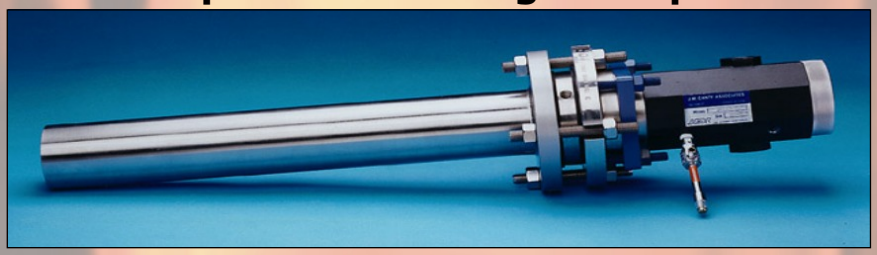

vision
without
limits
REBAR
CANTY
PROCESS TECHNOLOGY
BUFFALO
DUBLIN
THAILAND

CANTY

# High Temperature Cameras

CANTY High Temperature Cameras are ideal for demanding applications involving visual inspection or verification in extreme temperature environments. CANTY High Temperature Camera Systems feature a fused glass seal standard equipment with every model. This unique seal provides an impenetrable safety barrier to protect the camera electronics from the harsh process environment and preventing hazardous vapors from escaping into your plant.

## UltraTemp™ Insertion High Temperature Cameras

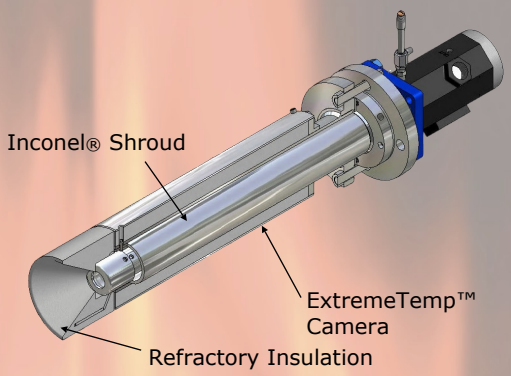


- Air is used for cleaning
- Can purge with any gas
- 2000ºF [1090ºC] or 2500ºF [1370ºC] models
- High temperature furnace package
- 12”-36” models available to insert thru refractory wall
- High quality quartz optics
- Disposable, protective quartz shield
- Auto electronic iris
- Non-blooming CCD camera
- CCD temperature readout to prevent overheating

## ExtremeTemp™ Furnace Cameras

Designed for the extreme 3000ºF [1650ºC] maximum temperature requirements of furnaces, the ExtremeTemp™ Furnace Camera combines the a CANTY UltraTemp™ Camera with an Inconel® sleeved high temperature refractory jacket. The assembly is inserted thru an opening in the fire brick, providing a remote view into the furnace.

- 3000ºF [1650ºC] max. rating - ExtremeTemp™ furnace lens
- High quality quartz optics
- Auto electronic iris
- Disposable, protective quartz shield
- Non-blooming CCD or Ethernet cameras
- Cooling air required

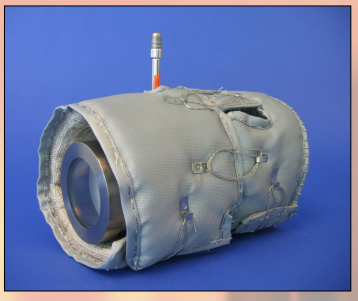



## UltraTemp™ Flush Mount High Temperature Cameras

- Ideal for applications where combined refractory and nozzle length are <4” [102mm]
- 2000ºF [1090ºC] process temperature / 1300ºF [700ºC] at lens
- 3” 150# ANSI or 80 mm 16 bar DIN flange mounting options
- Includes protective quartz shield and spray ring assembly
- Heartbeat available

## HighTemp™ Surveillance Cameras

- View and measure level, width
- Optional mounting stands available
- High accuracy
- Remotely mounted - direct line of sight
- Ambient temperatures to 200º F
- Ethernet connectivity
- Includes high temperature insulation, glare filters
- Optional mounting stands available



## Water Cooled Camera Jacket

- Ideal for applications where instrument air is unavailable
- Effectively cools camera housing and acts as an insulatory barrier against ambient heat
- Highly efficient and minimizes cooling costs

# CANTY ThermalVision™ System Applications

CANTY provides continuous temperature measurement by using multiband wavelength imaging pyrometry. With the advancement of CCD technology, multiband measurement has several advantages over 2 color (2 wavelength) pyrometers:

- Product temperature measurement is integrated over a broader range of wavelengths, which minimizes variance in emmisivity.
- VIS (Visible spectrum) between .4 - .7 micron allows a wide range of materials to be measured without recalibration or adjustment to emmisivity.

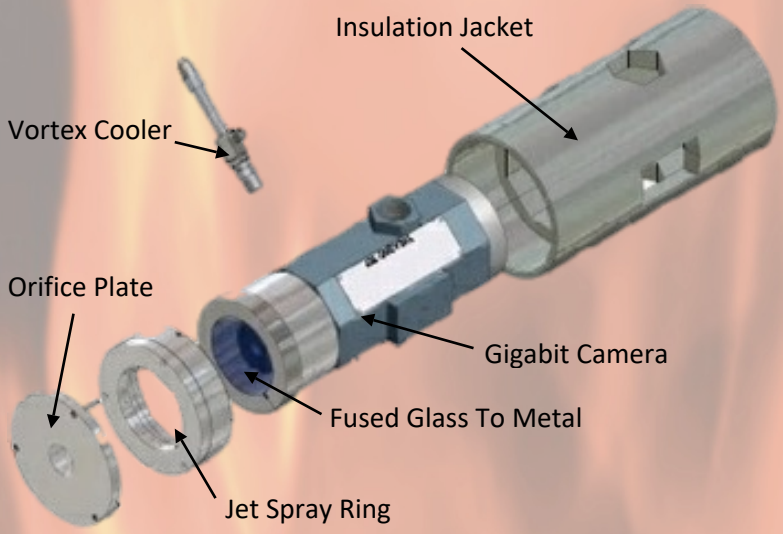
With the use of VIS, NIR and IR wavelengths, the proper ThermalVision™ camera can be selected to provide the most accurate temperature measurement range available. CantyVision™ software provides a SMART temperature measurement in addition to molten level tracking, object position and temperature measurement specific to an object or process.

