

UAVOS servomotor studio User manual



Edition 01/12/2021



- 1. Connect the USB to RS485 adapter cable to the RS485 connector of the servo and the other end to the computer.
- 2. Connect the power supply to contacts +Vdc, Gnd of the connector, observing the polarity.
- 3. Set the nominal voltage to 24V.
- 4. Open Device Manager.
- 5. Scroll down to the "Ports (COM & LPT)" section.
- 6. Right click on the device and click on "Properties".

🛃 Device Manager		_		×
File Action View Help				
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Monitors				^
> 🖵 Network adapters				
V III Other devices				
> 📮 Portable Devices				
🗸 🛱 Ports (COM & LPT)				
🛱 USB Serial Port (COM				
> 🚍 Print queues	Update driver			
> D Processors	Disable device			- 10
Security devices	Uninstall device			
> 🚊 Software devices				
🔉 💐 Sound, video and game	Scan for hardware changes			
> 🍇 Storage controllers	Properties			
> 🍢 System devices	rioperues			
🔉 🏺 Universal Serial Bus conti	rollers	N.		
🔉 🖵 Vehicle Interface Module			•	
				~

7. Click on "Port Settings". Then click on "Advanced...".

USB Seria	USB Serial Port (COM17) Properties								
General	Port Settings	Driver	Details	Events					
		Bits p	er second Data bits Parity	: 115200 : 8 : None)		~ ~		
			Stop bits	1			~		
		Flo	ow control	None			~		
			A	dvanced		Restore	e Defaults	5	
					OK		Cance	əl	



8. Check that 1ms is set in the "Latency Timer".

Advanced Settings for COM1	7		? ×
COM Port Number:	COM17	~	ОК
USB Transfer Sizes			Cancel
Select lower settings to corre	ct performance problems at l	ow baud rates.	Defaults
Select higher settings for fast	er performance.		Donald
Receive (Bytes):	4096 ~		
Transmit (Bytes):	4096 ~		
BM Options		Miscellaneous Options	
Select lower settings to corre	ct response problems.	Serial Enumerator	\checkmark
		Serial Printer	
Latency Timer (msec):	1 ~	Cancel If Power Off	
The sector		Event On Surprise Removal	
limeouts		Set RTS On Close	
Minimum Read Timeout (mse	ec): 0 ~	Enable Selective Suspend	
Minimum Write Timeout (mse	ec): 0 ~	Selective Suspend Idle Time	out (secs): 5 ~

9. Run the application "UAVOS servomotor studio" and select the desired port. If everything is done correctly, you will see the inscription connected.

📽 UAVOS servomotor stud	dio					- 🗆 X
• 💥						
Port: No Protocol: COM12 COM13 COM14						
COM15 COM15 COM16		Configuration Parameters	Descriptor Time	er Zero Axis	Update Firmware Tests	
Position [cn COM18			Pasia		Convice	Read All
Velocity [de COM19			Dasic		Service	
Current [A]:	0.00	Communication Timeout:		Write	Commutation Apole Offset [dea]	
Motor temperature [°C]:	-50	Fail-Safe Position [deg]:		Write	Position Window [cnt]:	
Pcb temperature [°C]:	-50	Min Position [deg]:	0.00 :	Write	Position Window Time [ms]:	
Dropped frames:	0	Max Position [deg]:	0.00 :	Write	Position Following Error Window [cnt]:	0 ÷ Write
Status:	0x00	Max Velocity [deg/sec]:	0 :	Write	Position Following Error Timeout [ms]:	0 ÷ Write
Servo:	0	Max Acceleration [deg/sec ²	:]: 0 <u> </u>	Write	Velocity Window [deg/sec]:	0 · Write
PWR:	0	Max Current [A]:	0.00 :	Write	Velocity Window Time [ms]:	
TO:	0	Кр:	0.00 :	Write	Velocity Following Error Window [deg/sec]:	: 0 🗄 Write
FRC:	0	Ki:	0.00	Write	Velocity Following Error Timeout [ms]:	0 ÷ Write
Temp:	0				Shunt Enable Voltage [V]:	0.0 Urite
IC:	0				Shunt Disable Voltage [V]:	0.0 Write
APS:	0				Over Voltage Level [V]:	0.0 - Write
No error						
Servo ID			Control			Extra
1 Real	ad Position Mode	F	reshness counter: 0		Re	ead Skipped Frames Counter
	Position [cnt]:		conness counterr o	ſŧŧ	Set	Reset Status
	Position [deg]:			0.00	Set Reset D	Default Role and Reset Error Flags
	Velocity [deg/sec]:		0	Set	STOP
		Port: COM	17	 conr 	nected	
		Protocol: ADAS	SI	•		



10. If the telemetry data did not appear, then you need to click on the "**Read**" button in the "**Servo ID**" widget to automatically find the servo ID. The "**Write**" button is used to set a new servo ID (saved in the controller's memory).



