UniVision Engineering Limited
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MV960A
On-Site Receiver Driver

User Manual

Revision 1.00

Table Of Contents

Safety Precautions

1. Read Instructions
Read all safety and operating instructions before operating the unit.

2. Retain Instructions
The safety and operating instructions should be retained for future reference.

3. Cleaning
Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

4. Attachments
Do not use attachments not recommended by the product manufacturer as they may cause hazards.

5. Water and Moisture
Do not use this unit near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, near a swimming pool, in an unprotected outdoor installation, or any area which is classified as a wet location.

6. Accessories
Any mounting of the unit should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

7. Ventilation
Openings in the enclosure, if any, are provided for ventilation and to ensure reliable operation of the unit and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked. This unit should not be placed in a built-in installation unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

8. Power Sources
This unit should be operated only form the type of power source indicated on the marking label. If you are not sure of the type of the power supply you plan to use consult your appliance dealer or local power company. For units intended to operated from battery power, or other sources, refer to the operating instructions.

9. Grounding or Polarization
This unit may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Alternately this unit may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will fit into a grounding-type power outlet This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

10. Power-Cord Protection

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

11. Overloading

Do not overload outlets and extension cords as this can result in a risk of fire or electric shock.

12. Object and Liquid Entry

Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.

13. Servicing

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified personnel.

14. Replacement parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

15. Safety Check

Upon completion of any service or repairs to this units, ask the service technician to perform safety checks to determine that the units is in proper operating condition.

16. Coax Grounding

If an outside cable system is connected to the unit, be sure the cable system is grounded.

17. Lightning

For added protection of this unit during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the unit due to lightning and power-line surges.

18. Damage Requiring Service

Unplug the unit from the outlet and refer servicing to qualified service personnel under the following conditions:

a) when the power-supply cord or plug is damaged.
b) If liquid has been spilled, or objects have fallen into the unit
c) If the unit has been exposed to rain or water.
d) If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result is damage and will often

require extensive work by a qualified technician to restore the unit to its normal operation.

e) If the unit has been dropped or the cabinet has been damaged.

f) When the unit exhibits a distinct change in performance-this indicates a need for service.

Warranty

UniVision Engineering Limited warrants this product when purchased, new to be free from defects in material and workmanship for a period of one year from date of shipment to the original purchaser. Any part or parts of the equipment, under proper conditions of installation and use, exhibits such defects, will be repaired or replaced, at UniVision's option.

All warranty repairs will be performed at the factory or as otherwise authorized by UniVision in writing. Transportation charges to UniVision shall be prepaid by purchaser.

This warranty will be void if UniVision equipment is subjected to misuse, accident, neglect, or improper application, nor repaired or altered by other than UniVision or those authorized by UniVision in writing. Products manufactured by companies other than UniVision are warranted by the original manufacturer. No contingent liabilities are assumed.

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1 Introduction

1.1 General Description

The MV960A On-Site Receiver Driver is a high performance, high reliable controller for pan, tilt, and lens operations in a closed circuit television control system.

1.2 Functions Description

The MV960A provides the following functions and features:

- Manual control on motor pan left / right
- Auto scan control
- Manual control on motor tilt up / down
- Lens controls on zoom, focus, and iris
- Programmable motors movement duration
- Programmable relay type (momentary / latch)
- Programmable lens polarity
- Local test functions

1.2.1 Basic Pan/Tilt and Lens Controls

The basic controls includes pan left and right, tilt up and down, zoom wide and telemetry, focus near and far, and iris open and close. A combination of these functions can be applied simultaneously.

1.2.2 Dither Time

This feature moves the pan motor left and right in 0.5 second if the MV960A is idle for longer than the user-defined dither time. This is to avoid the camera lens from viewing at a strong light for too long.

1.2.3 Programmable Motors Movement Duration

If the pan/tilt/lens/relay turn on time is too short, the motions may not be smooth; however, if the duration is too long, the precision of the motions may be too coarse. Users can use this feature to fine tune the performance of the overall setup for MV960A.

1.2.4 Programmable Relay Types

Each of the 4 relays for auxiliary functions can be configured to operate in either momentary or latch mode. If a relay is in momentary mode, each AUX-ON request will turn on the relay only for a short period of time which is determined by the user-defined motors movement duration (see Section 1.2.3 Programmable Motors Movement Duration). If a relay is in latch mode, when this relay is turned on, it remains on until users turn it off explicitly.

