10nm feedback stage FS-PX

FS-PX is feedback stage with 10nm resolution positioning.
In-house optical linear encoder are built-in at the center of stage to detect position.
Positioning to target position, positioning repeatability and holding the position with high resolution is achieved by feedback control using position information of encoder.
There are five types of the stages. It is ideal for collecting the data in a wide range or for performing precise positioning and movement of a sample on a single stage by the large travel range.
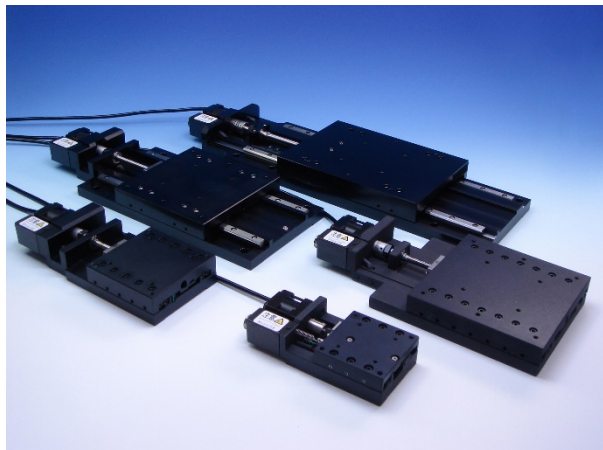
Applicable controller and cable	
Controller	FC-511 （except FS-3200PX）
Cable	PM-CA （except FS-3200PX）

Applicable controller and cable	
Controller	FC-514 （FS-3200PX only）
Cable	PM4N-CA-*SD （except FS-3200PX）

Specifications						
Part number		**FS-1020PX**	**FS-1050PX**	**FS-1100PX**	**FS-3150PX**	**FS-3200PX**
Mechanical spec	Travel [mm]	20	50	100	150	200
	Size of the stage [mm]	60×60	120×120	120×120	120×170	160×230
	Feed screw [mm]	Ball screw dia.4, 1mm lead	Ball screw dia.6, 1mm lead	Ball screw dia.6, 1mm lead	Ball screw dia.8, 1mm lead	Ball screw dia.10, 2mm lead
	Positioning slide	Crossed roller	Crossed roller	LM guide	LM guide	LM guide
	Primary material	Aluminum				
	Finish	Black anodized				
	Motor type	□28mm 5 phase stepping motor				
	Weight [kg]	0.5	1.6	2.1	2.8	5
Accuracy spec	Minimum Resolution [nm] ※1	10	10	10	10	10
	Positional repeatability [nm] ※1	+/- 20	+/- 20	+/- 20	+/- 20	+/- 20
	Load capacity [N]	49(5kgf)	98(10kgf)	98(10kgf)	98(10kgf)	196(20kgf)
	Running parallelism [µm]	10	10	10	10※2	10※2
	Max speed [mm/sec]	10	10	10	10	20
Sensor	Limit sensor	Equipped	Equipped	Equipped	Equipped	Equipped
	Slow down sensor	None	None	None	None	Equipped
	Origin sensor	None	None	None	None	None
	Proximity origin sensor	None	None	None	None	None
Equipped scale	Signal cycle	4µm	4µm	4µm	4µm	4µm
	Scale cable (※3)	2m	2m	2m	2m	2m

※1 : Minimum resolution and position repeatability accuracy for built-in scale read.
※2 : Running parallelism per 100mm travel.
※3 : Scale cable comes directly out of the stage. Please prepare "extension cable for scale" separately if 2m or longer cable are needed.

FS-1020PX

4-M3 depth 5※　50　4-M4 depth 5※　HR10A-10TR-12SC Receptacle (Hirose)
32
60　50　Stage width 60
60　50　32　30
30
60
85　8　32　7
132

Travel 10　60　Travel 10
Stage length
φ14
5
27　5
16　30
4-φ4.5 through hole
φ8 counterbore depth 9
5　50
85　8　32　7

FS-1050PX

10-M4 depth 8
HR10A-10TR-12SC Receptacle (Hirose)
10
100　Stage width 120　120　100　50
10
50
100
120　36　29　10　32　7
234

Travel 25　Stage length 120　Travel 25
φ14
29　5
34　20
10　100
4-φ4.5 through hole
φ8 counterbore depth 6.5