*Calibration is performed to ASTM standard, providing for accuracy and repeatability of +/- 1ºC.*

Actual VIS ThermalVision™ Camera measuring rod
Temperatures 750ºF [400ºC] - 2865ºF [1575ºC]

| Spectrum | Temperature Range |
|---|---|
| VIS | 750ºF [400ºC] - 3630ºF [2000ºC] |
| NIR | 570ºF [300ºC] - 1830ºF [1000ºC] |
| IR | 32ºF [0ºC] - 750ºF [400ºC] |

*For reference only




The HighTemp™ surveillance camera used for these applications features fused glass barrier with a water or air cooled jacket for protection of the electronics.

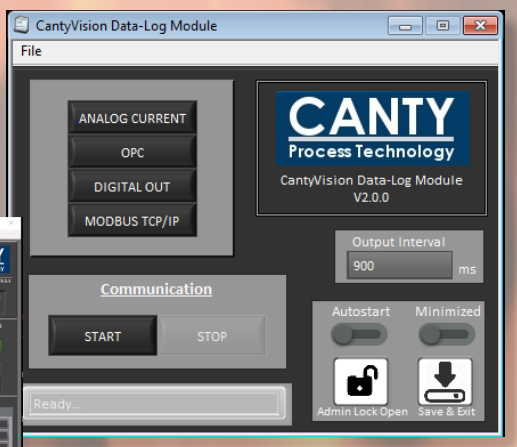
A positive gas (air/nitrogen) flow over the lens through the cameras spray tube ensures the view remains clear at all times, while this is not always needed for every application it is recommended to keep the lens clean in these environments.

The high resolution Gigabit Ethernet camera captures the images from the process, and transmits them in the real time to the control room where the Vector Control Module analyzes the image to detect stones and digitally outputs alarms.

# Vector Control Module

The Vector Control Module (VCM) is a small fanless solid state embedded processor that has CANTYVISION™ software pre-installed. It is designed to keep project costs low and to also eliminate the need for a computer. Since the VCM has analog outputs, there is no need for an additional analog output module purchase*. The operator screen makes it simple for operators to see what is going on real time with visual verification.

The VCM has OPC or 4-20mA outputs to a PLC or DCS for complete control. The VCM comes with the ability to have full administration controlled passwords and permissions. This compact design and cost effective system is easily setup and has a customizable screen. Access to technical support can be obtained with Internet connection.