In addition, each relay can be configured to be normal open or normal close. If a relay is normal open, the relay will be opened when a low signal is fed to the relay, and it will be closed when a high signal is fed. If a relay is normal close, the relay will be closed when a low signal is fed to the relay, and it will be opened when a high signal is fed.

1.2.5 Programmable Lens Polarity

Since the zoom, focus, and iris directions vary among different lens (e.g. one lens may interpret a positive voltage as zoom telemetry while another lens may interpret it as zoom wide), users can select the lens to operate in either polarity so that the MV960A and the entire system can operate correctly.

1.2.6 Programmable Auto Scan Type

The Auto Scan function moves the camera left and right automatically. Users can select the function to be either hardware control or software control.

1.3 Referenced Documents

[1] MV900B System User Manual
[2] MV900B System User Manual
[3] MV950K Control Keyboard User Manual
[4] MV951 Control Keyboard User Manual

2 Installation

2.1 Unpacking

Description	Qty	Remarks
MV960A	1	
User Manual (this manual)	1	

2.2 General Layout

Figure 1 Outlook of MV960A On-Site Receiver Driver

2.3 Connections

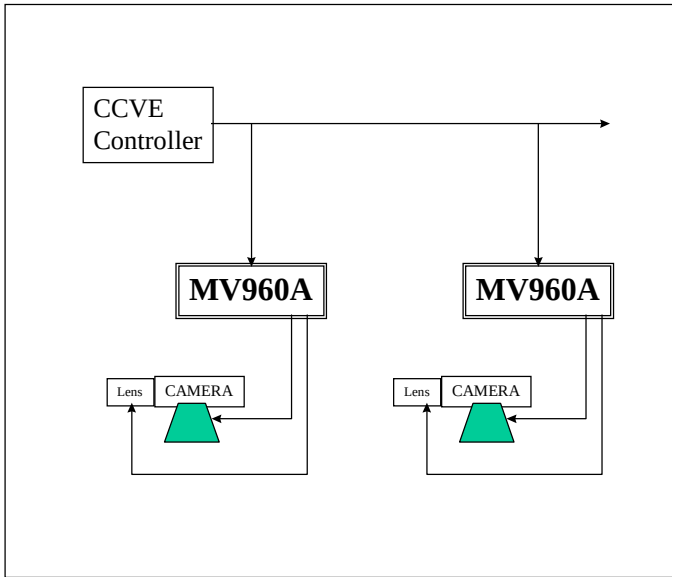

Figure 2 System Block Diagram of MV960A

3 Operation

On the main control board of the MV960A, there are 4 thumb-wheel switches (SW1 to SW4), and 2 push buttons (SW7 and SW8). They allow users to setup all MV960A parameters as well as to test its functions. The 8 LED CR3 to CR10 have different meanings according to the setting of SW1 and SW2. All parameters are saved in stable storage so that they remain unchanged even the power is turned off.

SW2,SW1	Function
30	Dither Time
40	Default Parameters
50	Relay Control Mode
51	Relay Control State
72	Pan/Tilt/Lens/Aux Movement Duration
80	Auto Scan Mode
81	Lens Polarity
90	Pan/Tilt/Lens Calibration
91	Pan/Tilt Calibration
92	Lens Calibration

Table 1 Summary of local setup function

3.1 Dither Time

SW2,SW1	30
Observation	CR3 through CR10 show the length of the dither time in minutes. Each LED being lighted up represents 1 minute.
Action	Enter new value by SW3 (1 to 8). Press SW8 to confirm.

Remark : If a value larger than the maximum is entered, the maximum value (8 minutes) is used; if a value smaller than the minimum is entered, the minimum value (1 minute) is used. This function can be disabled by AUX 5 OFF.

3.2 Default Parameters

SW2,SW1	40
Observation	none
Action	Press SW8 to set most parameters to their default values.

