



# PAN AND TILT POSITIONERS AND CAMERA ENCLOSURES





MAD is almost certainly unique in the CCTV hardware industry with design, manufacture and assembly all under one roof.



Take a good look at our product range, and the benefits are immediately obvious. Superlative build quality, unrivalled specification and innovative design promise many years of maintenance free operation. However, where we really score is in our flexibility. Because of our set up, customers' specific needs can be addressed faster and more effectively than ever.

Agree a specification for an installation, 'free-issue' us the components (e.g. camera, lens, receiver, cable etc.) and we'll assemble and test the system for you. If necessary, we'll provide test sheets and equipment logs and even hold a 'Factory Acceptance Test' with customer and clients present. If you need additional Control Equipment or CCTV accessories, just ask. It's that simple! Welcome to the MAD house where quality, reliability and service come together.

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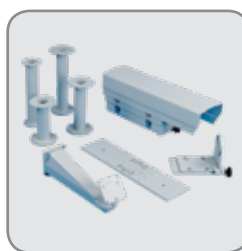
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# POSITION IT<sup>®</sup> *PI 35*

## For Mobile Applications

The PositionIt PI35 by Will-Burt is a compact and robust pan and tilt positioner with a maintenance-free design. An IP68 rating delivers dust and water protection. Higher gear ratios generate lower speeds that provide smooth operation for optimal sensor and antenna performance.

## ESSENTIAL FEATURES

- **Strong lightweight construction**
  - Die-cast aluminum casing
- **Pelco-D RS-485 communication**
- **Minimal backlash**
  - Precision turned and milled components with ball races on major axes
- **Absolute positioning**
- **Built to last**
  - Stainless steel fasteners
- **Weatherproof**
  - IP 68 rating
- **Simple to install**
  - External limit switch adjustment
- **Universal mounting plate**
  - Suitable for most common payloads
- **Corrosion resistant finish**
  - Black
- **Regenerative braking**
  - On motor shaft



## SPECIFICATIONS

Model	PI-35
Payload Capacity*	35 ft lb / 47 Nm
Height	9.7 in. / 246 mm
Width	10.8 in. / 273 mm
Depth	5.7 in. / 144 mm
Weight	19.5 lb / 8.9 kg
Operating Temperature	-20°C to 50°C / -4°F to 122°F
IP Rating	IP68 - Waterproof (immersion) and Dustproof
Pan Axis	400° (± 200°)
Pan Speed (proportional)	1° to 12° / second
Tilt Axis	180° (± 90°)
Tilt Speed (proportional)	1° to 12° / second
Backlash	≤ 0.15°
Repeatability	≤ 0.3°
Maximum Continuous Power	44 W
Maximum Running Current	1.85 amps
Input Voltage	24 VDC - Converters available for 12 VDC and AC power sources

\*Capacity measured at 12 inches or less from the tilt axis. Dimensions and weights are for reference only and are subject to change. Contact Will-Burt for current engineering specifications.





# POSITIONIT<sup>®</sup> PI 75 & PI 150



## For Mobile Applications

PositionIt models PI 75 & PI 150 by Will-Burt are maintenance-free pan and tilt positioners designed to provide years of trouble-free service. An IP68 rating delivers dust and water protection. The gear box is designed to minimize backlash and provides higher gear ratios for lower speeds along with mechanical braking. Long-life potentiometers are standard with PositionIt.



## ESSENTIAL FEATURES

- **Replacement for MOOG QuickSet QPT Positioners**
  - Direct connection to existing QuickSet control/power cable
- **Pelco-D RS-485 Communications**
- **Strong lightweight construction**
  - Die-cast aluminum casing
- **Minimal backlash**
  - Precision turned and milled components with ball races on major axes
- **Built to last**
  - Stainless steel fasteners
- **Weatherproof**
  - IP 68 rating
- **Simple to install**
- **Universal mounting plate**
  - Suitable for most common payloads
- **Corrosion resistant finish**
  - Black
- **Regenerative braking**
  - On motor shaft
- **Long operational life**
  - 2 year warranty on Will-Burt PositionIt™ Positioners
  - 3 year mechanical and 2 year electrical warranty on Static Positioners
- **Flexible connection**
  - Bottom or side
- **We also offer a complete range of positioners for fixed applications and camera enclosures.**