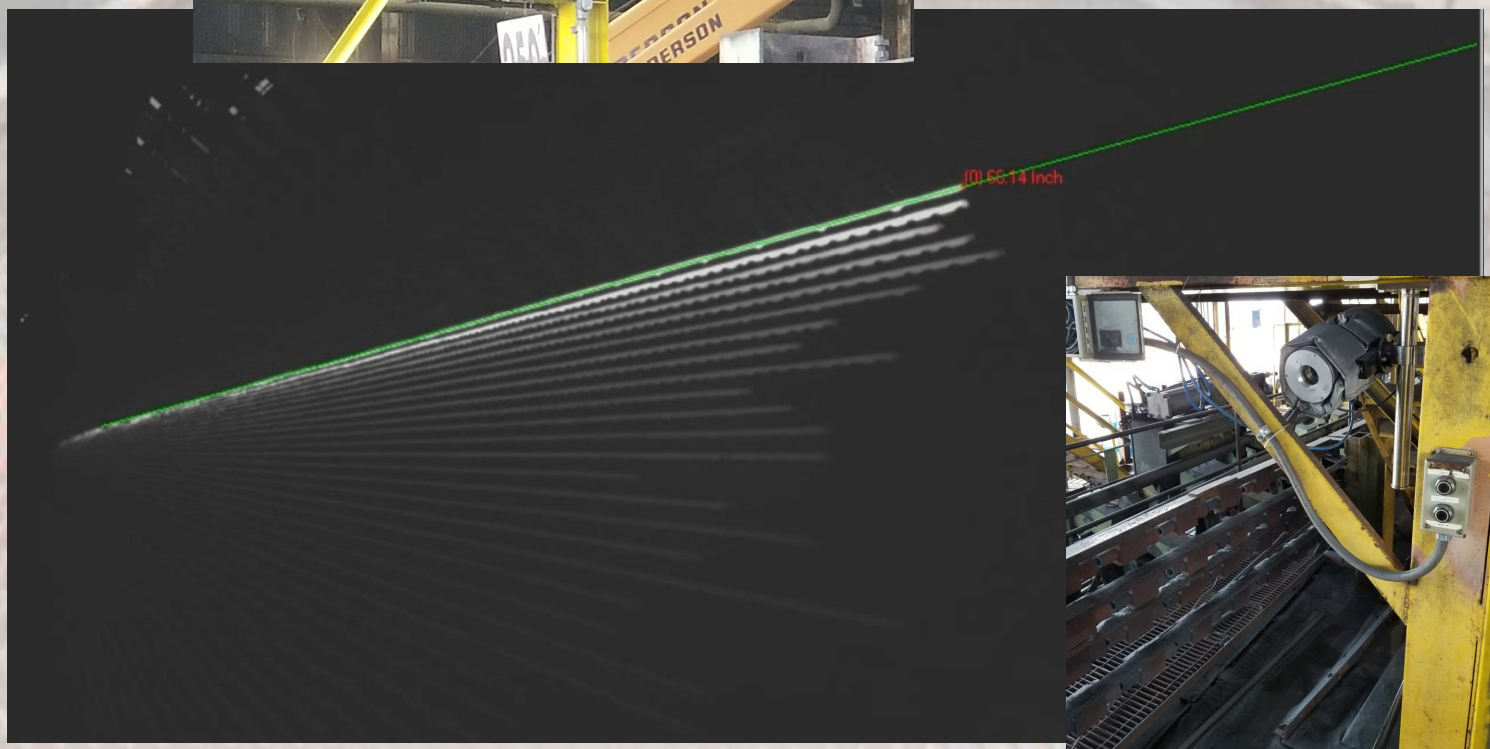



- Supports up to six cameras
- OPC outputs
- Up to eight analog 4-20mA outputs
- Link to technical support (when Internet connected)
- Digital IO
- Four USB Ports
- Four serial ports
- CantyVision™ Software installed
- Full administrative control embedded operating system
- Fan-less solid state vision control system

For More Information Click **Here**

# Rebar Length Measurement

**1/2” Accuracy • Non Contact • Low Maintenance • Visual Verification**






CantyVision™ software is configured to track the position of rebar with **accuracy to within 1/2”**. A tracking tool is displayed on the operator screen image at all times, to allow the user to visually verify what point is being tracked by the software. Control outputs are available to the DCS via OPC, 4-20mA and Modbus TCP/IP.

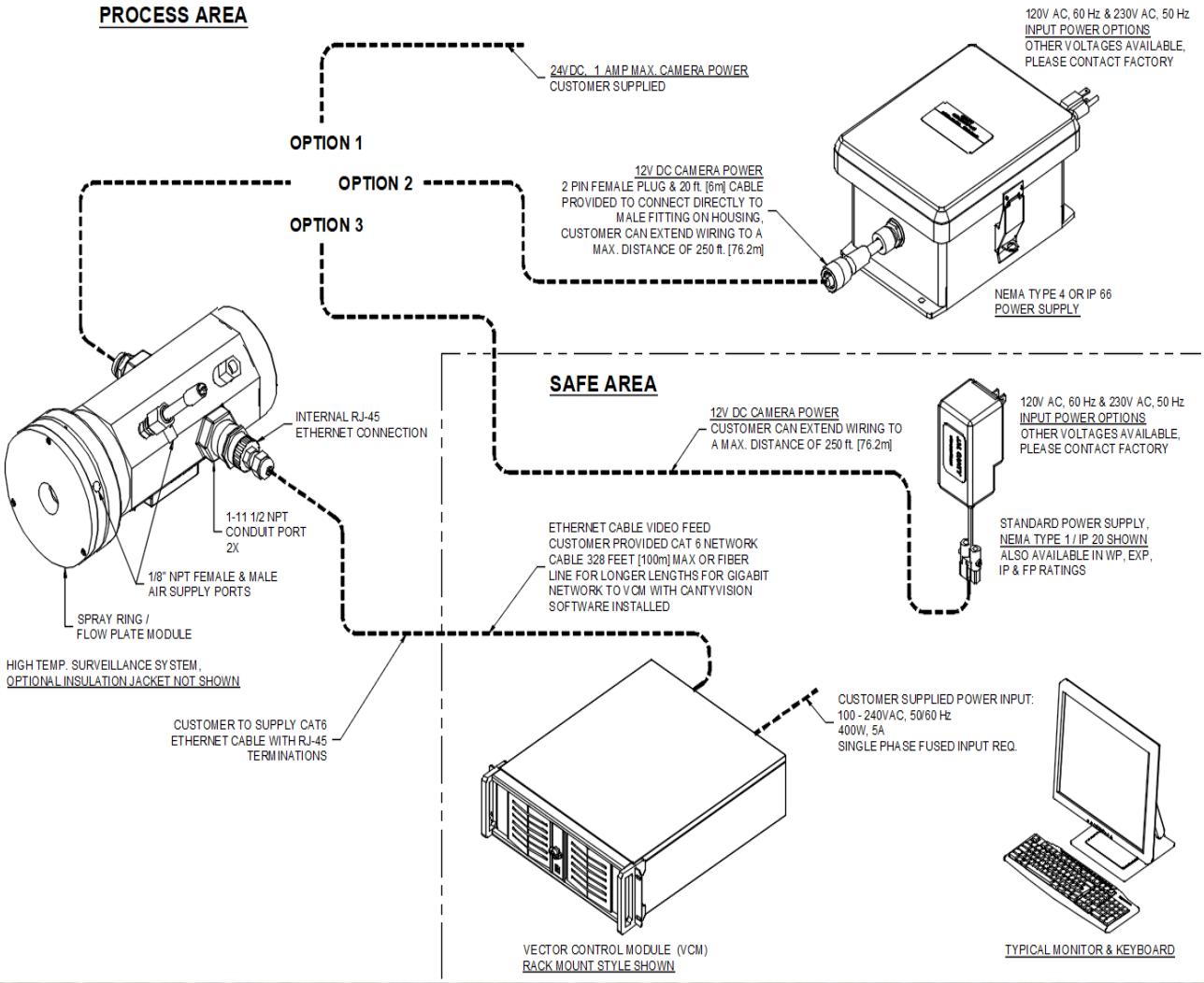
The CANTY Rebar Length system consists of high temperature surveillance cameras, mounted to view the surface of the cooling bed. The cameras are mounted on the beams around the cooling bed.