11. **"Telemetry**" widget displays current measured parameters. The **"Emergence**" variable displays the current error code.

Tele	metry
Freshness counter:	0
Position [cnt, deg]:	0x0fb7, -6.416
Velocity [deg/sec]:	0.00
Voltage [V]:	27.8
Current [A]:	0.04
Motor temperature [°C]:	18
Pcb temperature [°C]:	22
Dropped frames:	0
Status:	0x00
Servo:	0
PWR:	0
TO:	0
FRC:	0
Temp:	0
IC:	0
APS:	0
Emergency:	0x0000000
No error	

12. To reset the current error, press the "**Reset Default Role and Reset Error Flags**" button from the extra widget.



13. "Stop" button is used for emergency stop of the servo (no current in the windings).



14. Servo control is carried out from the "Control" widget. It can operate in two modes: "Position mode" and "Velocity mode".

	Control		
Position Mode			
	Freshness counter: 0		
Position [cnt]:		fff :	Set
Position [deg]:		0.00 :	Set
Velocity Mode			
Velocity [deg/sec]:		0	Set

15. To control in counts, you must use the following picture for the appropriate conversion from degrees.



16. The tab of the widget "Setting parameters" is intended for configuring the setting parameters. To read all the parameters, click the "Read All" button.

Configuration Parameters De	escriptor	Timer	Zero Axis	Update Firmware Tests		
						Read All
	lasic			Service		
Communication Timeout	0	•	Write			(Update Cfg.)
Ereshness Counter Threshold:	15		Write	Commutation Angle Offset [deg]:	0 260742	Write
Fail-Safe Position [deg]:	0.00		Write	Position Window [cnt]:	50 :	Write
Min Position [deg]:	0.00		Write	Position Window Time [ms]:	200 ÷	Write
Max Position [deg]:	0.00		Write	Position Following Error Window [cnt]:	0	Write
Max Velocity [deg/sec]:	270		Write	Position Following Error Timeout [ms]:	0 ÷	Write
Max Acceleration [deg/sec ²]:	2000		Write	Velocity Window [deg/sec]:	6	Write
Max Current [A]:	11.00	:)[Write	Velocity Window Time [ms]:	50 ÷	Write
Кр:	0.41	:)(Write	Velocity Following Error Window [deg/sec]:	0 ÷	Write
Ki:	33.14	:)(Write	Velocity Following Error Timeout [ms]:	0	Write
				Shunt Enable Voltage [V]:	32.0 -	Write
				Shunt Disable Voltage [V]:	29.0 .	Write
				Over Voltage Level [V]:	34.0	Write

17. The "Service" widget is activated after entering the password in the "Password" dialog box that appears by clicking the icon "Service".



