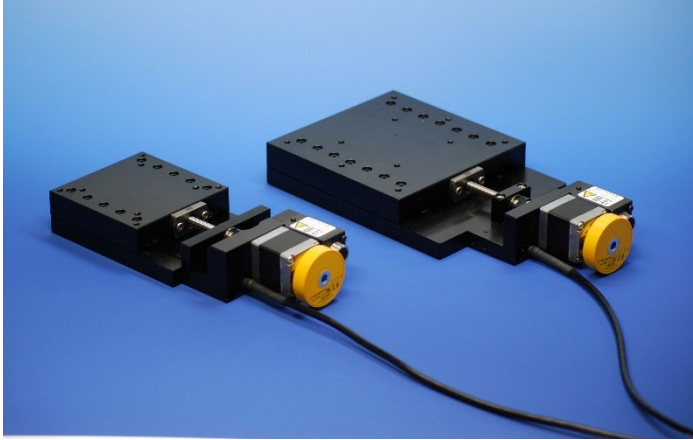


1nm feedback stage **FS-UPX**



FS-UPX is feedback stage with 1nm resolution positioning.
 FS-UPX series operates faster than high torque type FS-SPX series.
 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 two types of the stage which travel of 20mm and 50mm.



Applicable controller and cable	
Controller	FC-911
Cable	PM-CA-*

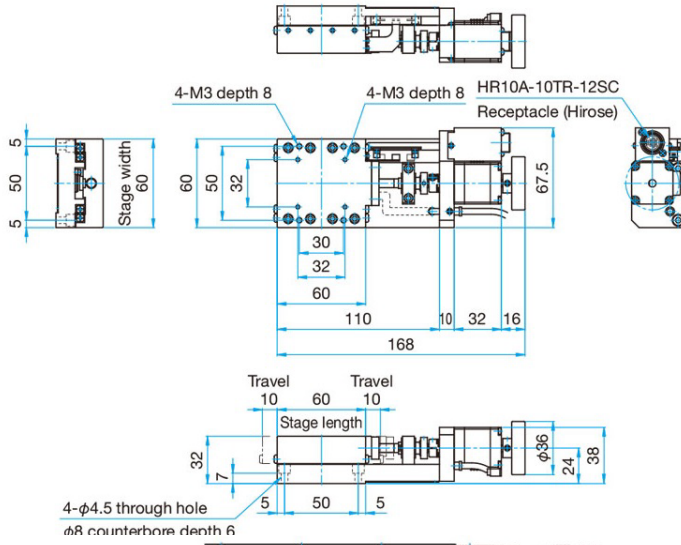
Specifications			
Part Number		FS-1020UPX	FS-1050UPX
Mechanical spec	Travel [mm]	20	50
	Size of the stage [mm]	60×60	120×120
	Feed screw [mm]	Ball screw dia. 6, 1mm lead	
	Positioning slide	Crossed roller	
	Primary material	Aluminum	
	Finish	Black anodized	
	Motor type	□28mm 5 phase stepping motor	
	Weight [kg]	0.7	1.6
Accuracy spec	Minimum Resolution [nm] ※1	1	1
	Positional repeatability [nm] ※1	+/- 2	+/- 2
	Load capacity [N]	49(5kgf)	98(10kgf)
	Running parallelism [μm]	10	10
	Max speed [mm/sec]	5	5
Sensor	Limit sensor	Equipped	
	Origin sensor	None	
	Proximity origin sensor	None	
Equipped scale	Signal cycle	2μm	
	Scale cable (※2)	2m	

※1 : Minimum resolution and position repeatability accuracy for built-in scale read.

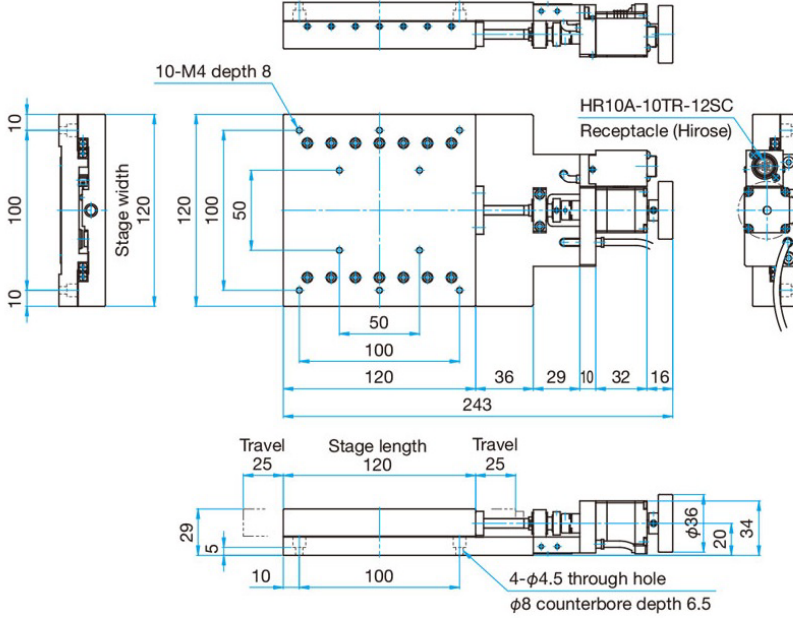
※2 : Scale cable comes directly out of the stage. Please prepare "extension cable for scale" separately if 2m or longer cable are needed.

