User Output
15B		304	User Output
16A		305	User Output
16B		306	User Output
17A		307	User Output
17B	N24		External Current OV

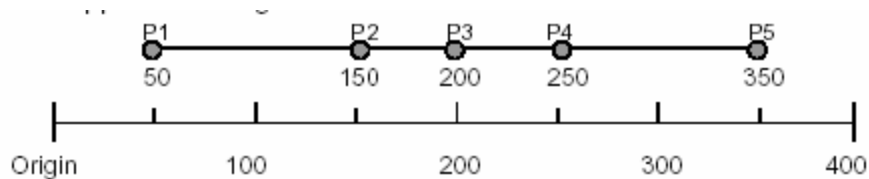
Digital SW

Note:

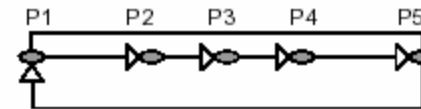
PRG = Program
NC = No Contact

OV 24V

IAI DS Controller



P1 → P2 → P3 → P4 → P5 → P1 (This path is repeated):



[Position Data]

Position No.	Position Data
0001	50.00
0002	150.00
0003	200.00
0004	250.00
0005	350.00

Step	Command		Explanation
1	SVON		Turns the Servo ON
2	HOME		Executes Homing
3	VEL	500	Sets the velocity to 500mm/sec
4	TAG	01	
5	MOVP	001	Moves to Position No. 1
6	MOVP	002	Moves to Position No. 2
7	MOVP	003	Moves to Position No. 3
8	MOVP	004	Moves to Position No. 4
9	MOVP	005	Moves to Position No. 5
10	GOTO	01	Jumps to TAG 01

IAI Programming

Catagory	Function	Command
Actuator Control Designation	Set velocity	VEL
	Set velocity factor	OVRD
	Set acceleration	ACC
	Set S motion ratio	SCRV
	Set offset	OFST
	Declare pause port	HOLD
	Declare stop complete port	CANCL
	Acquire axis status	AXST
Actuator Control Commands	Servo [ON OFF]	SVXX
	Homing	HOME
	Move to designated position	MOVP
	Move to designated position	MVPI
	Path motion	PATH
	Jog [FN FF BN BF]	JXWX
	Axis slows to a halt	STOP
Input/Output Flag Operation Commands	Compare character string branching [EQ NE GT GE LT LE]	IFXX
	Declare command execution when conditions are unestablished	ELSE
	Declare IF ending	EDIF
Structure DO Commands	Loop [EQ NE GT GE LT LE]	DWXX
	Escape from DO	LEAV
	Repeat DO	ITER
	Declare DO complete	EDDO

I/O Flag Operations	Output Flag [ON OFF NT]	BTXX
	Input Flag [ON OFF]	WTXX
	Binary input (Max 15 bit)	IN
	BCD input (Max 3 digits)	INB
	Binary output (Max 6 bit)	OUT
	BCD output (Max 1 digits)	OUTB
Program Control	Jump	GOTO
	Declare jump target	TAG
	Execute subroutine	EXSR
	Start subroutine	BGSR
	End subroutine	EDSR
Task Control	Terminate program	EXIT
	Start program	EXPG
	Stop other programs	ABPG
Position Operations	Assign position to variable 199	PGET
	Assign value of variable 199	PPUT
	Clear point data	PCLR
	Copy point data	PCPY
	Read current position of axis	PRED
	Confirm position data	PTST
	Assign position velocity	PVEL
	Assign position acceleration	PACC
	Confirm position size	PSIZ

IAI Programming

Category	Function	Command
Numeric Calculations	Assign	LET
	Move	TRAN
	Clear variables	CLR
Arithmetic Calculations	Add	ADD
	Subtract	SUB
	Multiply	MULT
	Divide	DIV
	Figure remainder	MOD
Functional Calculations	Sine	SIN
	Cosine	COS
	Tangent	TAN
	Arctangent	ATN
	Square root	SQR
Logic Operations	Logic AND	AND
	Logic OR	OR
	Logic EXOR	EOR
Compare	Comparison	CPXX
Timer	Time wait	TIMW
	Time wait cancel	TIMC
	Acquire time	GTTM

IAI Example program

K:\CLASS\ENGR\480\PROJ2005\TEAM_N~1\NENNIC~1\IAI\TEST2.PRG								
Step	E	N	Cnd	Cmd	Operand1	Operand2	Pst	Comment
1				TAG	1			
2								Move to Pos.1
3				VEL	100			
4				ACC	0.3			
5				MOVP	1			
6				EXIT				
7				TAG	2			Move to Pos.2
8				VEL	100			
9				ACC	0.3			
10				MOVP	2			
11				EXIT				
12				TAG	3			Move to Pos.3
13				VEL	100			
14				ACC	0.3			
15				MOVP	3			
16				EXIT				

No.	Acc	Vel	Position
1	0.5	200	100.000
2	0.50	200	120.000
3	0.50	200	140.000
4	0.50	200	160.000
5	0.50	200	180.000
6			

IAI Example Program

K:\CLASS\ENGR\480\IAI\MASTER6.PRG

Step	E	N	Cnd	Cmnd	Operand1	Operand2	Pst	Comment
1				SVON	1			SERVOS ON
2				BTON	302			
3				HOME	1			HOME SERVO
4				ACC	0.9			SET ACCEL
5				VEL	1000			SET VELOCITY
6				MOVP	1			PICK UP POS.
7				TAG	1			
8				WTON	015			Wait for START
9				BTOF	302			Reset Move Done
10				IN	016	017		Load pos to 99
11				ADD	99	2		0 input -> Pos 2
12				MOVP	*99			Move to pos #
13				BTON	302			Move Done
14				WTOF	015			Wait for /START
15				GOTO	1			

No.	Acc	Vel	Position
1	0.5	200	100.000
2	0.50	200	120.000
3	0.50	200	140.000
4	0.50	200	160.000
5	0.50	200	180.000