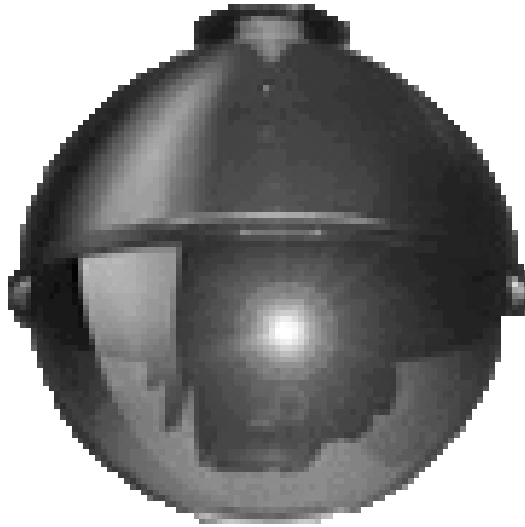


KD6 Z-SERIES DOME



INSTALLATION TIPS AND MAINTENANCE

Manual Number 518854-2960

Ultrak®
4465 Coonpath Road
Carroll, OH 43112
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WARNING

THIS IS A CLASS A PRODUCT. IN A DOMESTIC ENVIRONMENT, THIS PRODUCT MAY CAUSE RADIO INTERFERENCE IN WHICH CASE THE USER MAY BE REQUIRED TO TAKE ADEQUATE MEASURES.

WARNING

TO REDUCE A RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE UNLESS ENCLOSED IN A WATERPROOF HOUSING.

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Issue 1 – December 22, 2000

Issue 1, Revision A – January 05, 2001 – revised name.

Issue 1, Revision B – February 22, 2001 – added 24Vac interface in 4x4 electrical box.

Issue 1, Revision C – May 17, 2001 – added weather dome top and bottom, added camera replacement procedure.

Issue 1, Revision D – July 20, 2001 – revised outdoor weather dome temperature from 14°F to -40°F.

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518854-2960-D

KDMU040013
7/20/01

1.0 DESCRIPTION

A KD6 Z-Series Dome is a pan and tilt mechanism containing a camera and lens that is controlled remotely by an operator using a Diamond series control system. The KD6 Z-Series Dome consists of a top dome, pan and tilt unit, and a bottom dome. The KD6 Z-Series Dome can be mounted indoor on a ceiling pendant or wall pendant mounting bracket, in a dropped ceiling or a hard ceiling. There is also a Weather Dome version of the KD6 Z-Series Dome for outdoor applications. The whole assembly is often referred to as a "dome". The pan and tilt mechanism with camera and lens is often referred to as a "yoke or "scan".

The indoor pendant top dome can be mounted on Ultrak's indoor pendant ceiling dome mount or indoor wall dome mount. The weather dome can be mounted on Ultrak's outdoor wall mount.

2.0 RECOMMENDED INSTALLATION TOOLS & CABLING

Standard electrical technician tools are required for installing the KD6 Z-Series Dome.

Table 1. RECOMMENDED CABLING AND CONNECTORS			
Type	Recommended Cable	Ultrak Part Number	Maximum Distance
Video	Coax, RG-59/U, 75 Ohms BNC Connector, Crimp On for RG-59/U BNC Connector, Screw Type for RG-59/U	849518-0054 842374-0194 842374-0391	1500 Feet (457 Meters)
Data	1 Twisted-Shielded-Pair RS-485 Cable	849518-0334	4000 Feet (1219 Meters)
Power	18 AWG 2-Conductor , Vinyl Jacket	849518-0336	See Gauge Chart for Each Unit

3.0 EQUIPMENT HANDLING

Domes - It is extremely important to treat the surface of all domes with the same care as you would a fine camera lens. The surface is easily scratched.

- A. Always handle the dome from its outside surface.
- B. Only use non-abrasive cleaners for acrylic plastic on the clear and smoked domes.

Pan and Tilt Assembly - The pan and tilt assembly consists of the pan and tilt mechanism, the camera with zoom lens, power supply board, and digital receiver board. **Do not attempt to remove the camera from the scan assembly.** If a camera or lens requires service, the entire scan assembly must be sent back to the factory.

CAUTION

The Receiver Board and Power Supply Board On The Scan Assembly Have Static Sensitive Devices. The KD6 Z-Series Dome Assembly Is Shipped In A Pink Bag That Is Static Dissipating. The Unit Should Be Handled In This Bag Until Installed. If The Unit Is Shipped, It Must Be Shipped In The Pink Bag Or An Equivalent Static Dissipating Enclosure.

Camera Lens – Handle the camera lens with extreme care. Never touch the lens surface. Refer to paragraph 7.0 Maintenance for cleaning the camera lens.