## SPECIFICATIONS

Model	PI-150	PI-75
Payload Capacity*	150 ft lb / 202 Nm	75 ft lb / 101 Nm
Height	11.32 in. / 287.7 mm	11.32 in. / 287.7 mm
Width	12.4 in. / 314 mm	9.21 in. / 234 mm
Depth	6.8 in. / 171 mm	
Weight	37 lb / 16.8 kg	35 lb / 16 kg
Operating Temperature	-20°C to 50°C / -4°F to 122°F	
IP Rating	68 - Waterproof (immersion) and Dustproof	
Pan Axis	400° (± 200°)	
Pan Speed (proportional)	0.02 to 6.5° / second	
Tilt Axis	180° (± 90°)	
Tilt Speed (proportional)	0.02 to 5.5° / second	
Backlash	≤ 0.15°	
Repeatability	≤ 0.3°	
Maximum Continuous Power	44 W	
Maximum Running Current	1.85 amps	
Input Voltage	24 VDC - Converters available for 12 VDC and AC power sources	

\*Capacity measured at 12 inches or less from the tilt axis. Dimensions and weights are for reference only and are subject to change. Contact Will-Burt for current engineering specifications.



# POSITION IT<sup>®</sup> Controllers

The handheld and 2U rack mount controllers are Pelco-D compatible with programmable home and stow positions. The AC powered rack mount controller provides power and pan and tilt commands to the positioner and is adaptable to contact closure switches for I/O panels. The handheld controller has a keyboard for programming and an LCD screen and can be optionally used in conjunction with the rack mount controller.



## SPECIFICATIONS

Input Voltage	12V DC
Power	0.5 watts
Communication Interface	RS485
Communication Frequency	2400, 4800, 9600, 19200 bps
Operating Temperature	32°F to 122°F / 0°C to 50°C
Dimensions	(L x W x H) 6.6 in. x 5.4 in. x 4.2 in. / 168mm x 136mm x 105mm
Weight	.89 lb / .4 kg



## TOP QUALITY FIXED IP68 PAN & TILT HEADS

On a prison wall looking in, or a power station looking out; on highways, at ports; in town and city centers; on police mobile surveillance units and for ANPR. In fact for any application that calls for uncompromising quality, performance and maintenance free reliability, chances are you'll spot the unmistakable profile of a MAD pan & tilt.

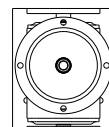
Available in three different sizes, all units can be configured for over the top or side mount operation. Bowler and Topper heads are also available with continuous rotation.

If your application calls for the ultimate in maintenance free all-weather performance look no further.

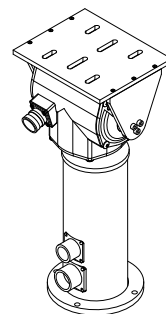


## ESSENTIAL FEATURES

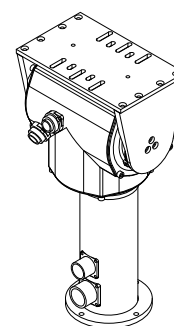
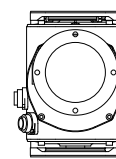
- **Uncompromising construction**
  - Dual process heat treated die cast aluminium
- **Wide choice of options**
  - Side mount or over the top
- **Highly reliable with minimal backlash**
  - Precision turned internal components with ball races on major axes
- **Built to last**
  - Stainless steel fastenings
- **Weatherproof**
  - IP rating 68 (supplied mating connector must be used and fitted as specified)
- **Long operational life**
  - Maintenance free
- **Easy to install**
  - Simple external limit switch
- **adjustment**
- **Universal mounting plate**
  - Suitable for all appropriately sized housings
- **Corrosion resistant finish**
  - Aids rapid deceleration
- **Regenerative braking**
- **Color**
  - Grey
  - Custom colors available