Multiple cameras are used depending on the accuracy and length of the cooling bed.

Image is optimized to eliminate background.

# Typical Wiring Diagram

**High Accuracy • Non Contact • Low Maintenance • Visual Verification**

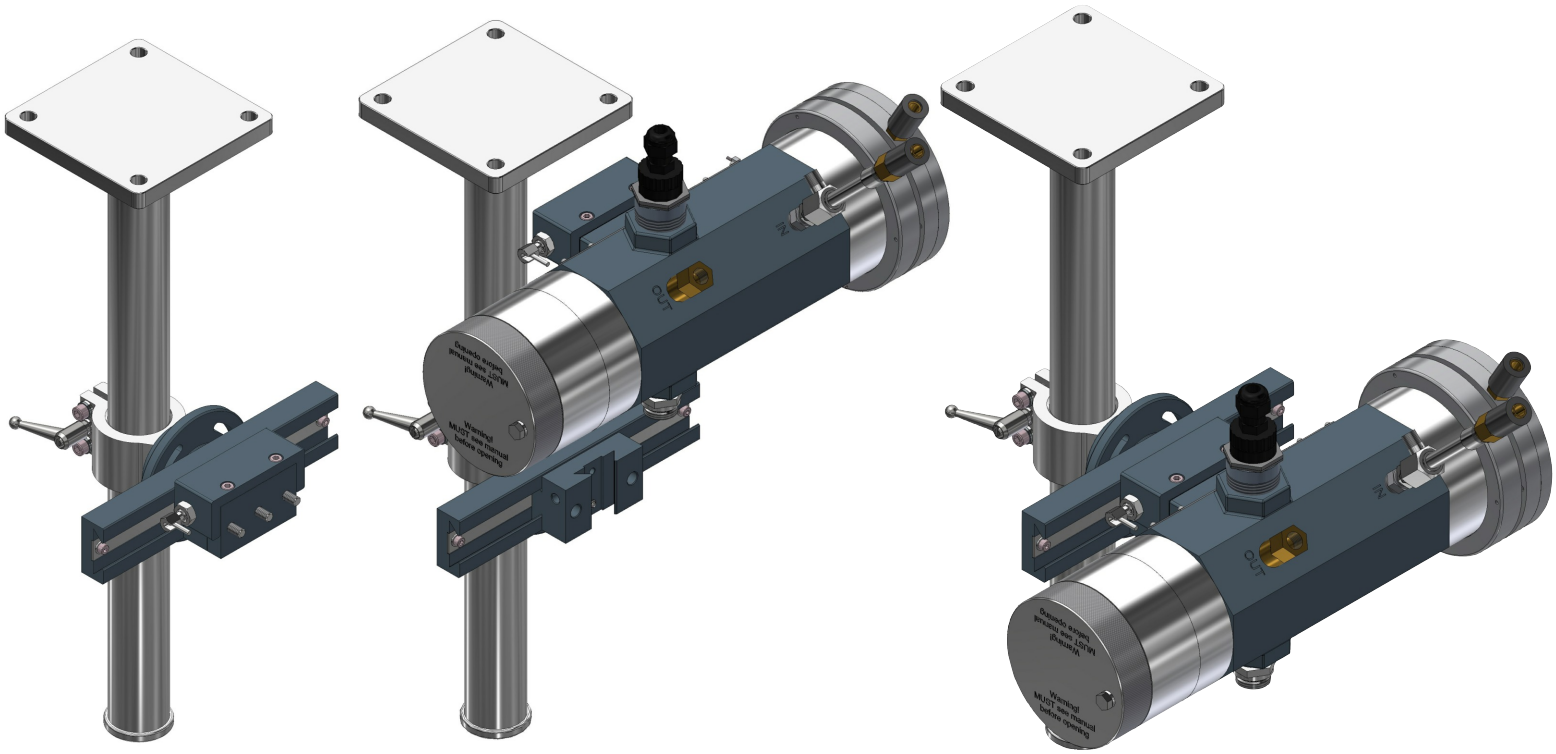



The cameras are mounted on a beam or walkway perpendicular to the length of the rebar. POE can be used if the cameras are within 300' of the VCM. If the VCM is over 300' fiber must be run with media converters that accept jumbo frame packets. 24V DC will have to be provided if POE can not be used.