4.0 FIELD WIRING

The field wiring for a KD6 Z-Series Dome is terminated at the interface board. Refer to the installation guide provided for wiring connections.

1. **Power** - Each KD6 Z-Series Dome requires a separate power source. A 12Vdc or 24Vac interface board may be provided with the dome.

12Vdc – A 12Vdc - 15Vdc power supply @ 1.1A is required. A minimum of 12Vdc is required at each dome for proper operation of the scan. The terminal strip accepts 22-14AWG wire sizes. The following wire sizes and distances represent one power source for one KD6 Z-Series Dome.

12V DC @ 1.1A		
AWG	MAX. DISTANCE	
	FEET	METERS
14	215	65
16	135	40
18	85	25
20	50	15
22	30	9

24Vac – A 24Vac $\pm 10\%$ @ 0.75A power supply is required. The terminal strip accepts 22-14AWG wire sizes. The following wire sizes and distances represent one power source for one KD6 Z-Series Dome.

24V AC @ 0.75A		
AWG	MAX. DISTANCE	
	FEET	METERS
14	630	190
16	400	120
18	250	75
20	150	45
22	100	30

2. **Control Data** - One shielded twisted-pair RS-485 cable is required. The data terminal strip accepts 24-14 AWG wire sizes. The data lines can be home-run wired or daisy-chain wired from the control output. Home-run wiring is one scan per control output. Daisy-chain (parallel) wiring is up to 32 scans per data run with the control output at one end of the run or in the middle of the run.

The data cable shield should be connected together at each dome, but is not connected at the dome. Connect the cable shield at the control unit. The maximum distance to the last dome is 4000 feet.

12Vdc Interface Board			
Home-Run Wiring		Daisy-Chain Wiring (parallel)	
Control Output	Dome Interface Board	Control Output	1 st Dome Interface Board
TX+	TB1-1 (+)	TX+	TB1-1 (+)
TX-	TB1-2 (-)	TX-	TB1-2 (-)
			TB1-3 (+)
			TB1-4 (-)
			TB1-1 (+)
			TB1-2 (-)

24Vac Interface Board (4x4 Electrical Box)			
Home-Run Wiring		Daisy-Chain Wiring (parallel)	
Control Output	Dome Interface Board	Control Output	1 st Dome Interface Board
TX+	TB2-4 (+)	TX+	TB2-4 (+)
TX-	TB2-3 (-)	TX-	TB2-3 (-)
			TB2-2 (+)
			TB2-1 (-)
			TB2-4 (+)
			TB2-3 (-)

- Video** – RG-59/U coaxial cable is recommended for cable runs less than 1500 feet (455 meters). For distances greater than 1500 feet, use RG-11 for distances up to 2500 feet (760 meters). If RG-11 coaxial cable is used, a UHF to BNC connector adapter is required. The video must be terminated in 75 ohms at the last video device. If the video is not terminated or double terminated, the resulting picture is poor and ghosting is displayed.

5.0 KD6 Z-SERIES DOME SETUP

Each KD6 Z-Series Dome must be given a unique address. The address (camera number) is used by the operator at the control system to control the scan. The address is defined using a JPD series controller. The serial number of the KD6 Z-Series Dome is required to set the address. The serial number is located on the mounting bracket of the pan and tilt mechanism. Refer to the KD6 Z-Series Dome operation and programming manual or the JPD Series Controller manual for setting the address.

6.0 TROUBLESHOOTING PROCEDURES

Refer to the drawings in paragraph 8.0 for assistance in locating and identifying parts discussed in the following table. Refer to paragraph 6.1 and 6.2 for removing the bottom dome and the pan and tilt mechanism from the top dome. If the solutions in the table do not fix the problem, consult the factory for technical assistance at 1-800-443-6681 (toll free USA) or 740-756-9222. Any equipment returned to Ultrak for warranty or service repair must have an Authorization to Return Material Number (ARM#) for its repair. The ARM# must be clearly marked on all return packages.