FS-1100PX

120
50　50
50
HR10A-10TR-12SC Receptacle (Hirose)
120　100　Stage width　120　100　50
60
10-M4 depth 8　115
236　39　32　7
314

Travel 50　Stage length 120　Travel 50
29　5
21　28　5　35
4-φ4.5 through hole
φ8 counterbore depth 6
15　50　100　50　21
φ14　2
236　39

FS-3150PX

6-M4 depth 10 (unmarked)　4-M4 depth 5 (※"a" mark)
170
50　50
50
HR10A-10TR-12SC Receptacle (Hirose)
100　Stage width 120　120　100　50
60
※a
160
355　8　32　7
402

Travel 75　Stage length 170　Travel 75
35
28　34
6.5　10　50　50　100　50　50　45
φ14　20　5
12-φ4.5 through hole
φ8 counterbore depth 6
355

FS-3200PX

4-M4 depth 8
14-M4 depth 8　140
HR10A-10TR-12SC Receptacle (Hirose)
160　140　Stage width 160　160　100　50　140
※a　※a　※a
50
80　50　50　50　50　80　61.5
230
459.5

Slow down range 5　Travel 100　Stage length 230　Travel 100　Slow down range 5
40
20　34
6.5　25　100　140　100　25　69.5
φ14
8-φ4.5 through hole
φ8 counterbore depth 8

FC-511/514

(11.5)
219.5　215
3　87.5
(3.4)　19　290　(6.6)
(100.5)　(83)　5
(20)　(6)　(10)
(11.5)

FS-PX dedicated controller for 10nm feedback stage FC-511/FC-514　RoHS

Dedicated controller for 10nm feedback stage
(FS-PX series) to control with 10nm resolution.
Highly safe and easy to operate with various
error detection functions, general-purpose I / O,
and teaching functions.

Specifications				FC-511	FC-514
Part number				**FC-511**	**FC-514**
Primary spec	Number of control axes			2	
	Minimum command unit			10nm	
	In position range			+/- 10nm (+/- 30, +/- 70nm selectable)	
	Max operating speed set value			50mm/sec	
	Max travel range set value			−1342.17728〜+1342.17727mm	
	Number of control interface port	Jog controller		1	
		Emergency stop		1	
		GP-IB		1	
		USB		1	
		Ethernet		1	
		General I/O		1	
	Teaching	Number of register channel		5	
		Number of registered lines per channel		200	
		Operational interface		Controller key operation	Controller key operation
				Jog controller key operation	Jog controller key operation
				Communication command	Communication command
				General I/O	General I/O
General spec	Power voltage			AC100〜240V 50/60Hz	AC100〜240V 50/60Hz
	Power supply voltage fluctuation allowable range			AC90V〜264V	AC90V〜264V
	Power consumption			110VA max	110VA max
	Fuse			250V, 2.5A, time lag, 2	250V, 2.5A, time lag, 2
	Outer dimensions（W×H×Dmm）			W220×H88×D290mm	W220×H88×D290mm
	Weight［kg］			5.2	5.2
	Operating temperature/humidity			0 deg.C to 40 deg.C / 20% to 80%RH(without condensation)	0 deg.C to 40 deg.C / 20% to 80%RH(without condensation)
	Storage temperature/humidity			-10deg.C to 55 deg.C / 20%〜80%RH (without condensation)	-10deg.C to 55 deg.C / 20%〜80%RH (without condensation)
	Connectable option			JC-01	JC-01
	Slow down sensor input			N/A	Applicable
	Communication port	GP-IB	Address	1〜30	
			Delimiter	CR+LF, EOI, CR, LF	
			Service request	Valid or invalid	
			Flow control	None (fixed)	
		USB	Function	Virtual COM port	
			Transfer speed	Full speed transfer (12Mbps max)	
			Delimiter	CR+LF, CR, LF	
		Ethernet	Standard	IEEE802.3x standard flow control compliant	
			Transfer speed	10Mbps and 100Mbps	
			Delimiter	CR+LF, CR, LF	
	General I/O port	Input	General input	3 port	
			Teaching	1 set	
			Busy error cancel	1 set	
		Output	General output	3 port	
			Scale division pulse signal	1 set for each axis	
			Alarm signal	1 set for each axis	
			In position signal	1 set for each axis	
			Teaching status	1 set	
	Emergency stop input			B contact (fixed)	