Outline drawing

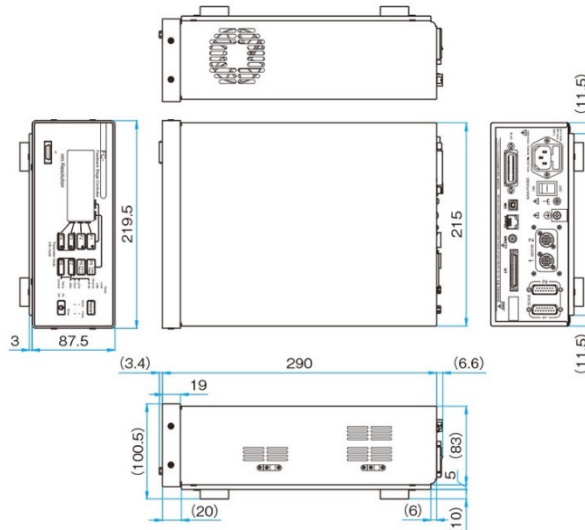
FS-1020UPX



FS-1050UPX



FC-911



FS-UPX dedicated controller for 1nm feedback stage **FC-911**

RoHS

Dedicated controller for 1nm feedback stage (FS-UPX series) to control with 1nm resolution.



Specifications			FC-911	
Part number			FC-911	
Primary spec	Number of control axes		2	
	Minimum command unit		1nm	
	In position range		+/- 1nm (+/-3, +/-7nm selectable)	
	Max operating speed set value		6mm/sec	
	Max travel range set value		-134.217728~+134.217727mm	
	Number of control interface port	Jog controller		1
		Emergency stop		1
		GP-IB		1
		USB		1
		Ethernet		1
	Teaching	General I/O		1
		Number of register channel		5
Number of registered lines per channel		200		
Operational interface		Controller key operation		
		Jog controller key operation		
		Communication command		
		General I/O		
General spec	Power voltage		AC100~240V 50/60Hz	
	Power supply voltage fluctuation allowable range		AC90V~264V	
	Power consumption		110VA max	
	Fuse		250V, 2.5A, time lag, 2	
	Outer dimensions (W×H×Dmm)		W220×H88×D290mm	
	Weight [kg]		5.2	
	Operating temperature/humidity		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)	
	Connectable option		JC-01	
	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
Output		Busy error cancel	1 set	
		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)		

Jog controller JC-01

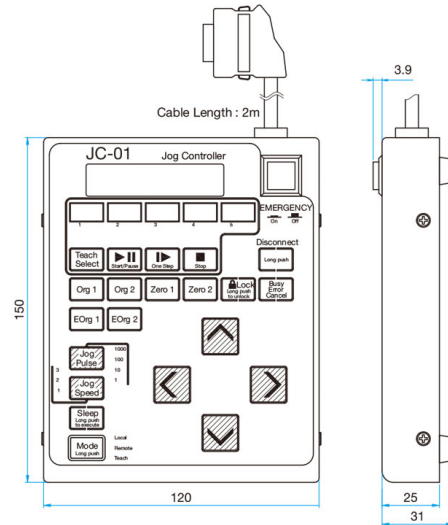
RoHS

JC-01 is used by connecting the feedback controller of feedback stage(FS series).
 JC-01 can be operated at hand by connecting a dedicated controller (FC series).
 It allows stage operation, teaching operation, emergency stop, mode switching or run sleep.

Outline drawing



JC-01



Specification		JC-01	
Part number		JC-01	
Primary spec	Controller connection number	1	
	Controller	FC-911、FC-611、FC-511、FC-514、FC-411、FC-414	
	Number of control axis	2 axes (Simultaneous control available)	
	Stage operation		Cross JOG operation, JOG speed step switching, JOG command pulse amount switching
			Mechanical origin return, electrical origin return
			Coordinate value zero clear, busy error cancel
	Teaching	Select teaching channel, execute start, pause or one step	
Others		Execute and stop	
		Mode switching, run sleep, key operation invalid, power supply cut off	
		Emergency stop	
General spec	Power voltage	DC5V	
	Weight [kg]	0.8	
	Outer dimensions (W×H×Dmm)	120×31×150	
	Cable length [m]	2	
	Operating temperature/humidity	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)	

Cable for feedback stage F-CABLE



Dedicated cables for feedback stage system.