Problem	Possible Solution
a. No Video	<ol style="list-style-type: none"> 1. Verify power to all pieces of equipment in the system. 2. If multiple scans and a video switcher are in the system: <ol style="list-style-type: none"> a. Make sure the camera is called up on a monitor at the controller. b. Bypass the video through the switcher and hook up the scan directly to a monitor. If video is present, verify correct video connections to switcher. 3. Power down all system components for 15 seconds and then return power. 4. On standard units, make sure the video cabling is connected properly at the BNC connector at the interface board. 5. If multiple scans are in the system, exchange one of the domes. Set the address of the exchange unit to the existing unit. Call up the scan using the controller (each unit has a unique address). If video is present, the problem is isolated to the scan assembly.
b. Video, But No Control	<ol style="list-style-type: none"> 1. Make sure the controller is addressed to the correct scan (camera). 2. Ensure the camera has been given an address. A JPD series controller is used to setup the address. Note: You must know the serial number of the dome to define the address. 3. JPD Series Controllers - Ensure LED or LCD display is lit on the controller. Unplug the controller, wait 30 seconds, and plug it back in. 4. Power down all system components for 15 seconds and then return power. Allow scan to count down. 5. Make sure the data wiring is connected to the terminal strip on the interface board. Make sure bare wires are not touching each other. Make sure the wire insulation is stripped back far enough for a good connection. 6. Make sure the connector from the top dome is plugged into the RJ-45 connector (J1) on the interface board.
c. Scan operates by itself.	<ol style="list-style-type: none"> 1. Diamond JPD Series Controller – recenter the joystick. OPT> 3> 3 2. Remove power from all system components and then return power.
d. Erratic Scan Operation	<ol style="list-style-type: none"> 1. Verify data lines are not broken and are connected properly at the terminal strip on the interface board. 2. Verify the interface cable from the top dome is seated properly in the RJ-45 connector on the interface board.
e. Lens Out Of Optical Focus	Power down the unit to reset the camera and lens. If still out of focus when power is returned to unit, consult factory.
f. Cannot find home or does not go to PreShot	Verify the pan and the tilt rotates freely.

Problem	Possible Solution
g. Scan drifts in one direction (up, down, left, right).	Joystick on JPD series controller out of adjustment. Recenter joystick and verify coordinate settings. OPT> 3> 3 View coordinate display of joystick on LCD display. OPT> 3> 2 Display shows: P-### T-### Z-### ### should be 128 ± 10. If this does not correct problem, consult factory.
h. Scan is jerky.	1. Verify both data lines are connected. 2. A motor may be defective or the wiring to the motor may be broken.

6.1 REMOVING THE BOTTOM DOME FROM AN INDOOR TOP DOME

Always handle the dome from the outside surface.

Pendant Dome

1. Remove power to the unit.
2. Press in gently on the bottom dome and pull the dome down.

Dropped Ceiling or Hard Ceiling Dome

1. Remove power to the unit.
2. Rotate the bottom dome counterclockwise and lower the dome. If the unit is installed for CE compliance, remove the screw in the trim ring, then rotate the bottom dome.

6.2 REMOVING THE PAN AND TILT ASSEMBLY

Pendant Dome

1. Remove the power to the unit.
2. Remove the dome from the mount by removing the three M4/8 screws that secure the top dome to the mount.
3. Remove the bottom dome.
4. **Hold on to the pan and tilt assembly** and remove the three (3) nuts and lockwashers from the mounting plate on the top dome. The three (3) nuts secure the pan and tilt assembly to the top dome.

Dropped Ceiling or Hard Ceiling Dome

1. Remove the power to the unit.
2. Remove the bottom dome.
3. Remove the locking screw on the scan mounting bracket in the top can (refer to the illustrations on pages 11 and 12).
4. **Loosen (do not remove)** the two retaining screws in the top can.
5. Rotate the mounting bracket counterclockwise so the retaining screws are aligned with the large key holes and lower the unit.

7.0 MAINTENANCE

Every three months, perform the following:

1. Make sure the mount is secured.
2. Make sure the dome is secured to the mount.
3. Inspect all connecting cabling for deterioration or other damage.
4. Clean the domes (only if required) using the procedure defined for your dome type.

5. Clean the camera lens (only if required). Ultrak recommends purchasing an optical lens cleaning kit and following the procedures provided with the kit. **Do not use facial tissues, paper toweling, or clothing to clean the lens. Use only a lens cleaning tissue.**

Clear Dome and Smoked Dome Cleaning Procedure:

The inside and outside surface of the dome can be cleaned with any non-abrasive cleaning cloth and cleaning agent that is safe for use on acrylic plastic such as Windex, Glass Plus, or lens cleaner. To polish the dome, Meguiar's Mirror Glaze 6 Professional Cleaner/Wax or equivalent mirror cleaner/wax is recommended.

