

RADAMEC BROADCAST SYSTEMS

ADVANCED ROBOTIC CONTROL

Uniped

Drawings Manual



**Radamec Broadcast Systems Limited
Bridge Road
Chertsey
Surrey KT16 8LJ
ENGLAND**

TEL: +44 (0)1932 561181 FAX: +44 (0)1932 568836 E-mail: info@radamecbroadcast.co.uk

UNIPED (HK 800-023-0001)

The Uniped is a self-contained unit for remotely controlling the height of cameras in a Robotic Camera System. It is mounted on 4 wheels 2 of which are castored so that the unit can be steered while being moved. Once the camera is in position the 4 jacks must be wound down to take the wheels clear of the floor. A bubble level is attached to assist with levelling.

The Unit contains a telescopic servo-mechanism which moves the camera up and down. A servo potentiometer is geared to the telescopic mechanism to provide servo position sensing.

A servo processor PC board and servo amplifier are built in to power the motor in response to an external control signal.

Specifications

HK 800-023 UNIPED	
Minimum Pedestal Height	760 mm
Maximum Pedestal Height	1260 mm
Height Extension	500 mm
Maximum Payload	100 Kg (220 lb.)
Maximum speed	25 mm/s (with 100 Kg payload)
Power requirements	50V at 5A (pk.)
Output signals	Servo motor tacho 3V/1000rpm Position feedback signal $\pm 9.6V$
Electrical connection	15 pin plug, miniature bayonet

Drawings

The drawings for the Height Drive Unit are:

TITLE	DRAWING TYPE	DRAWING NUMBER	ISSUE
Uniped	Gen. Assembly	HK 800-023-0001W	A
Telescopic Column	Sub Assembly	HK 800-023-4001W	A
Uniped	Connections	HK 800-023-2001T	A
Cam Lift Amplifier	Assembly	HK 140-095-0001X	A
Cam Lift Amplifier	Parts List	HK 140-095-0001P	A
Cam Lift Amplifier	Connections	HK 140-095-2001T	A
Cam Lift Servo	PCB Assembly	HK 707-499-0001T	B
Cam Lift Servo	PCB Circuit	HK 707-499-2001T	B

UNIPED SET-UP PROCEDURE

1. Make sure the unit is switched off
2. Start this procedure with the UniPed unloaded.
3. Adjust Height Tacho on mHCU fully clockwise
4. Switch mHCU to Local –
5. Plug in the Pan Bar Switch Unit.
6. Set T1 on PWM ('stability / gain') to fully c/w.
7. Set T2 on PWM so that voltage between terminals 2 & 3 of TB1 (pink and green wires) on the Cam Lift Servo PCB is 0V.
8. Set VR2 on Cam Lift Servo PCB to fully counter-clockwise (max tacho)
9. Switch on
10. Monitor TP1 with a DVM for all subsequent measurements.
An accessible ground point is SK9 pin 2. SK9 is not fitted, so a temporary connection could be made to the centre pin 2.
11. Using the Pan Bar Switch Unit, raise or lower the column whilst adjusting the Height Tacho on the mHCU progressively counter-clockwise until the column moves at about 25mm per second.
12. Set column to about its mid position using the Switch Unit. (see note below)
13. Adjust VR3 for 0v at TP1.
14. Set VR1 for 0v at TP1 whilst driving into upper or lower mechanical end stop.
NB Do this as quickly as possible so as not to over-heat the motor.
Local control is not restricted by soft limits.
15. Fit load to platform.
16. Adjust VR4 (drive volts) so that column takes about 20 secs to travel from top to bottom.
17. If necessary, adjust T2 on PWM (offset) to achieve about the same speed for upward and downward direction.
(The voltages at TP1 when driving up and down are typically $\pm 200\text{mV}$ to $\pm 400\text{mV}$)
18. Make sure mHCU has height configured so that the maximum speed allowed from either joystick or during a CUT is 25mm per second (i.e. 20 seconds from top to bottom).
19. Switch mHCU to Remote
20. Finally adjust the mHCU Height Tacho as high as possible such that:-
The performance is smooth.
Speed of 25mm per second is still maintained when cutting between top to bottom soft end-stops.
There is no audible oscillation.