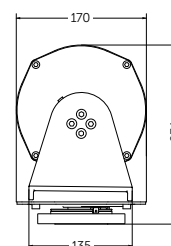
**BOWLER**  
LIGHT-DUTY



**TOPPER**  
MEDIUM-DUTY



**HOMBURG**  
HEAVY-DUTY



## SPECIFICATIONS

	BOWLER LIGHT DUTY PAN & TILT		TOPPER MEDIUM DUTY PAN & TILT		HOMBURG HEAVY DUTY PAN & TILT	
	Side Mount	Over the Top	Side Mount	Over the Top	Side Mount	Over the Top
Height (Standard)	5.2 in. / 133 mm	5.8 in. / 146 mm	7.2 in. / 184 mm	7.9 in. / 201 mm	9.2 in. / 234 mm	9.8 in. / 250 mm
Height (Continuous Rotation)	17.4 in. / 441 mm	18 in. / 457 mm	19.4 in. / 493 mm	20.1 in. / 511 mm	N/A	N/A
Width to platform face	5.7 in. / 145 mm	5.7 in. / 145 mm	7.5 in. / 190 mm	7.2 in. / 183 mm	15.8 in. / 402 mm	N/A
Width to platform outer edge	12.1 in. / 307 mm	N/A	14.4 in. / 366 mm	N/A	6.7 in. / 170 mm	6.7 in. / 170 mm
Depth (without plugs)	-	-	5.1 in. / 130 mm	5.1 in. / 130 mm		
Weight (Die cast aluminium - Standard)	< 5.1 lb. / 2.3 kg	< 5.1 lb. / 2.3 kg	< 13.2 lb. / 6 kg	< 13.2 lb. / 6 kg	< 26.5 lb. / 12 kg	< 26.5 lb. / 12 kg
Voltages	24VDC		24VDC		24VDC	
Speeds (°/sec)	Pan 30,10 Tilt 10		DC: Pan 12, 18, 24, 32, 48 / Tilt 12, 18		Pan 30, 10 / Tilt 10 Slowspeed Pan/Tilt: < 0.1°/sec min. to 10°/sec max.	
Capacity	22.1 lb. / 10 kg (@ 30/10°/sec)	13.2 lb. / 6 kg (@ 30/10°/sec)	55.1 lb. / 25 kg	35.3 lb. / 16 kg	110 lb. / 50 kg	44.1 lb. / 20 kg (30 or 25 with 1 or 2 load compensators)
Operational angles (°)	Pan: 350 Tilt: ±180	Pan: 350 Tilt: -90 to +25	Pan: 350 Tilt: ±180	Pan: 350 Tilt: -90 to +25	Pan: 350 Tilt: ±180	Pan: 350 Tilt: -90 to +25
Backlash	Less than 0.15°		Less than 0.15°		Less than 0.15°	
Long life potentiometers	Fitted as standard		Fitted as standard		Fitted as standard	
Control cable	Mating connectors supplied		Mating connectors supplied		Mating connectors supplied	
House color	Grey		Grey		Grey	
Maintenance	None required		None required		None required	
Temperature range	-4° to 122° F / -20° to +50° C		-4° to 122° F / -20° to +50° C (heater available)		-4° to 122° F / -20° to +50° C (heater available)	
Voltages	24VDC		24VDC		24VDC	
Interface / Protocol	RS232 or RS485 / Pelco-D & Pelco-P		RS232 or RS485 / Pelco-D & Pelco-P		RS232 or RS485 / Pelco-D & Pelco-P	
Addresses	Up to 256		Up to 256		Up to 256	
Preset and tour	Dependent on controller		Dependent on controller		Dependent on controller	
Limit stops and braking	Electronic		Electronic		Electronic	
Auxiliary relay outputs	Wash, Wipe, Lights		Wash, Wipe, Lights		Wash, Wipe, Lights	
Power and data pass-through	for 'block style' camera		for 'block style' camera		for 'block style' camera	

## TOPPER RX CONTINUOUS ROTATION

Continuous Rotation is a must for missions that call for frequent repositioning of a payload. The Topper RX Continuous Rotation rotates at 48° per second and achieves its position quickly without the need to backtrack. This positioner has high-speed feedthrough data speeds that accommodates the latest digital payloads. Best of all, the Topper RX Continuous Rotation is as rugged and reliable as the standard line of pan and tilts.