Price CMN17 • connected Protocol: ADASI • Technetary • Configuration Researcher Technetary Predness counter: 13 • Configuration Researcher Technetary Predness counter: 13 • Configuration Researcher Technetary Read All Predness counter: 13 • Configuration Researcher Configuration Researcher • Configuration Researcher Config	📽 UAVOS servomotor stu	dio			- 🗆 X
Telemetry Configuration Plasameters Descriptor Time Zero Avis Update Firmware Tests Prestine (rd, edg) 0.000 <th>Port: COM17 Protocol: ADASI</th> <th> connected </th> <th></th> <th></th> <th></th>	Port: COM17 Protocol: ADASI	 connected 			
Preshness counter: 13 Position [crit, deg]: 0.0000, 0.000 Videory [ergisc]: 0.000 Videory [ergisc]: 0.000 Videory [ergisc]: 0.02 Motor temperature [CC]: 22 Position [Crit]: 0.000 Motor temperature [CC]: 33 Dropped frames: 0 Sotus: 0x00 Sotus: 0x00 Sotus: 0x00 PVR: 0 Tren:: 0 PRC: 0 Difference: 0 Resci Difference: 0 Name Position (fedg): 0.000 I. Write Max Position (fedg): 0.000 I. Write Name Position (fedg): 0.0000000 No error 0 I Posit	Tele	metry	Configuration Parameters Descriptor Timer Zero A	xis Update Firmware Tests	
Velocity (deg/sec): 0.00 Voltage [V): 27.8 Communication Time. 0 Motor temperature [°C): 22 Problemerature [°C): 35 Dropped frame: 0 Servic: 0 PVR: 0 Max Velocity (deg/sec): 0.00 · · · · · · · · · PVR: 0 Max Velocity (deg/sec): 0.00 · · · · · · · · · · · · · · · · · ·	Freshness counter: Position [cnt, deg]:	13 0x0000, 0.000			Read All
Voltage [V]: 27.8 Current [A]: 0.02 Motor temperature [*C]: 22 Pot bemperature [*C]: 33 Dropped frames: 0 Satus: 0.00 Satus: 0.00 Servo: 0 PWR: 0 Max Velocity (feg): 0.00 To: 0 To: 0 FRC: 0 To: 0 APS: 0 Emergency: 0.x0000000 No error 0 I: Write: Postion (ford): Freshness counter: 4 Postion (ford):	Velocity [deg/sec]:	0.00	Basic	Service	
Correct (A): 0.02 Motor temperature [°C]: 22 Path temperature [°C]: 33 Drooped frames: 0 Servo: 0 PVR: 0 TO: 0 PKC: 0 TO: 0 FRC: 0 TO: 0 FRC: 0 TO: 0 FRC: 0 TC: 0 APS: 0 Decomposition 0.00000000000000000000000000000000000	Voltage [V]:	27.8	Communication Timeout: 0 : Write		Update Cfg
Motor temperature (°C): 22 22 Pib temperature (°C): 35 35 Diropped fame: 0 0 Statu:::::::::::::::::::::::::::::::::::	Current [A]:	0.02	Freshness Counter Threshold: 15 . Write	Commutation Angle Offset [deg]:	0.260742 : Write
Pot bemperature [*C]: 35 Dropped frames: 0 Status: 0x00 Servo: 0 PWR: 0 Max Peation [deg]: 0x00 · [Write Peation Mindow Time [mg]: 0 · · · · Write Peation Mindow Time [mg]: 0 · · · · Write Peation Fallowing Error Window [deg](sec): 0 · · · · Write Peation Fallowing Error Window Time [mg]: 0 · · · · Write Peation Fallowing Error Window Time [mg]: 0 · · · · Write Peation Fallowing Error Window [deg](sec): 0 · · · · Write Peation Fallowing Error Window (deg](sec): 0 · · · · Write Peation Fallowing Error Window (deg](sec): 0 · · · · · Write Velocity Fallowing Error Window (deg](sec): 0 · · · · · Write Velocity Fallowing Error Window (deg](sec): 0 · · · · · Write No error 0 · · · · · Write · · · · · · · · · · · · · · · · · · ·	Motor temperature [°C]:		Fail-Safe Position [deg]: 0.00 Write	Position Window [cnt]:	50 : Write
Dropop frame: 0 Max Position (deg): 0.00 Write Peaton fidewing Error Window (crit): 0 Write Peaton fidewing Error Window (crit): 0 Write Peaton fidewing Error Window (crit): 0 Write Write Peaton fidewing Error Window (crit): 0 Write Write Peaton fidewing Error Window (crit): 0 Write Write Velocity Window (deg/sec): 0 Write Write Write Velocity Window (forg): 0 Write Write Write Velocity Window (forg): 0 Write Write Write Velocity Window (forg): 0 Write Velocity Window (forg): 0 0 0 0 0 0 0 0 0 0 0	Pcb temperature [°C]:	35	Min Position [deg]: 0.00 Write	Position Window Time [ms]:	200 ÷ Write