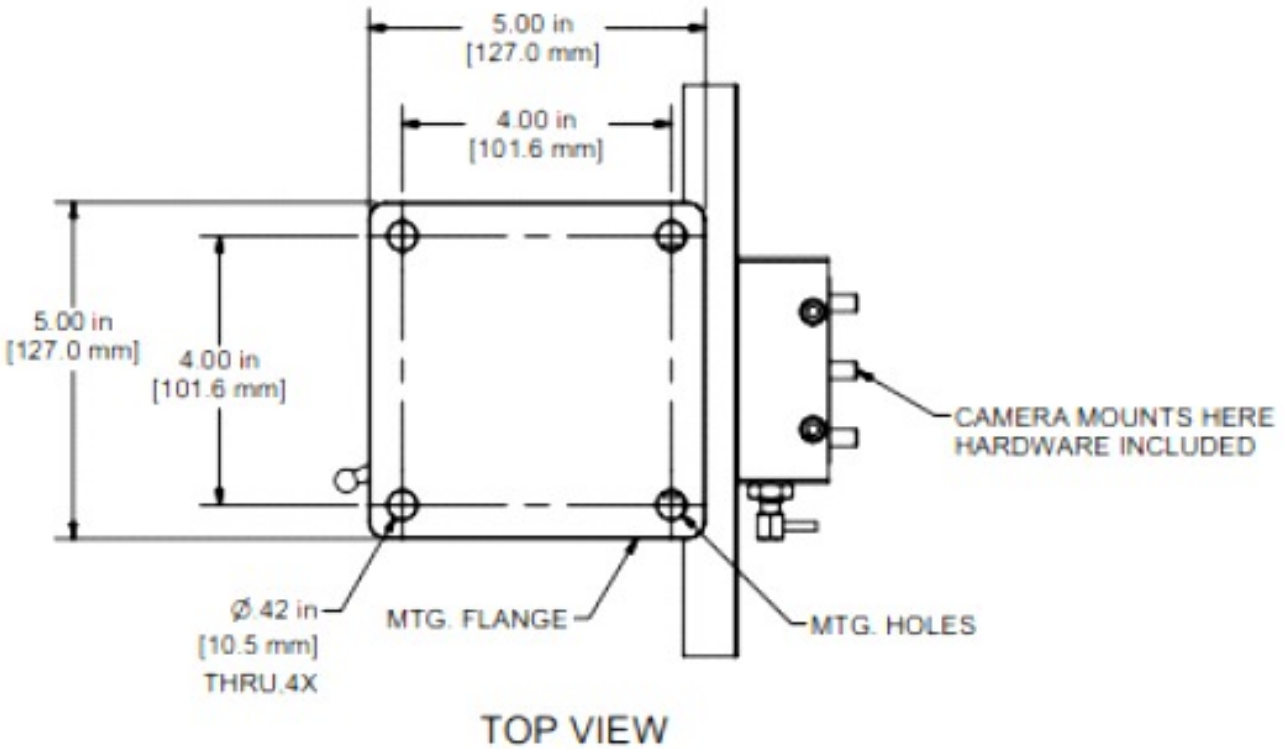
Instrument air for keeping the lens clean must be provided.

The Layout Questionnaire will need to be filled in for CANTY to select number of cameras needed.