8.0 REPLACEMENT PARTS

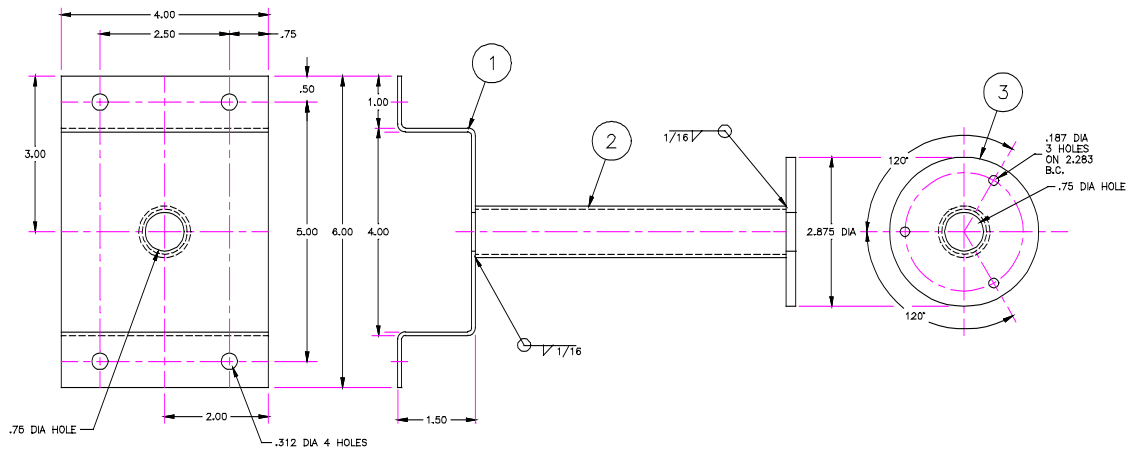
The following drawings and partial material lists are provided to assist in installing and servicing the KD6 Z-Series Dome. All servicing must be performed by qualified technicians who have attended an Ultrak training course.

8.1 REPLACING THE CAMERA

Perform the following procedures to replace the camera.

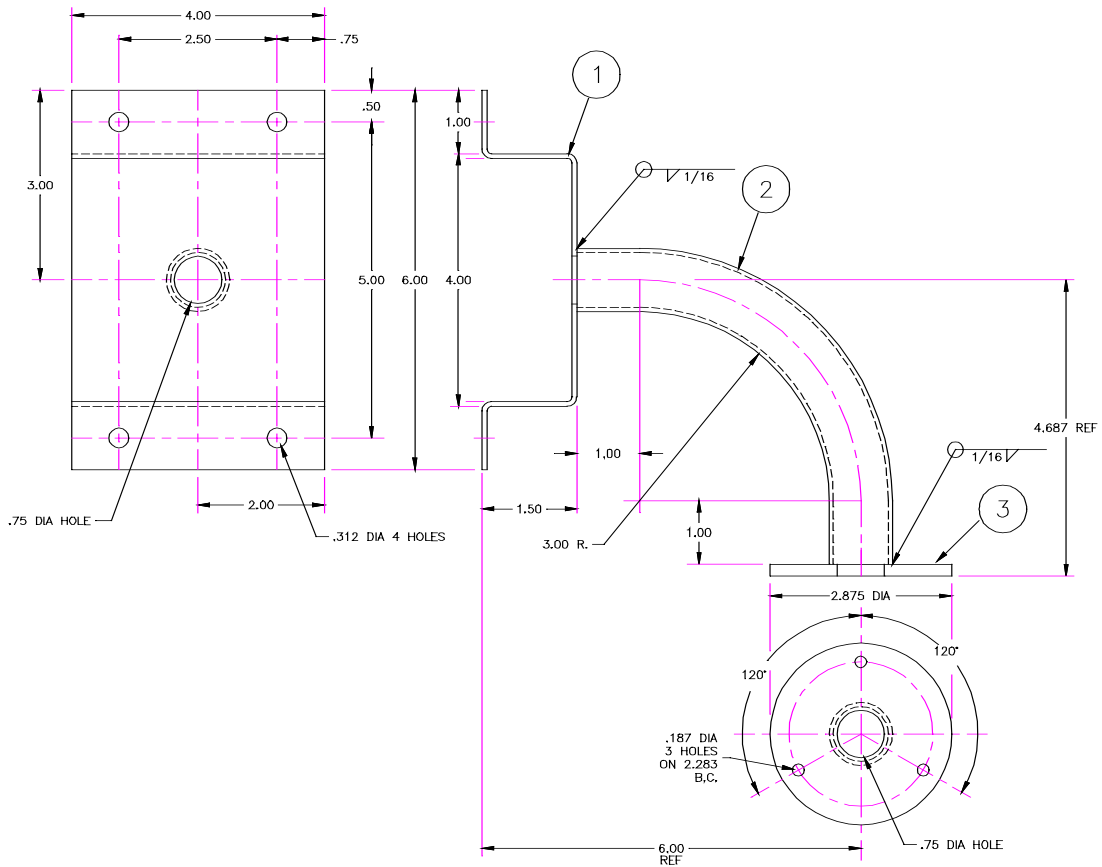
1. Remove power to the pan and tilt.
2. Remove the existing camera.
3. Install the replacement camera.
4. Power up the unit to activate camera.
5. Power down the unit to reset the camera's baud rate. The unit automatically resets the baud rate.
6. Power up unit.