### ESSENTIAL FEATURES

- Continuous Rotation pan axis with full  $\pm 90^\circ$  tilt axis
- Internal 10-bit encoder on 1-to-1 anti-backlash gear for increased positioning and positional feedback accuracy
- Power and Data feedthrough
  - 24VDC (standard)\*\*
  - Pelco D protocol with positional feedback capabilities over RS485
  - (8) additional feedthrough conductors (4x 4 amps & 4x 2 amps)
- Feedthrough Cable Data Speed: 12G-SDI, Fast Ethernet (100-BaseT CAT5e & CAT6), Gigabit Ethernet (1000-BaseT CAT5e) and 10G Ethernet (10G-BaseT CAT5e)

### SPECIFICATIONS

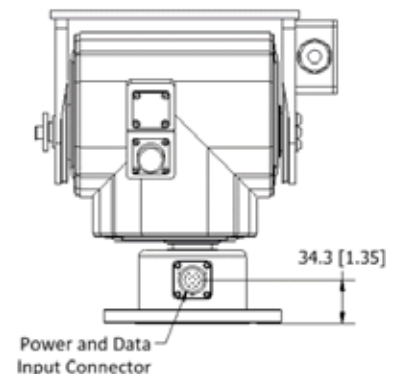
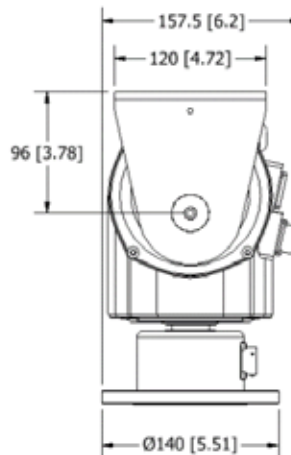
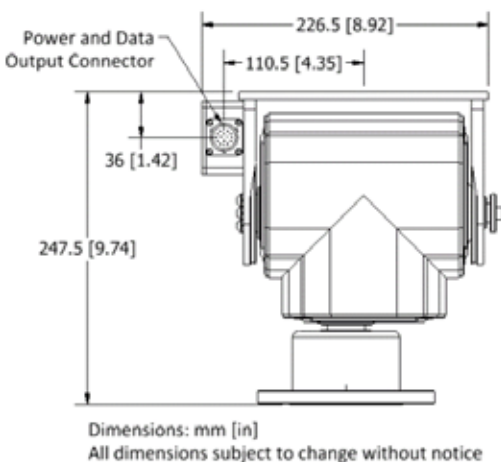
Model	Topper RX CR
Payload Capacity*	22.5 ft-lb / 30.5 Nm
Weight	17 lb / 7.7 kg
Pan Axis	Continuous
Pan Speed (proportional)	48° / second
Tilt Axis	$\pm 90^\circ$
Tilt Speed (proportional)	12° / second
Backlash	$\leq 0.15^\circ$
Repeatability	$\leq 0.3^\circ$
Operating Temperature	-20°C to 50°C / -4°F to 122°F
IP Rating	IP68
Input Voltage**	24VDC
Maximum Running Current	1.85 amps

\*Payload Capacity measured from axes of rotation

\*\*Alternative power options available upon request



### TOPPER RX CR





## MAINTENANCE FREE ALL-WEATHER CAMERA HOUSINGS

Made to a proven, traditional design, the Mitre range of environmental camera housings are extremely compact yet spacious enough (particularly the new 903) to accommodate larger camera/lens combinations.

Broadening the range of applications to include corrosive and clean environments, Small (901) and Medium (900) aluminium cased housings cases are now available in 316 stainless steel (801 and 800).

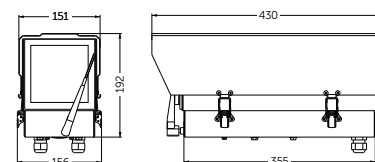
Toughened glass and stainless steel fittings/fastenings ensure long operational life and two entry glands and a grommetted hole are provided for efficient cable management to secure the units' IP66 integrity.

A deep base allows the fitting of an optional integral wiper which incorporates a micro switch for self-parking. Standard accessories include an extended camera plate, steel safety strap and wiring distribution block. A PTC resistor heater with progressive performance is also provided which eliminates the need for a thermostat and when the heat's on, optional double skinned sunshields are available for all models. The roomy new 903 (standard length) can even be supplied with a fan cooled sunshield which draws air through the housing to prevent overheating in extreme conditions.