Parameter	Default value
Dither time	4 minutes
Relay control mode	All momentary
Relay control state	All normal open
Pan/tilt/lens/aux movement duration	70ms
Auto scan mode	hardware

Parameter	Default value
Lens polarity	normal

3.3 Relay Control Mode

SW2,SW1	50
Observation	CR3 through CR6 shows the control mode for relay 1 through relay 4 respectively. When the corresponding LED is ON, the control mode is in LATCH mode. On the other hand, when the LED is OFF, it is in MOMENTARY mode.
Action	To control a particular relay, change the setting on SW3. Press SW7 to toggle between latch and momentary. Press SW8 to confirm.

Remark : Any invalid setting on SW3 is ignored.

3.4 Relay Control State

SW2,SW1	51
Observation	CR3 through CR6 shows the control state for relay 1 through relay 4 respectively. When the corresponding LED is ON, the control state is in normal CLOSE. On the other hand, when the LED is OFF, it is in normal OPEN.
Action	To control a particular relay, change the setting on SW3. Press SW7 to toggle between normal open and normal close. Press SW8 to confirm.

Remark : Any invalid setting on SW3 is ignored.

3.5 Pan / Tilt / Lens / Aux Movement Duration

SW2,SW1	72
Observation	CR3 through CR10 show the current duration. More lighted LED means a longer duration. The duration is in the range of 50ms (1 lighted LED), 60, 70, 80, 90, 100, 110, and 120 (8 lighted LED).
Action	Change the setting on SW3 (1 for shortest, 8 for longest). Press SW8 to confirm.

Remark : Any invalid setting on SW3 is ignored.

3.6 Auto Scan Mode

SW2,SW1	80
Observation	CR3 is OFF if hardware mode is selected; it is ON if software mode is selected.
Action	Press SW7 to toggle between hardware and software mode. Press SW8 to confirm.

3.7 Lens Polarity

SW2,SW1	81
Observation	CR3 is OFF if normal mode is selected; it is ON if reverse mode is selected.
Action	Press SW7 to toggle between normal and reverse. Press SW8 to confirm.

3.8 Pan / Tilt / Lens Calibration

SW2,SW1	90
Observation	none.
Action	Press SW8 to start the calibration.

Remark : This function is required for the first installation, OR a change of the pan/tilt motor and lens motor.

3.9 Pan / Tilt Calibration

SW2,SW1	91
Observation	none.
Action	Press SW8 to start calibration.

Remark : This function is required for the first installation, OR a change of the pan/tilt motor.

3.10 Lens Calibration

SW2,SW1	92
Observation	none.
Action	Press SW8 to start calibration.

Remark : This function is required for the first installation, OR a change of the lens motor.

3.11 Local Pan / Tilt / Lens Controls

SW2,SW1	01 to 10
Observation	See the corresponding activation.
Action	Press SW8 to activate the function.

The detailed definition for SW2 / SW1 is as follows:

SW2,SW1	Function
01	Pan Right
02	Pan Left
03	Tilt Down
04	Tilt Up
05	Zoom Wide
06	Zoom Telemetry
07	Focus Near
08	Focus Far
09	Iris Close
10	Iris Open

3.12 Local Auxiliary Function Controls

SW2,SW1	11
Observation	See the corresponding activation.
Action	SW4 and SW3 to select auxiliary function (1 to 6). Press SW7 to turn OFF auxiliary function. Press SW8 to turn ON auxiliary function.

There are 6 auxiliary functions supported by the MV960A, of which 4 are relay controlled functions. The auxiliary function number assignment is as follows:

Auxiliary #	Function
01	Auto Scan
02	Relay #2
03	Relay #3
04	Relay #4
05	Dither Time
06	Relay #1

3.13 Local Preposition Setup

SW2,SW1	12
Observation	See the corresponding activation.
Action	SW4 and SW3 to select preposition location (1 to 24). Press SW7 to remember (SET) the current location. Press SW8 to recall (SHOW) to the location.

Remark : Any invalid settings on SW4 and SW3 are ignored.

3.14 Local LED Tests

SW2,SW1	13
Observation	CR3 through CR10 shows the light status.
Action	Press SW8 to turn on CR3 through CR10.

4 Specifications

4.1 Performance

Motor Control	:	Continuous motion from 50ms to 120ms
Memory Location	:	24 individual pre-position settings for pan, tilt, zoom, & focus.

4.2 Electrical

Power Source	:	220VAC, 50/60 Hz
Power Consumption	:	Approximately 15VA at rated input voltage without peripheral control.