Satur: 0.00 Max Max Write 0 Write 0 Write 0 Write Velocity (deg/sec] 0 Write	Dropped frames:		Max Position [deg]: 0.00 Uvrite	Position Following Error Window [cnt]:	0 ÷ Write
Service 0 PWR: 0 Trop: 0 FRC: 0 FRC: 0 FRC: 0 FRC: 0 Cortrol Service Theory For Mode (Seglesc): 0 FRC: 0 APS: 0 Emergency: 0 Service Theory For Mode (Seglesc): 0 FRC: 0 APS: 0 Emergency: 0 Service Theory For Mode (Seglesc): 0 FRC: 0 Cortrol FRC: 0 FRC: 0 FRC: 0 Cortrol FRC: 0 FRC: 0 FRC: 0 Cortrol FRC: 0 FRC: 0 FRC: 0 FRC: 0 Cortrol FRC: 0 FRC: 0	Status:	0x00	Max Velocity [deg/sec]: 270 Write	Position Following Error Timeout [ms]:	0 : Write
Max 0 Max Ite Work (Mador The Ing); 90 Iff (Mador The Ing); 91 Iff (Mador The Ing);	Servo:	0	Max 📽 Password X ite	Velocity Window [deg/sec]:	6 . Write
FRC: 0 FRC: 0 Temp: 0 JC: 0 APS: 0 APS: 0 Benegerxy: 0x0000000 No error 0 Servo ID Cancel I: Read Postion Mode Freshness counter: 4 Postion [deg]: 25.00 i Velocky following (deg): 25.00 i Servo ID Cantrol Control Error Postion (ord): Freshness counter: 4 Postion (deg): 25.00 i Velocky foldwing (deg): 55.00 i Velocky foldwing (deg): 55.00 i	PWR:	0	Max ite	Velocity window Lime [ms]:	Note Write
Temp: 0 IC: 0 APS: 0 Brunt Enable Voltage [V]: 32.0 ± Write OK Cancel Shut Enable Voltage [V]: 32.0 ± Write OK Cancel Shut Enable Voltage [V]: 32.0 ± Write Over Voltage Level [V]: 32.0 ± Write Ver Voltage Level [V]: 32.0 ± Write Shvo ID Control I: Read Skipped Frames Counter Position [ord]: Freshness counter: 4 Position [ofd]: Exert Status Velocity [deg/loc]: 0 : 5 st	FRC.	0	Password:	Velocity Following Error Timeout [ms]:	J: U · Write
IC: 0 APS:: 0 Shunt Disable Voltage [V]: 25.0 Write Write No error Serve ID Serve ID Control Position [ord]: Freshness counter: 4 Position [odg]: 25.00 Velocity [odg/sec]: 0 Sett Status Sett	Temp;	0	OK Cancel	Shunt Enable Voltage [V]:	32.0 ÷ Write
APS: 0 Emergency: 0x0000000 No error Servo ID L : Read Position Mode Position Mode Position (ertg): Position (er				Shunt Disable Voltage [V]:	29.0 . Write
Energency: 0x0000000 No error Servo ID Control Position Mode Position Mode Position ICort(): Position	APS:			Over Voltage Level [V]:	34.0 : Write
No error Image: Control Extra 1 Read Position Mode 1 Write Freshness counter: 4 Position [ord]: Position [ord]: Position [ord]: Image: Control Velocity [deg/sec]: Image: Control	Emergency:	0x00000000			
Serve ID Control Extra 1 Read - Position Mode Read Skipped frames Counter 1 Write Freshness counter: 4 Reset Dropped frames Counter Position [ord]: (fff::::::::::::::::::::::::::::::::::	No error				
1 Read 1 Write Position Mode Freshness counter: 4 Position (rdt): Position (dg): Velocity Mode Velocity (deg/sec): 0 Image: Set of the	Servo ID		Control		Extra
Image: Contract of the set	1 Re	ad Position Mode-			Read Skipped Frames Counter
Position [ort]: fff Set Position [deg]: 25.00 Set - Valority Mode	L I Wr	ite	Freshness counter: 4	F	Reset Dropped Frames Counter
Position (deg): 25:00 Set - Velocity Mode		Position [cnt]:		fff Set	Reset Status
Velocity Mode Velocity [deg/sec]: 0 : Set		Position [deg]:		25.00 Set Reset	Default Role and Reset Error Flags
velocity [deg/sec]:		- Velocity Mode			
		Velocity [deg/s	ec]:	0 El Set	STOP