# Mounting Detail



SPRING PLUNGER FOR QUICK RELEASE OF CAMERA



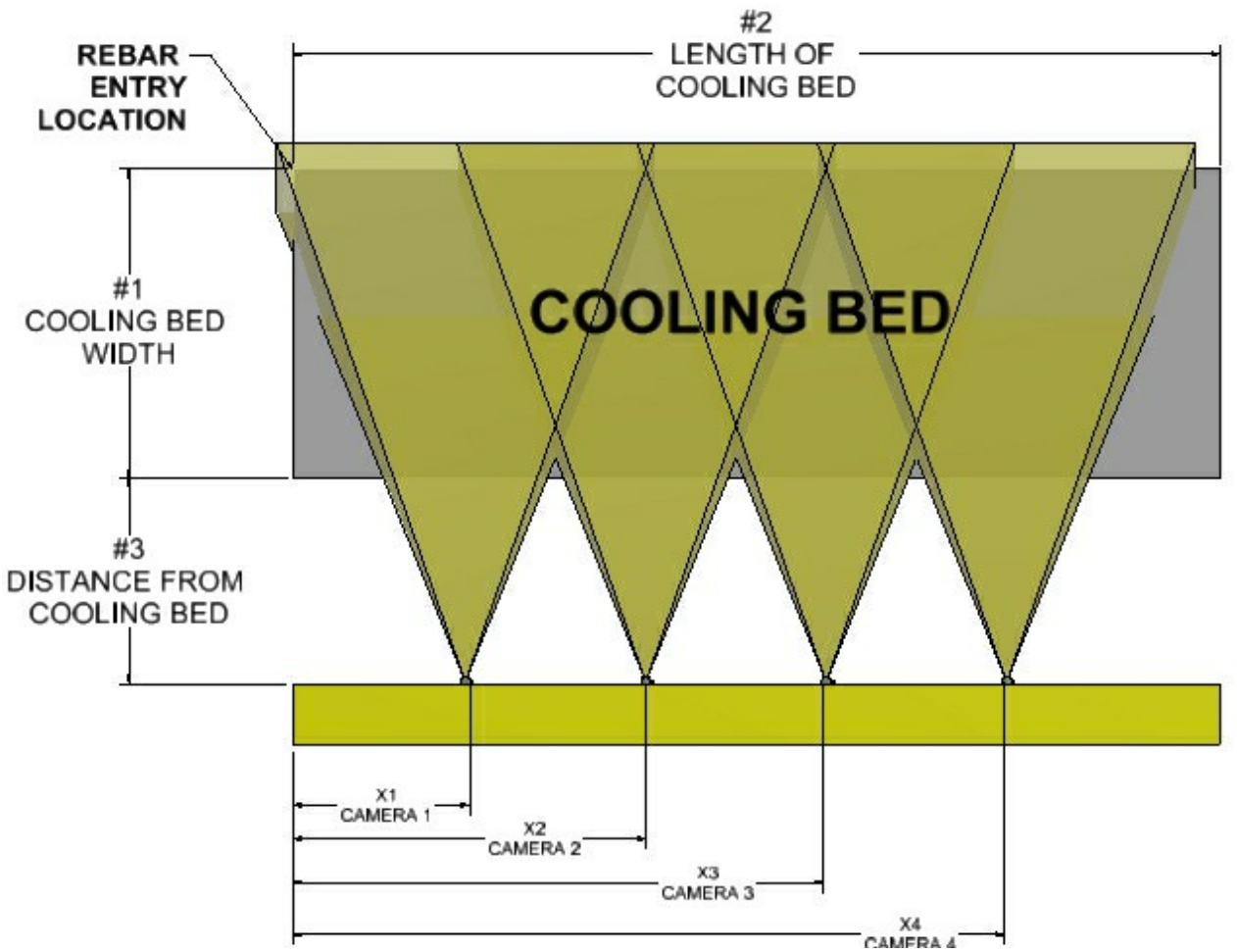

TOP VIEW

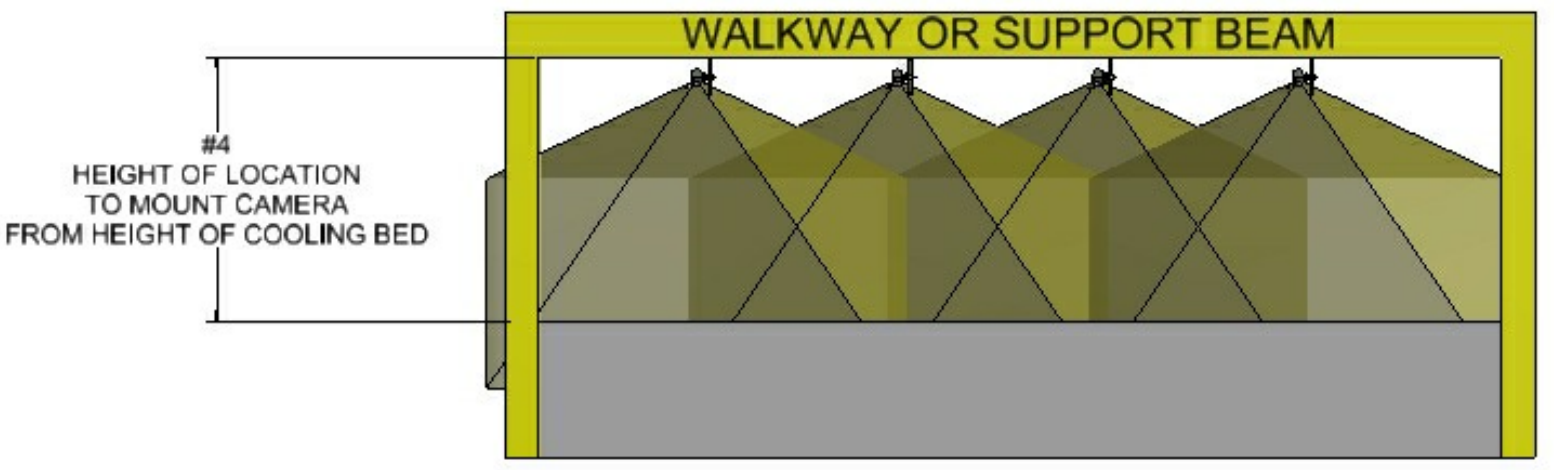
For More Information Click **Here**

# Layout Questionnaire

| REBAR PROJECT NAME: | |
|---|---|
| | |
| DIMENSION # | VALUE |
| 1 | |
| 2 | |
| 3 | |
| 4 | |

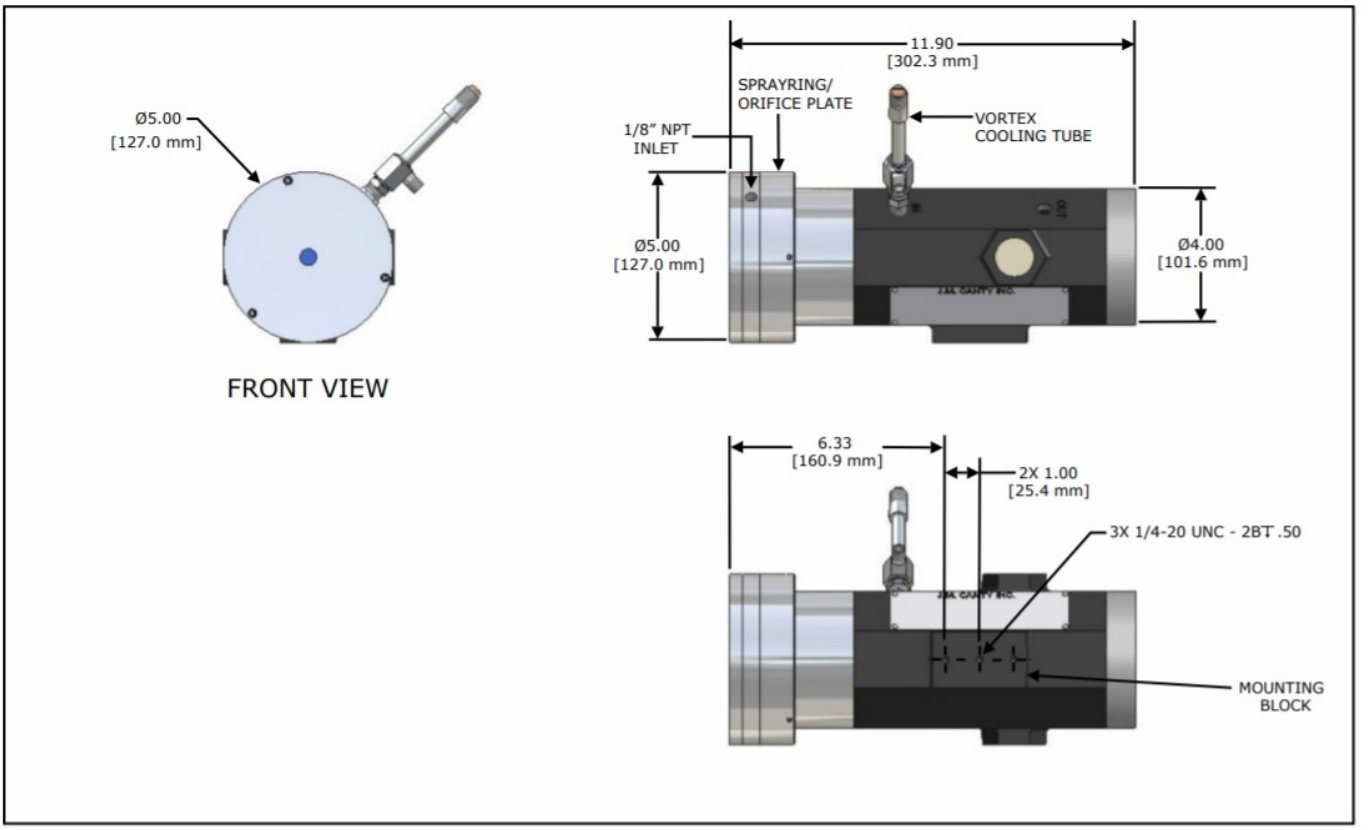
| ADDITIONAL QUESTIONS: | |
|---|---|
| MINIMUM DISTANCE FROM END OF COOLING BED WHERE REBAR WILL BE LOCATED | |
| MINIMUM DISTANCE FROM BEGINNING OF COOLING BED WHERE REBAR WILL BE LOCATED | |
| ACCURACY DESIRED DOWN TO THE 1/2" | |
| MAX LENGTH OF REBAR | |