4.3 Physical

Dimension	:	287mm(H) x 236MM(W) x 138mm(D)
Finish	:	IP66 rated equipment enclosure
Weight	:	~7kg.

4.4 Environmental

Temperature - Storage - Operating	 : :	 -10°C to 70°C 0°C to 55°C
Humidity	:	30% to 95% non-condensing
Vibration	:	3g swept sine wave, 15Hz to 2000Hz
Shock	:	50g, 11ms, 1/2sine
Enclosure Protection	:	IP66 enclosure type RJ108

4.5 Interface

4.5.1 Biphase signal input

Connector	:	4-way detachable Phoenix connector (J3)
Pin Assignment	:	1 - Data- 2 - Data+ 3 - Data- 4 - Data+
Electrical	:	0.5Vp-p to 3.0Vp-p.
Protocol	:	Biphase signaling with simplex asynchronous mode.
Baud Rate	:	31.25kHz.
Cable	:	Shielded twisted-pair.
Loading	:	Maximum eight units onto one transmission line.
Termination	:	91Ω resistor by JP3 termination at the most far end unit.

4.5.2 Pan/Tilt Control

Connector	:	10-way detachable Phoenix connector (J5)
Pin Assignment	:	1 - 24V RET 2 - 24V RET 3 - 24V RET 4 - 24V RET 5 - ACSENSOR 6 - TILT UP 7 - TILT DOWN 8 - PAN LEFT 9 - PAN RIGHT 10 - AUTOSCAN
Electrical	:	24VAC
Drive Capability	:	1A (either pan or tilt motor) 2A (both pan and tilt motors)

4.5.3 Lens Control

Connector	:	4-way detachable Phoenix connector (J1)
Pin Assignment	:	1 - ZOOM 2 - FOCUS 3 - IRIS 4 - GND
Electrical	:	7.5VDC or 13VDC selectable by JP1 & JP2
Drive Capability	:	200mA (maximum)

4.5.4 Preposition Monitoring

Connector	:	12-way detachable Phoenix connector (J2)
Pin Assignment	:	1 - +5VDC 2 - PAN POSITION 3 - TILT POSITION 4 - GND 5 - N. C. 6 - +5VDC 7 - ZOOM POSITION 8 - FOCUS POSITION 9 - GND 10 - N. C. 11 - N. C. 12 - N. C.
Electrical	:	DC sensing from 0VDC to +5VDC
Accuracy	:	8 bit resolution with ±1LSB

4.5.5 Auxiliary Output Control

Connector	:	10-way detachable Phoenix connector (J4)
Pin Assignment	:	1 - AUX1M 2 - AUX1O 3 - AUX2M 4 - AUX2O 5 - AUX3M 6 - AUX3O 7 - AUX4M 8 - AUX4O 9 - 24VAC 10 - 24VAC
Loading	:	1A (typical) 2A (maximum)

5 Troubleshooting Hints

Symptom	Cause	Solution
No Power	1) No main supply source at J9. 2) Broken fuse. 3) Broken regulator at Q1.	1) Ensure supply is available at J9. 2) Replace a new fuse at F1. 3) Replace entire unit.
No Biphase Signal	1) No Power. 2) Bad Contact on J3. 3) Improper signal termination at JP3.	1) Ensure proper power supply. 2) Ensure wires are tightly screw-in at J3. 3) Ensure proper terminate at JP3.
No Pan/Tilt Control	1) Bad contact on J5. 2) Bad pan/tilt motor. 3) No power source for pan/tilt motor at J10.	1) Ensure wires are tightly screw-in at J5. 2) Replace broken pan/tilt motor. 3) Replace complete unit.
No Lens Control	1) Bad contact on J1. 2) Bad lens motor. 3) No power source for lens motor at JP1 & JP2.	1) Ensure wires are tightly screw-in at J1. 2) Replace broken lens. 3) Ensure proper connection on JP1 & JP2; or replace complete unit.
No Preposition	1) Bad contact on J2. 2) Bad pan/tilt motor. 3) Bad lens motor.	1) Ensure wires are tightly screw-in at J2. 2) Replace broken pan/tilt motor. 3) Replace broken lens motor.

Every effort has been made to ensure that all information given is correct at time of publication. UniVision Engineering Limited accepts no liability in respect of loss arising from errors in the information provided and reserves the right to alter information without prior notice.

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