

Spark Project Education Platform

Eco-level application of "Robot + N" in education field

By integrating visual systems, end effectors, torque sensors, mobile platforms, and other hardware and software components with robots, we achieve a "hand" + "eye" + "foot" + "brain" hardware combination, making our platform more open, user-friendly, , and with greater expandability.



Plug and play



Compatible with peripheral devices



Support secondary development

Integrated Modular Design

Open Hardware and Software Platform

Secure Innovative Application



FR-Spark Project-Hardware

- Gripper
- Camera
- Sensor

EDUCATIONAL WORKBENCH

Gripper	Model:	Adjustable Stroke	0-40mm	Body Weight	360g
	EPG40-050	Single Finger Grip Force	2-50N	Communication Protocols	Modbus RTU(RS 485)、Digital I/O
Camera	Model: Gemini 2	Depth Image Measurement Range	0.15m-10m	SDK	Orbbec SDK
		Working Range	0.2m-5m	Depth Image Resolution @ Frame Rate * 3	1280x800@30fps 640x400@60fps
		Operating Temperature	0 ~ 40°C		
Sensor	Model: FR-6F-75MM	Resolution	0.1%FS	Repeatability	0.2%FS
		Overall Accuracy	≤1%FS	Zero Drift (Temperature Coefficient)	0.3%FS/10°C
		Overload Capacity	200%	Operating Temperature	-20~80°C
Delivery Time		25 working days			
Qualification		Gripper: CE , RoHS			



*The parameters provided are for reference only. Actual accuracy may vary depending on the selected product configuration

Code to get the accessory list Including software & hardware accessories



Item	Gemini 2		EPG40-050		PGEA-100-40		FE-MG2-3-E		RG75-300		FE-SV-Nano / FE-SV-Nano-Pro / FE-SV-Nano-Pro-C	
Performance Parameters	Depth Image Measurement Range	0.15m-10m	Adjustable Stroke	0-40 mm	Adjustable Stroke	0-40 mm	Adjustable Stroke	0-50 mm	Adjustable Stroke	0-75 mm	Field of View (FOV)	52°*50° (H*V)
	Working Range	0.2m-5m	Single Finger Grip Force	2-50 N	Single Finger Grip Force	30-100 N	Single Finger Grip Force	150 N	Single Finger Grip Force	40-300 N	Near Field	329*287mm@350mm
	Camera Driver	UVC	Repeatability	±0.02 mm	Repeatability	±0.02 mm	Repeatability	±0.03 mm	Repeatability	±0.02 mm	Far Field	1021*881mm@1100mm
	SDK	Orbbec SDK	Opening/Closing Time	0.5 s	Maximum Recommended Load	2 kg	Maximum Recommended Load	3 kg	Opening/Closing Time	0.55 s	Working Range	350 ~1100mm (varies with environment)
	Operating Temperature	0~40℃	Maximum Recommended Load	0.8 Kg	Operating noise	<50dB	Operating noise	<60dB	Maximum Recommended Load	6 Kg	Point Cloud Resolution	1280 x 1024
	Depth Image Resolution @ Frame Rate * 3	1280x800@30fps 640x400@60fps	Operating Environment	5~40℃, Below 85% RH	Operating Voltage	24VDC±10%	Operating Voltage	24VDC±10%	Operating Environment	5~40℃, Below 85% RH	Accuracy	<0.05%@1100mm
	Color Image Resolution @ Frame Rate * 4	1920x1080@30fps 1280x720@60fps			Rated & Peak Current	0.3 A (Rated) 1.2 A (Peak)	Rated & Peak Current	1A			Point Cloud Frame Rate	<3 Hz
					Peak Power	20W	Peak Power	24W			Power Supply	POE (Power over Ethernet)
					Transmission mode	Rack and pinion & Cross roller guide	Transmission mode	Rack and Pinion Drive				
					Operating Environment	0~40℃, Below85% RH	Drop Detection	Supported				
Dimension	90 * 25 * 30 mm ± 0.5mm		40*24*87mm		118mm*73.8mm*29mm		64 * 40 * 100 mm(Without Fingers)		131.5*100*75mm		FE-SV-Nano:	136.5 *60.5 * 45.1mm(without camera cover)
											FE-SV-Nano-Pro:	139 * 61.5 * 46mm(without camera cover)
											FE-SV-Nano-Pro-C:	139 x 63.8 x 58mm(with camera cover)
Weight	97g		360g		600g		800g		1.5kg		482g(without camera cover)	
IP Classification	/		IP40		IP40		IP54		IP65		IP65	
Communication Interface	MIPI		Modbus RTU(RS 485)、Digital I/O		Modbus (RS485)+I/O (NN)		RS485		Modbus RTU(RS 485)		GigE	
Qualification	Class1、RoHS、FCC、CE、Reach、KC		CE、RoHS		CE, FCC, RoHS		/		CE、RoHS		/	

Products						 FE-SV-Nano	 FE-SV-Nano-Pro	 FE-SV-Nano-Pro-C
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