The cables are Lead free and susceptible to noise by a braided shield robot cable.

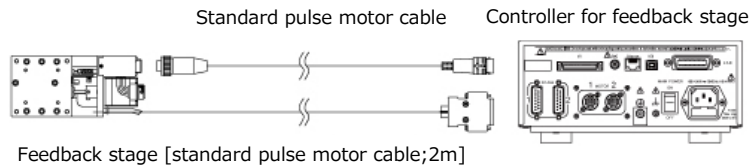
Both the cable for motor and scale are required to connect the feedback stage and dedicated controller.

Please refer the connection example to select the cable.

■ Connection example

Minimum configuration to connect stage and controller. It consists of standard pulse motor cable (2m) and scale cable (2m) directly connected with stage.

Standard pulse motor cable is required other than stage and controller.

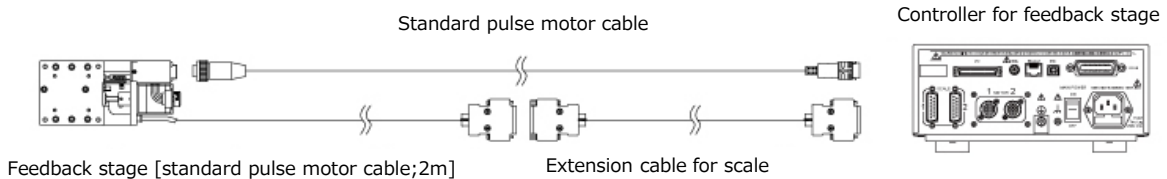


■ Extend cable configuration

[To extend the cable longer than 2m]

It consists of standard pulse motor cable (5m), scale cable (2m) directly connected with stage and extension cable (3m) for scale.

Standard pulse motor cable and extension cable for scale are required other than stage and controller.

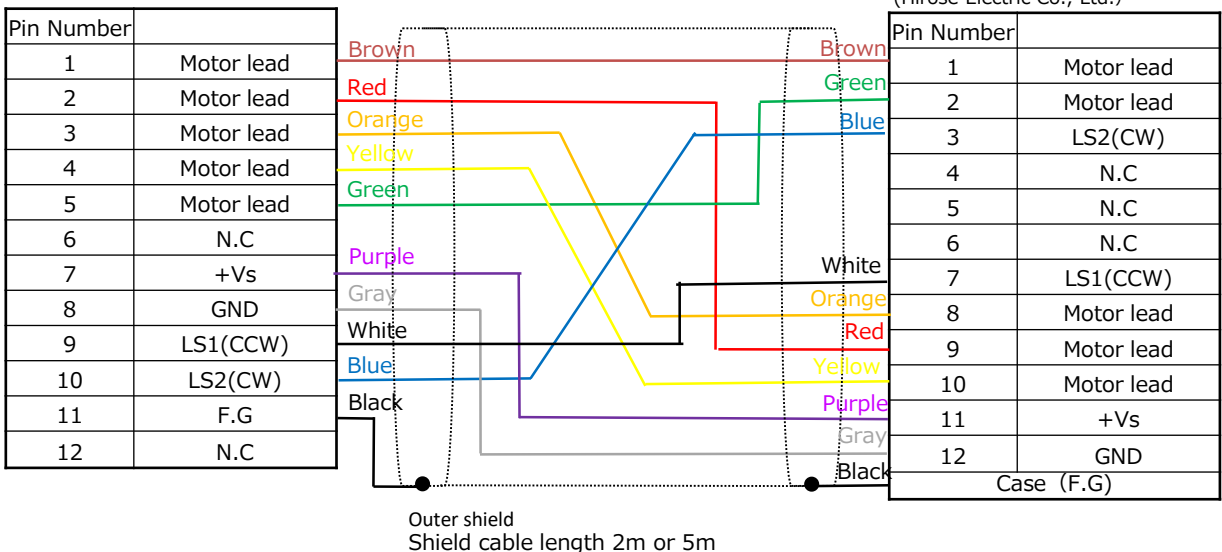


■ Standard pulse motor cable

Specifications		
Part Number	PM-CA-2	PM-CA-5
Cable length [m]	2	5
Controller	FC-411、FC-511、FC-611、FC-911	
Stage	FS-1020***、FS-1050***、FS-1100***、FS-3150***	

Controller side (12pin)
RP17-13P-12PC(Hirose Electric Co., Ltd.)