Pendant Ceiling Mount
Part Number 518855-1030



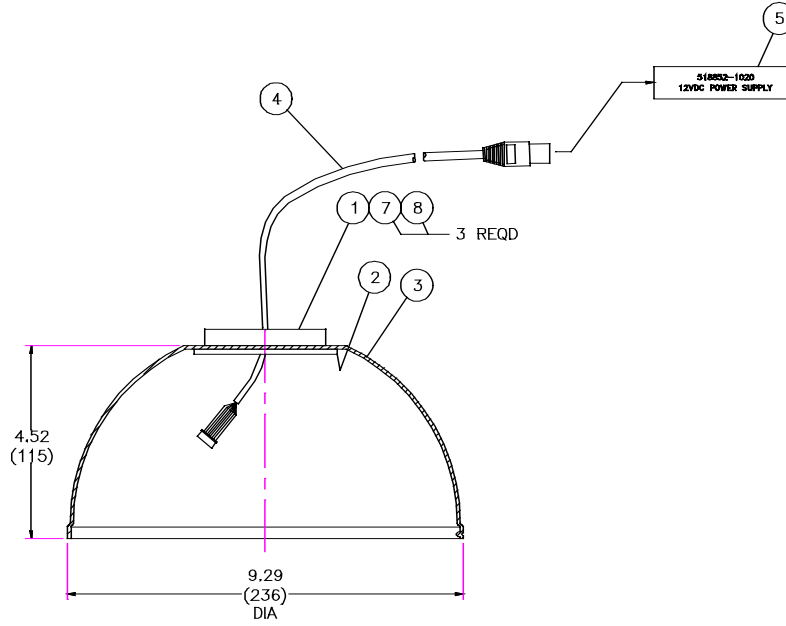
<u>Item</u>	<u>Description</u>
1	Sheet, 14 gauge (.0747) Thk x 4" x 9" Lg. CRS
2	Tube, 1" Dia. X .065 Wall x 6" Lg. CS
3	Plate, 3/16 Thk x 2.875 Dia. CS

Wall Pendant Mount
Part Number 518856-1030



<u>Item</u>	<u>Description</u>
1	Sheet, 14 gauge (.0747) Thk x 4" x 9" Lg. CRS
2	Tube, 1" Dia. X .065 Wall x 6.75" Lg. CS
4	Plate, 3/16 Thk x 2.875 Dia. CS

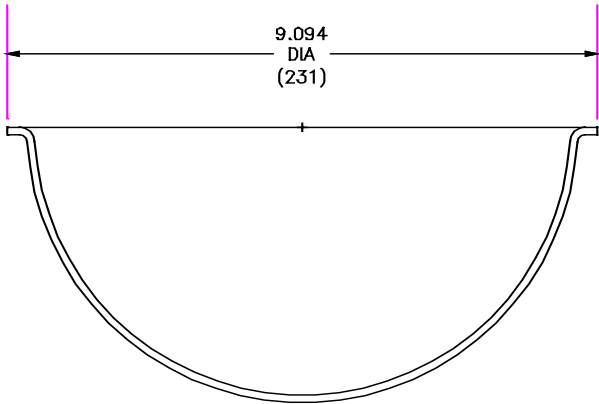
**KD6 Z-Series Dome Indoor Pendant Top Dome
518878-1040 (12vdc)**



Replacement Parts

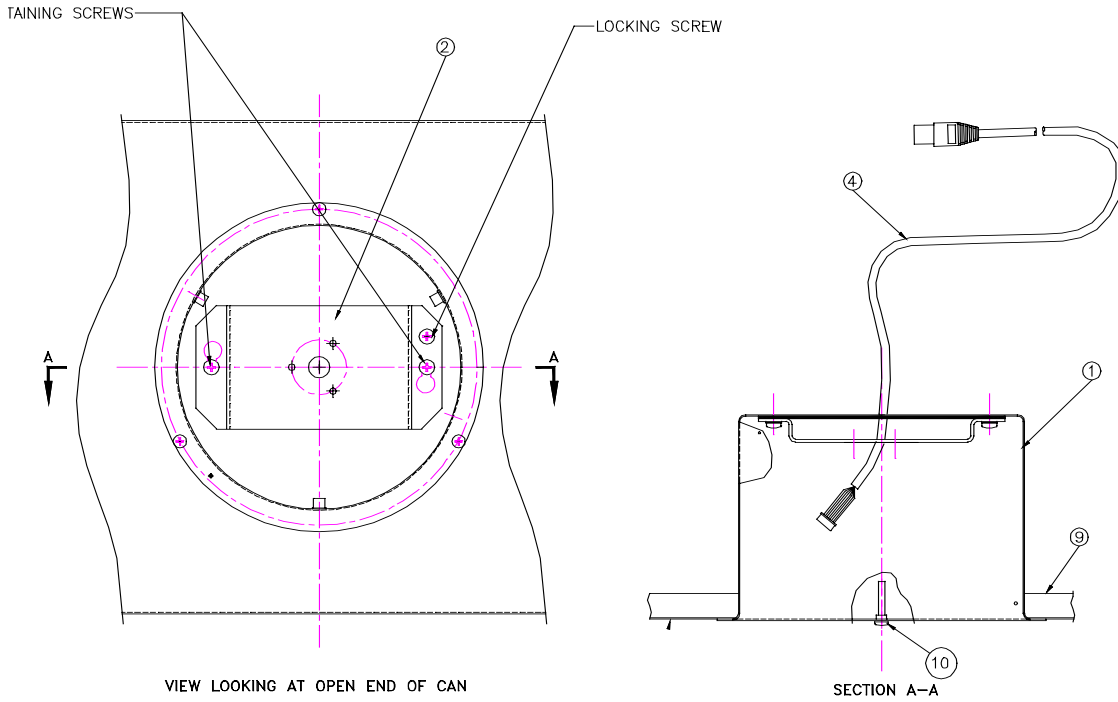
<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	518865-1130	Mounting Bracket Ring
2	518866-1120	Spacer Ring
3	518867-1130	8" Upper Dome
4	518868-1120	Interface Cable, 4-foot
5	518852-1020	Assembly, 12V Dome Interface Board
7	873020-1000	Nut, Regular Hex 7mm SST, M4
8	871018-1000	Lockwasher, Spring, SS

