The PROSYSTEMY Drone Technology Laboratory (DRONTECHLAB) unmanned aerial vehicle (UAV) bench can be remotely controlled using any gaming controller (game pads, joysticks, etc.) compatible with PC and Linux or Windows operating system. Use of the PS4 gamepad is recommended for intuitive and comfortable control.

The gamepad works on plug-and-play technology. The driver is included as part of 'DCU Control System Platform installer available online for download. No additional installation is needed. The connection and communication status is shown in PROSYSTEMY User Command Center (UCC) servis - line highlighted in blue color (see Figure 1). All gamepad buttons are specified in the controller definition file and their name depends on the operating system. Figure 2 denotes PS4 gamepad buttons on both Linux and Windows operating systems.

The PS4 gamepad button descriptions are shown in Figure 3. These settings are used in DRONTECHLAB and can be modified at any time.

Table 1 lists the PS4 button ID in the definition file, their names on Linux as well as Windows operating systems. Additionally, a description of the corresponding buttons in default settings is included too.
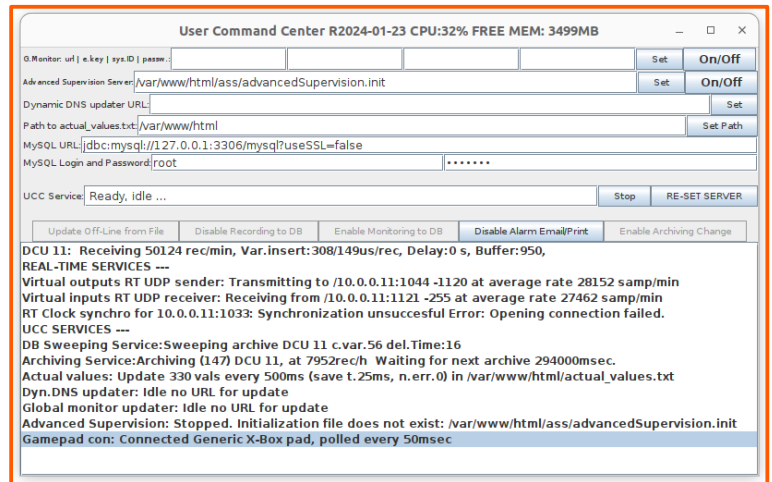
* https://www.prosystemy.sk/index.php?vh=4

Figure 1: Gamepad shown in User Command Center environment.

Figure 2: Notation of PS4 gamepad buttons on Linux and Windows operating systems.

Table 1: Description and default functionality of PS4 gamepad buttons.

Output ID	Name (Linux|Windows)	Gamepad notation	Description of the default functionality
0	A|Button 0	×	Press and hold to reset error.
1	B|Button 1	○	Press and hold to reset angles.
2	X|Button 2	□	Not used - can be programmed.
3	Y|Button 3	△	Not used - can be programmed.
4	Left Thumb|Button 4	L1	Decrease YAW angle.
5	Right Thumb|Button 5	R1	Increase YAW angle.
6	Select|Button 6	SHARE	Press/Press&Hold to enable/disable PID controll manually.
7	Unknown|Button 7	OPTIONS	Calibration of the ESCs for certain gamepad.
8	Left Thumb 3|Button 8	L3 (press)	Not used - can be programmed.
9	Right Thumb 3|Button 9	R3 (press)	Not used - can be programmed.
10	pov|Button 10	HAT ↑	Set reference value for PITCH and ROLL to 10° angle.
		HAT →	Set reference value for PITCH and ROLL to 0° angle.
		HAT ↓	Set reference value for PITCH and ROLL to -10° angle.
		HAT ←	Press/Press&Hold to enable/disable changing the reference angle.
11	x|Button 11	L-stick(←—→)	Not used - can be programmed.
12	y|Button 12	L-stick(↓↑)	Change PITCH angle (around the side-to-side axis).
13	z|Button 13	L2	Decrease power for vertical movement.
14	rx|Button 14	R-stick(←—→)	Change ROLL angle (around the front-to-back axis).
15	ry|Button 15	R-stick(↓↑)	Not used - can be programmed.
16	rz|Button 16	R2	Increase power for vertical movement.
17	Mode|Button 17	PS	Reset all values / emergency stop.

Figure 3: Notation and default functionality description of PS4 gamepad buttons.