# Ordering Information
# Cameras

## DIMENSIONAL INFORMATION




* Please Note That The External Camera Insulation Is Included But Not Shown Above

The part designated below is used in most of the applications for float glass, additional options are available upon request.

HOW TO ORDER: Select the appropriate symbols and build a part number for each camera:

**EXAMPLE:** **VSR5016-WP-4**

CAMERA OPTIONS
R - Color Neutral (Ethernet)

CAMERA APPLICATION/ HOUSING
5 - Surveillance with aluminum enclosure (standard)
6 - Surveillance with 304L SS water-cooled housing

CAMERA PSU ENVIRONMENTAL RATING
0 - NEMA 1 WP / IP 20 (cabinet mount)
1 - NEMA 4 WP / IP66
2 - No psu needed, POE camera
*Cameras are located within 300' of VCM
**must purchase a VCM which includes a POE injector with this option, see page 9

LENS OPTION AND APPROXIMATE LENS VIEW ANGLES
1 - 40.3 (H) deg
2 - 74.1 (H) deg
3 - 57.0 (H) deg
4 - 19.9 (H) deg
5 - 7 (H) deg

HIGH TEMPERATURE ACCESSORY PACKAGE
6 - Cooling Tube, Orifice Plate, Insulation and 304 SS Mounting Bracket
8 - Water-cooled housing accessory package, select when choosing water-cooled housing.

CAMERA ENCLOSURE ENVIRONMENTAL RATING/INPUT VOLTAGE
WP - Weather Proof, NEMA 4 and IP66 rated. User supplies 120V AC
IP - Weather Proof, NEMA 4 and IP66 rated. User supplies 240V AC

NUMBER OF CAMERAS REQUIRED
4 - 4 cameras required (Enter correct number of cameras)

# Ordering Information
# Vector Control Module

## TECHNICAL INFORMATION

**Visual Verification On Screen ● Easy Command Prompt Module ● Graphical & Numerical Analysis Output ● Customizable Operator Screen**

### EXTREME PERFORMANCE

| PART NUMBER | CAMERAS SUPPORTED | 4-20 Ma OUTPUT, 8 CHANNEL |
|---|---|---|
| VCMEA-001 | 6 POEC or 6 NPOEC | ✓ |
| VCMEA-002 | 3 POEC or 4 NPOEC | ✓ |
| VCMEA-003 | NO POEC, 2 NPOEC | ✓ |
| VCMEN-004 | 6 POEC or 6 NPOEC | |
| VCMEN-005 | 3 POEC or 4 NPOEC | |
| VCMEN-006 | NO POEC, 2 NPOEC | |
| *All EXTREME PERFORMANCE VCM's include: 1 LAN Connection* | | |

### ADD-ON COMPONENTS

| PART NUMBER | FEATURES |
|---|---|
| VCMAK-001 | MONITOR, KEYBOARD & MOUSE KIT |
| VCMAK-002† | 120V AC POWER SUPPLY |
| VCMAK-003† | 230V AC POWER SUPPLY |
| VCMAK-004◊ | DIGITAL BREAKOUT BOARD (W/68 PIN CABLE) |

### RACK MOUNT MODELS*

| PART NUMBER | CAMERAS SUPPORTED | 4-20 Ma OUTPUT, 8 CHANNEL |
|---|---|---|
| VCMRA-001 | 6 POEC or 6 NPOEC | ✓ |
| VCMRA-002 | 3 POEC or 4 NPOEC | ✓ |
| VCMRN-004 | 6 POEC or 6 NPOEC | |
| VCMRN-005 | 3 POEC or 4 NPOEC | |
| *All RACK MOUNT VCM's include: 1 LAN Connection.* | | |

### VCM LTE - NON-EXPANDABLE

| PART NUMBER | CAMERAS SUPPORTED | 4-20 Ma OUTPUT, 4 CHANNEL, DIN RAIL MOUNTED MODULE |
|---|---|---|
| VCMLA-003 | 2 POEC or 2 NPOEC | ✓ |
| VCMLN-006 | 3 POEC or 3 NPOEC | |
| ***NOT APPLICABLE FOR PARTICLE SIZING APPLICATIONS.*** | | |