KD6 Z-Series Dome Indoor Pendant Bottom Dome



<u>Part Number</u>	<u>Description</u>
518861-1130	Clear Bottom Dome
518861-2130	Smoked Bottom Dome

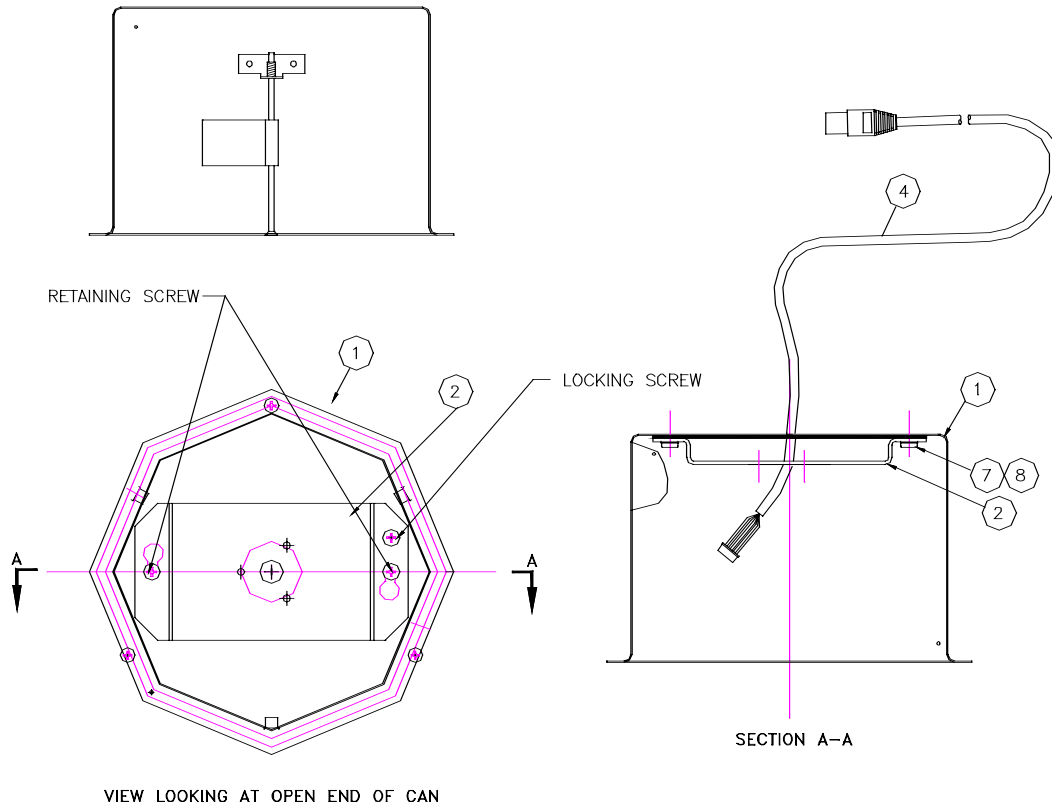
KD6 Z-Series Dome Indoor Dropped Ceiling Top Can
Part Number 518921-1040



Replacement Parts

Item	Part Number	Description
1	518461-2140	7" Back Can
2	518916-1130	Mounting Bracket, Scan
4	518868-1120	Interface Cable
9	517082-8130	Drop Ceiling Mount
10	871024-1240	Screw, Pan Phil. Hd., SST, M4 x 24mm Lg.