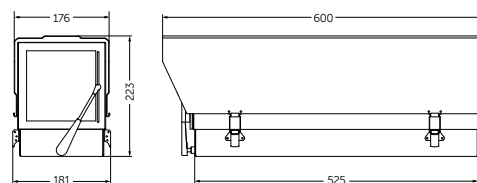


## ESSENTIAL FEATURES

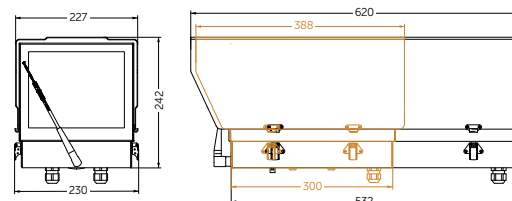
- **Uncompromising construction**
  - Lightweight sheet aluminium or 316 stainless steel casing and tray
- **New 903 series**
  - Extra height and width as standard plus short and integral cooling fan versions
- **Deep bottom tray**
  - Suitable for housing integral wiper or accessories such as receivers or RF TX's & Rx's
- **Built to last**
  - Stainless steel fastenings
- **Weatherproof**
  - Sealed to IP rating 66
- **Accessories**
  - Extended paxolin camera plate and stainless steel safety strap
- **PTC Resistor heater**
  - Progressive performance without the need of a thermostat (available on request)
- **Cable management**
  - Two entry glands at 20mm and one hole at 25mm for Kopex or Adaptaflex
- **Integral wiper option**
  - Micro switch self parking wiper with blade toggle action



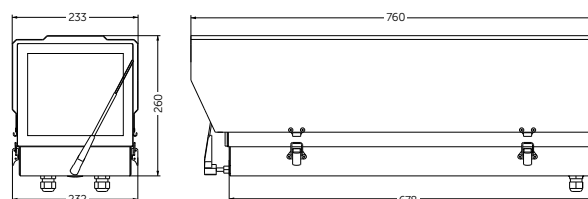
**MITRE**  
901 / 801



**MITRE**  
900 / 800



**MITRE**  
903 / 903 SHORT



**MITRE**  
902



## MAINTENANCE FREE ALL-WEATHER CAMERA HOUSINGS



**SMALL 901**



**MEDIUM 900**



**LARGE 902**



**WIDE 903 STANDARD**



**WIDE 903 SHORT**

The 903 housing shown here is fitted with an optional double skinned sunshield which is available for all models



**WIDE 903 WITH  
FAN COOLED SUNSHIELD**

Available exclusively for the Standard sized 903, the sunshield uses an electric fan to remove built up hot air from within the unit.

## SPECIFICATIONS

	<b>901</b>	<b>900</b>	<b>903 STANDARD</b>	<b>903 SHORT</b>	<b>902</b>
Height	7.6 in. / 192 mm	9.1 in. / 230 mm	9.5 in. / 242 mm	9.5 in. / 242 mm	10.2 in. / 259 mm
Width over clips	6.2 in. / 156 mm	7.1 in. / 180 mm	9.1 in. / 230 mm	9.1 in. / 230 mm	9.1 in. / 232 mm
Width over sunshield	6.0 in. / 151 mm	6.9 in. / 174 mm	8.9 in. / 227 mm	8.9 in. / 227 mm	9.2 in. / 233 mm
Length over sunshield	17.0 in. / 430 mm	23.6 in. / 600 mm	24.4 in. / 620 mm	15.3 in. / 388 mm	30.0 in. / 760 mm
Depth inside base	2.2 in. / 55 mm	2.2 in. / 55 mm	2.3 in. / 57 mm	2.3 in. / 57 mm	2.2 in. / 55 mm
Weight (Aluminium without wiper)	< 5.5 lb. / 2.5 kg	< 7.7 lb. / 3.5 kg	15.4 lb. / 7 kg	8.8 lb. / 4 kg	< 13.2 lb. / 6.0 kg
Weight (Aluminium with wiper)	< 6.6 lb. / 3.0 kg	< 8.8 lb. / 4.0 kg	16.5 lb. / 7.5 kg	9.9 lb. / 4.5 kg	< 14.3 lb. / 6.5 kg
Weight (316 stainless without wiper)	10.4 lb. / 4.7 kg	18.1 lb. / 8.2 kg	N/A	N/A	N/A
Weight (316 stainless with wiper)	TBA	TBA	N/A	N/A	N/A
Fixing centres					
Base	4 holes tapped M6 on 101.6 PCD (4") square to base				
Platform	4 slots 7.0 wide x 25 long in 225 long Paxolin or aluminium (903 units) plate (1 x ¼" UNC hex screw supplied)				
Voltage	24VDC nominal				
Capacity (l x w x h) (in. / mm)	13.0 in. x 4.5 in. x 4.3 in. / 330 x 114 x 110 mm	20.1 in. x 5.5 in. x 5.7 in. / 510 x 140 x 145 mm	19.9 in. x 7.0 in. x 6.6 in. / 505 x 178 x 167 mm	10.8 in. x 7.0 in. x 6.6 in. / 273 x 178 x 167 mm	25.6 in. x 7.1 in. x 6.7 in. / 650 x 180 x 170 mm
Options (all models)	Integral self parking wiper, internal fan, washer, thermostat, double skinned sunshield				
Heater	Progressive up to 32W				
Wiring and connections	Single row (double row with fan option), 12 way terminal block(s), .08 in. x .79 in. / 2 x 20 mm cable glands plus blanked, .98 in. / 25 mm hole for Kopex or Adaptaflex				
Recommended cable	16/0.2 (rated at 230V for mains versions)				
House color (900 series)	Grey				
Temperature Range	-4° to 122° F / -20° to +50° C				