18. The "Descriptor" widget tab is for reading information about the servo.

Configuration Parameters	Descriptor	Timer	Zero Axis	Update Firmware	Tests	
Electronic Serial Number:	2147530283					Read
Product Description:	Servo Drive S	D-01-120				Read
Firmware Revision Number:	1.0.1-1.6.2.00)				Read
Hardware Revision Number:	1.0.0					Read

19. The "Timer" widget tab is for reading the number of power-on cycles and servo operating time.

Configuration Parameters	Descriptor	Timer	Zero Axis	Update Firmware	Tests		
Number Power Up Cycles [c	:nt]:		3			Read	
Stall Event [cnt]:			0			Read	
Total Runtimer [h:m:s]:			0:0:0			Read	
0%-24% load Runtimer:						Read	Reset
	25%-49%	load Runtir	ner: 0:0:0			Read	Reset
	50%-74%	load Runtir	ner: 0:0:0			Read	Reset
	75%-99%	load Runtir	mer: 0:0:0			Read	Reset
	100%	load Runtir	mer: 0:0:0			Read	Reset

20. The "**Zero Axis**" widget tab is for setting the current position as zero, and for reading the currently set zero offset and resetting it.





21. The "**Update Firmware**" tab widget is designed to update the servo firmware. To update the firmware you need to click on the "..." button and select the required file and click "Start".

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• *								
Port: No Protocol: ADASI								
Teleme Freshness counter: 0 Position [cnt, deg]: 0 Velocity [deg/sec]: 0 Voltage [V]: 00 Current [A]: 0 Motor temperature [°C]: 0 Pcb temperature [°C]: 0 Dropped frames: 00 Status: 00	x0, 0	Configuration Parameters File:	Descriptor Timer	Zero Axis Upda	ate Firmware	Tests		 Start
🐏 UAV/OS convomotor studio								— П X
* Open firmuare file							×	
					0 0 1 0			
← → ↑ ↑ ▲ > In	is PC > Downloads > firi	mware		¥ 0	>> Search fil	rmware		
Organize • New folde	er	Nama	^	Data m - difi	ad	E · L ·		
This PC		Name		Date modifi	ed	Туре		
 3D Objects Desktop Documents Downloads Music Pictures Videos Local Disk (C:) USB Drive (F:) 	me: servo-sd1-v1.10.1.he	x x	×	1/12/2021 4	Hex files (*.hex)	HEX File	*	 Start
APS: C Emergency: C No error) x0000000				Open	Cancel	.4	
Servomotor studic								- 🗆 X
Port: No Protocol: ADASI								
Teleme	etry	Configuration Parameters	Descriptor Timer	Zero Axis Upo	late Firmware	Tests		
Presimess counter: C Position [cnt, deg]: C Velocity [deg/sec]: C Voltage [V]: C Current [A]: C Motor temperature [°C]: C Pob temperature [°C]: C	x0, 0	File: C:/Users/User/Downlo	oads/firmware/servo-sd1-	v1.10.1.hex				 Start
Dropped frames: 0 Status: 0))x00							

If everything went well you will receive a message "File correctly loaded!".



📽 UAVOS servomotor studio								_		×
• *										
Port: COM17 rotocol: ADASI										
Telemetry	Configuration Parameters	Descriptor	Timer	Zero Axis	Update Firmware	Tests				
Freshness counter: 0	File: C:/Users/User/Downlo	ads/firmware/ser	vo-sd1-v1.	.10.1.hex						
Velocity [deg/sec]: 0.00		File correctly loaded!						Sta	art)	
Voltage [V]: 19.8										
Current [A]: 0.02										
Motor temperature [°C]: 22										

Otherwise you will get the message "The device is not responding".

VAVOS servomotor studio									· – –	×
Port: COM17 Protocol: ADASI	 not connected 									
Telemetry		Configuration Parameters	Descriptor	Timer	Zero Axis	Update Firmware	Tests			
Freshness counter:	0									
Position [cnt, deg]: 0x07BE, 174.199		File: C:/Users/User/Downloads/firmware/servo-sd1-v1.10.1.hex								<u> </u>
Velocity [deg/sec]:	0.00	The device is not responding							St	art
Voltage [V]:	19.8									
Current [A]:	0.04									
Motor temperature [°C]:	22									
Pcb temperature [°C]:	32									
Dropped frames:	0									
Status	0x08									