KD6 Z-Series Dome Indoor Hard Ceiling Top Can
Part Number 518940-1040



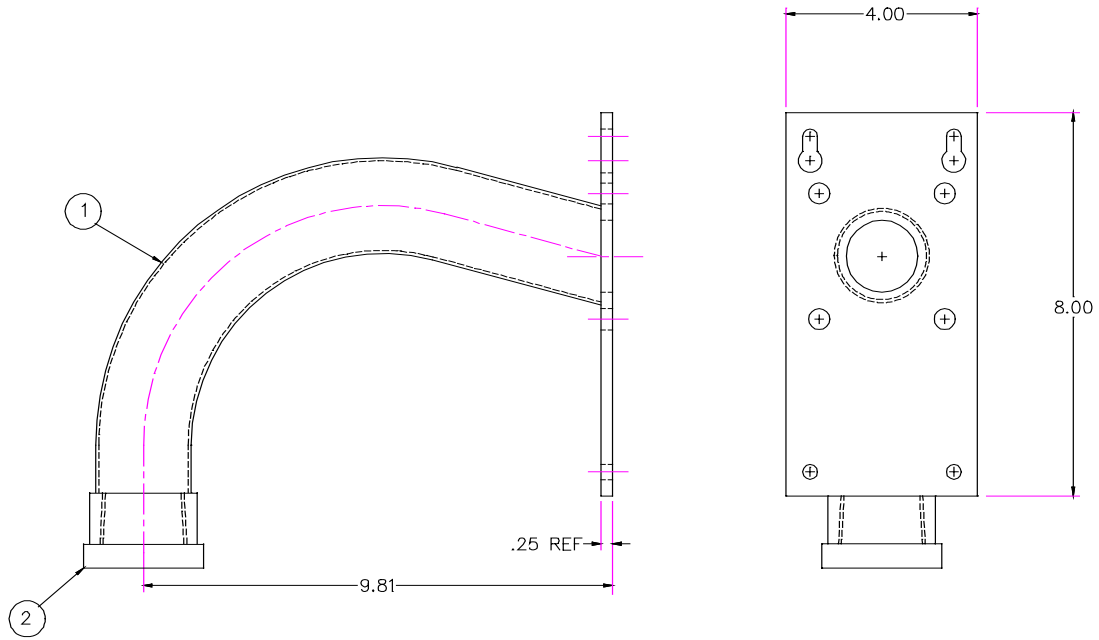
Replacement Parts

<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	518461-3140	7" Back Can
2	518916-1130	Mounting Bracket, Scan
4	518868-1120	Interface Cable

Hard Ceiling and Dropped Ceiling Bottom Domes

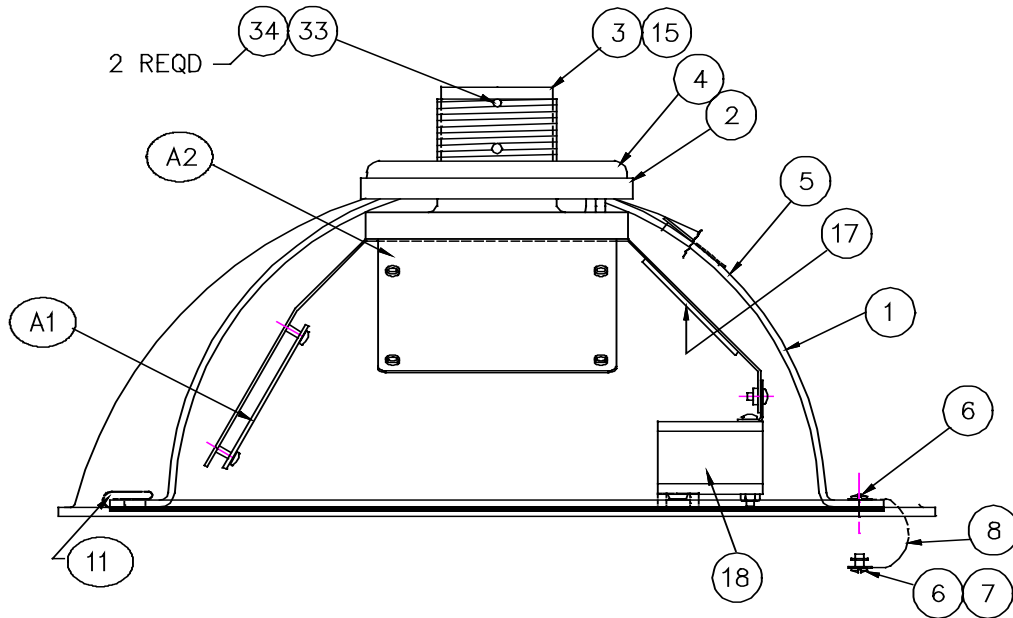
<u>Part Number</u>	<u>Description</u>
518630-1000	Bottom Dome, Smoked with Black Trim Ring
518630-2000	Bottom Dome, Smoked with White Trim Ring
518630-4000	Bottom Dome, Clear with Black Trim Ring
518630-5000	Bottom Dome, Clear with White Trim Ring