## A LONG DISTANCE STUNNER FOR SENSITIVE AREA SURVEILLANCE

The Homburg Slowspeed system is a complete high resolution solution for users requiring a far higher degree of accuracy than is possible with a normal pan & tilt head and receiver. Delivering the capability of video tracking over long distances (dependent on lens), applications for the Slowspeed include airports and border control, harbours, vehicle embedded systems and other sensitive area surveillance.

Quick and easy to install, the receiver and housing are connected together by just nine connections (five power, two data and two video cables) and the receiver can be controlled over a daisy chained or star wired RS422/485 network. System commissioning and diagnostics are performed via a local or remotely located display.



### PAN AND TILT

With its dual process heat treated gravity die cast aluminum casing and precision turned and milled internal components with ball races on major axes, the Homburg heavy duty pan and tilt is the highly stable, robust and reliable platform for the Slowspeed system. Weatherproof and maintenance free, the head features external limit switch adjustment to avoid compromising its IP68 rating, full mechanical braking and contactless Hall-Effect sensors for greater accuracy over longer distances.

### HOUSING

The Homburg Slowspeed's housing is a modified version of the 902 model from MAD's Mitre range. Compact, yet roomy enough to accommodate the equipment needed for the system's long distance surveillance roll, the IP66 rated unit has a casing and tray of fully welded sheet aluminum with stainless steel fastenings and fittings. Inside, there's an extended camera plate with insulated stainless steel safety strap, wiring blocks and a PTC resistor heater. An integral self-parking wiper is also available as an option.

### ESSENTIAL FEATURES

- **Long range surveillance**
  - with 55-60x lenses
- **Ultra slow speed operation**
  - Pan and tilt speeds <0.1°/sec minimum to 10°/sec maximum
- **Choice of supply voltage**
  - Supply voltage either 110V ac or 230V ac
- **Choice of auxiliary output voltage**
  - Output voltage either supply voltage or 24V ac
- **Easy to install**
  - 9 wire connections between receiver and housing
- **Exceptional accuracy**
  - Revolutionary preset technology with 12 bit resolution
- **Easy to set up**
  - Receiver mountable at base of pole
- **Wide choice of lenses**
  - Compatible with lenses with iris override and x2 converters up to 60x
- **Flexible**
  - Supports 14 different protocols
- **Active motor drive system**
  - Ensures head stays on preset positions