*POEC = Power Over Ethernet Camera. NPOEC = Non-power Over Ethernet Camera.*

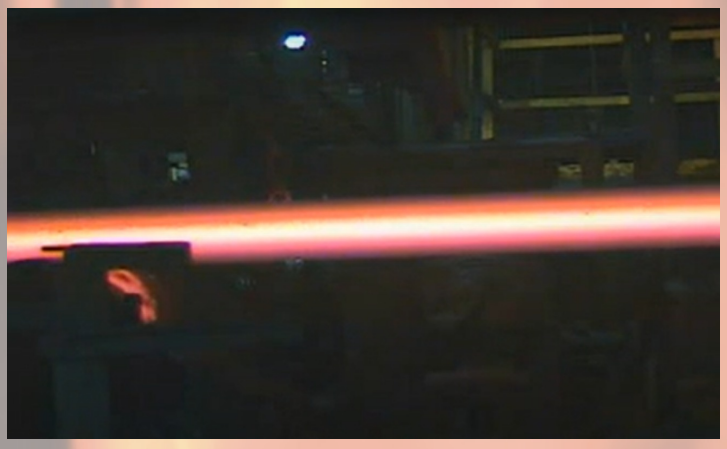
*Please note: All cameras must be configured such that there is a direct connection between the camera and the VCM. All cameras cannot be ran through additional hardware such as a switch or hub. VCM's are compatible with Ethernet cables; for longer distances Canty has available for purchase fiber converters that are rated for a variety of environmental classifications. For more information on OPC see document TA10560-1.*

**RACK MOUNT models are designed for non-industrial environments with air conditioning and clean, filtered air.*

*†RACK MOUNT and LTE models are either 120V AC / 230V AC input and additional power*

| CONNECTIVITY | | | |
|---|---|---|---|
| MODEL | HDMI | DISPLAY PORT | DVI |
| EXTREME PERFORMANCE | | 2 | 1 |
| RACK MOUNT | 1 | 1 | 1 |
| VCM LTE | | 1 | |

# Long Steel Applications

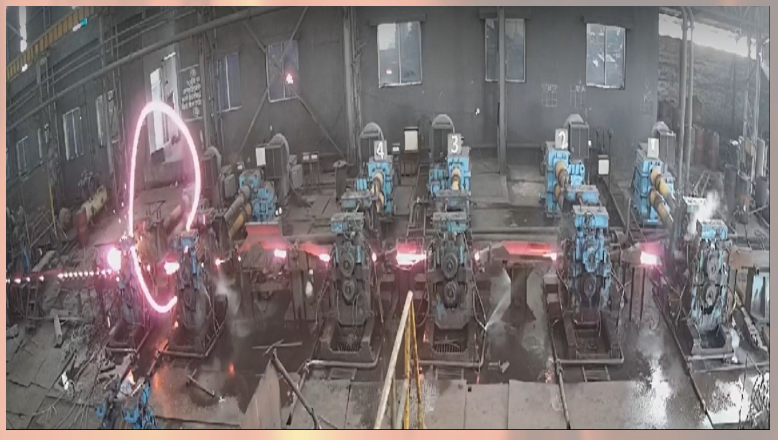


## Slab Thickness & Temperature

- CANTY can measure Bar thickness and temperature visually.
- 
- Temperature is measured at multiple points at both edges and in the center.
- Thickness is critical in front of the charge door so it does not damage equipment by having a lip that is curled upward as well as being to thick and wasting material.

## Rebar Cobble Detection

- A Cobble in rebar manufacturing is when the rebar comes out of the guide during production.
- It is very dangerous to the workers.
- It can ruin equipment.
- A cobble needs to be detected and removed as soon as possible in order to restart production of rebar.
- CANTY cameras can detect a cobble as soon as it happens and can trigger an alarm to alert workers and help maintain a safe working environment.



## Billet Measurement

**Operation:**
System will send raw measurement signal from Canty Vector Control Module. Customer will take raw measurement signal input through OPC, 4-20mA, or Modbus TCP/IP. When billet reaches desired length customer will output a cut signal on a specific billet.

**Calibration:**
System will need to be calibrated while system is down. Access to bed and ability to lay out measurement references will be necessary. Calibration should only need to be performed if camera is moved.

## CANTY'S GOAL IS TO PROVIDE EQUIPMENT TO ENHANCE PROCESS CONTROL AND YIELD. WE ACCOMPLISH THIS BY DESIGNING, MANUFACTURING, AND SERVICING THE FINEST EQUIPMENT IN THE WORLD.

Some of Our Valued Customers:

AK STEEL
ALCOA
ALLIED ALUMINUM
ARCELORMITTAL DOFASCO
CMC
FREEPORT MCMORAN
GERDAU
HESTEEL
KENNECOTT
NEWMONT
NORTH AMERICAN STAINLESS
NUCOR STEEL
RIO TINTO
U.S. STEEL
VALE

Applications:

MOLTEN LEVEL
SLAG MEASUREMENT
STEEL MILL
WIDTH & CENTERING
TEMPERATURE CONTROL
STRIP EDGE & TEAR CONTROL
REBAR LENGTH
REBAR COBBLE DETECTION
SMELTING FURNACE
TUNDISH TEMPERATURE
BILLET LENGTH
BILLET ALIGNMENT
CRUCIBLE CAMERA
POUR CAMERA
REHEAT FURNACE CAMERA

AND YOU!!!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