Outdoor Wall Mount
Part Number 518999-1040



<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	519018-1140	Mount
2	519003-1120	Seal

Weather Dome
518946-1040



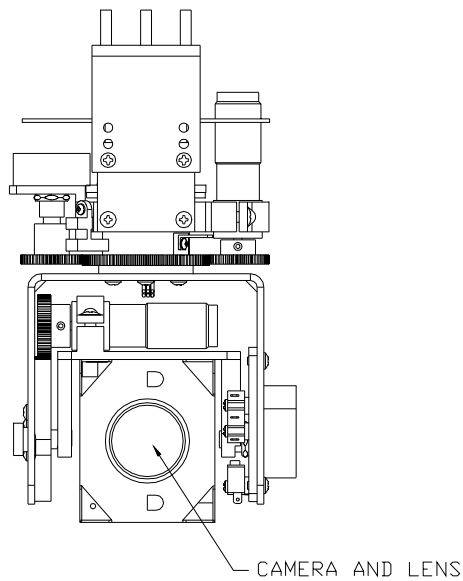
<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	700480-3130	Top Dome, Black
2	518634-1120	Seal, Dome Cap
3	515676-1130	Slip Ring Support
4	515991-2120	Dome Cap
5	517230-4140	White Weather Shroud
6	865701-0406	Screw, Phil. Pan. Hd. #4-40 x 3/16"
7	869068-0126	Washer, Retainer for #4-40 Screw
8	517024-1120	Safety Cable
11	861807-0011	Clip, #82 SST for ¼ Turn Fastener
15	515970-1120	Dustcover Plug
17	842403-0414	Heater
18	841701-0030	Fan
33	700423-1120	Pin, ¼-20 Threaded Rod
34	863020-2500	Nut, SST Reg. Pattern #1/4-20
A1	518985-1030	Heater Interface Board
A2	518950-2030	Power Supply Board

Weather Dome Bottoms

<u>Part Number</u>	<u>Description</u>
518087-1030	Bottom Dome, Smoked
518087-3030	Bottom Dome, Clear

7" Pan and Tilt Assembly (Scan)

518854-1040 (includes camera and lens)



843216-0900	Camera, Color 9 Vdc, 1/4" Format NTSC Hz w/4-64mm Zoom Lens with 2X Digital Magnifier
843216-0901	Camera, Color 9Vdc, 1/4" Format PAL Hz w/4-64mm Zoom Lens with 2X Digital Magnifier

9.0 SPECIFICATIONS

Power Requirements:	12Vdc ¹ – 15Vdc @ 1.1A, non-isolated 24Vac ±10% @ 0.75A, non-isolated Weather Dome Heater 24Vac @ 2.1A
Pan and Tilt Angular Travel:	Horizontal – 360° continuous slip ring design Vertical – 0° horizontal to 90° down
Pan and Tilt Speed:	Pan – continuously variable 1° to 180° per second. Tilt – continuously variable 2° to 90° per second. Speed to PreShot – 1 second
Operating Temperature:	<u>Indoor</u> 32°F to 104°F (0°C to 40°C) <u>Outdoor</u> -40°F to 122°F (-40°C to 50°C)
Installation:	Mechanical: Designed for quick and easy installation/disassembly on wall or ceiling. Electrical: Terminal Block
Mounting:	Dropped Ceiling, Hard Ceiling, Indoor or Outdoor Pendant
Camera:	No lag, no burn CCD sensor, ¼” format Power Requirements: 9V dc <u>NTSC</u> Resolution: >470 TV lines <u>PAL</u> Resolution: >460 TV lines <u>NTSC or PAL</u> Minimum Illumination: 3 Lux with F1.4, 40 IRE units, 14.5db (max) S/N ratio: 46db (luminance)
Lens:	4mm–64mm (16x) zoom with 2X digital Auto/manual iris Auto/manual focus
Wiring:	One shielded twisted-pair RS-485 cable (24-14 AWG) for control data (home-run wired or daisy-chain wired – maximum distance = 4000 feet total). Daisy-chain wiring max. scans = 32. Two 14-22 AWG wires for 12V dc. RG-59/U Coaxial Video Cable with BNC connector (maximum 1500 feet).

¹ A minimum of 12Vdc is required at each dome for proper operation of the scan.