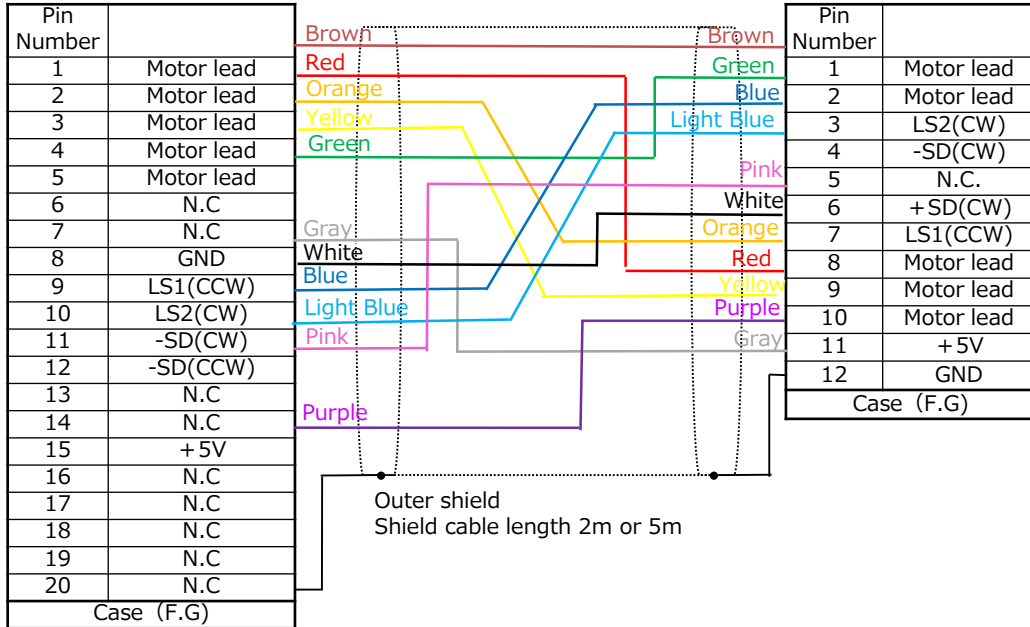
Stage side (12pin)
HR10A-10TP-12PC
(Hirose Electric Co., Ltd.)



■ Cable for pulse motor (for the stage with slow down sensor)

Controller side (D-sub 20pin)
HR10A-13P-20PC (73)
Hirose Electric Co., Ltd.

Stage side (D-sub 12pin)
HR10A-10TP-12PC
Hirose Electric Co., Ltd.

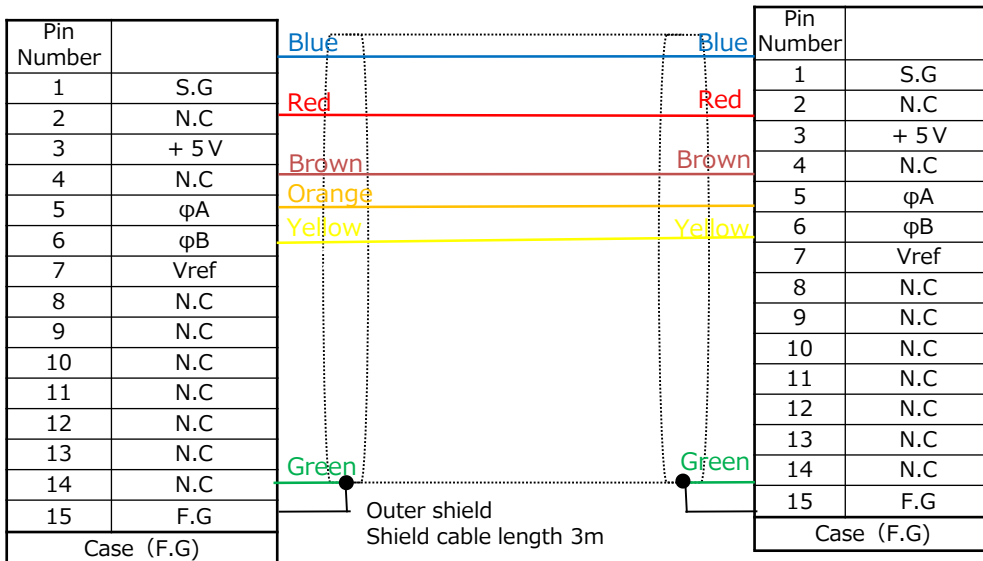


Specifications		
Part Number	PM4N-CA-2SD	PM4N-CA-5SD
Cable length [m]	2	5
Controller	FC-414, FC-514	
Stage	FS-3200**, FS-3300, FS-3400	

■ Extension cable for scale

Controller side (D-sub 15pin)
17JE-23150-02(D1)
(Male Type) DDK Ltd.

Stage side (D-sub 15pin)
17JE-13150-02(D1)
(Female Type) DDK Ltd.



Specification	
Part number	PS-EX-3
Cable length [m]	3
Stage controller	FC-911, FC-611, FC-511, FC-514, FC-411, FC-414
Feedback stage	Scale cable