### SPECIFICATIONS

<b>Power supply</b>	230Vac or 110Vac
<b>Max load</b>	5A @ 230V (1150W)
<b>Receiver current draw</b>	Maximum of 100VA max
<b>Fuses</b>	Auxiliary fuse F2 5A T (20mm ceramic cartridge) Total max. pan/tilt/lens/24Vac auxiliary 100VA
<b>Outputs</b>	Auxiliary outputs for wash/wipe/lights (1000W max) Driven at supply voltage or 24V ac selectable by SW2
<b>Video input</b>	1V p-p 75Ω terminated input via BNC socket
<b>Video output</b>	1V to 4V p-p 75Ω impedance via BNC socket Video launch amplifier gain locally and remotely adjustable Zoom and focus: adjustable between 6 - 12Vdc Inching speed: adjustable between 0-12Vdc 1 second inching built in
<b>Lens drives (remotely adjustable)</b>	Iris output: direct drive for 3 motor lens or auto iris override voltage. In auto-iris mode output returns to preset level 15 seconds after manual iris control. Preset level is adjustable. Outputs have red/green LEDs to indicate direction and voltage
<b>Presets Lens 10 bit resolution Head 12 bit resolution</b>	Inputs for pan, tilt, zoom & focus preset feedback pots Up to 32 full scene presets: pan/tilt/zoom/focus (16 with BBV & Baxall up the coax protocols)
<b>Alarm facilities</b>	8 alarm inputs from volt free normally closed contacts Output 1 normally closed volt free contact can be set to operate immediately or when the preset is approached after an alarm input NOTE: The output is used for iris override when using Fujinon or Pentax lens mode
<b>Additional facilities</b>	Software random pan/sequential preset patrol with individual programmable preset dwell/Datum - return to preset 1, start preset patrol or random pan after menu set duration of inactivity
<b>Features</b>	LED readout for continual system status. Programming menu with in-built LCD display and screen display 12V dc/500mA un-switched output Color coded outlets - live, neutral, earth, low voltage



## VALUE ADDED ACCESSORIES

Good looking, light but strong, MAD's supporting cast includes brackets with and without pan & tilt adjusters, a range of column spacers, quick release and infra red lamp mounting plates and a special extended sun shield for the 901 Mitre housing. The latest addition is a heat diffusing double skin Mitre sunshield for use in hot countries.



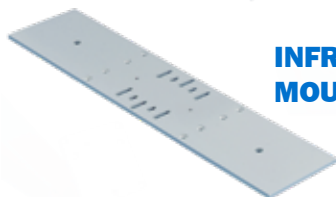
**FEZ  
COLUMN SPACERS**



**QUICK  
RELEASE PLATE**



**STETSON BRACKET**



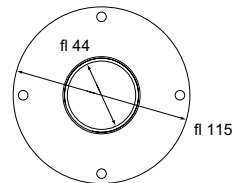
**INFRA RED  
MOUNTING PLATE**



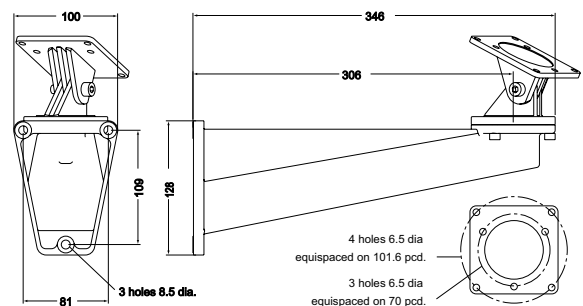
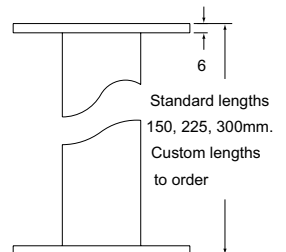
**200mm SUN SHIELD  
FOR MITRE 901 HOUSING**



Column spacers are manufactured with  
4 X 6.5mm holes on a 101.6mm pcd (4"),  
or with 80mm dia end plates with  
3 X 6.5mm holes on a 70mm pcd.  
Other plates and configurations  
can be made to order



**FEZ COLUMN SPACERS  
AVAILABLE IN ANY LENGTH**



**STETSON BRACKET  
WITHOUT PAN & TILT ADJUSTER**

# CONTACT YOUR SALES REPRESENTATIVE TODAY

The Will-Burt Company, headquartered in Orrville, Ohio, USA, is the world's premier manufacturer of mobile telescoping masts, towers and pan and tilt positioners. We offer virtually every payload elevation and integration solution from the top brands; Will-Burt, GEROH, Integrated Tower Systems (ITS) and MAD – for defense, government, first responders, cellular, broadcast, energy production and other markets. Will-Burt also offers contract manufacturing, metal fabrication, powder-coating, and rapid prototyping services. All Will-Burt Company manufacturing locations are backed by a certified ISO 9001:2015 Quality Management System. Incorporated in 1918, Will-Burt is 100% employee-owned and is classified as a small business.



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