1.1 Ethernet Cable Installation

The PieceCounters need to be connected to your network so they can download configuration options and upload work session and time clock data. To connect the PieceCounter to your network you will need to run Cat5e Ethernet cable from each PieceCounter to your router or switch. If your router or switch does not have enough available ports, you may expand the number of available ports by adding a workgroup switch and plugging it into your existing router or switch with Ethernet cable.

To minimize the amount of Ethernet cable runs in your plant, you may find it easier to mount a workgroup switch in the pressing area and run the Ethernet cable from the PieceCounters to that switch, and then run a single cable from the switch back your router or another workgroup switch.

To minimize electrical interference, run the Ethernet cables at least three feet away from electric motors and fluorescent lights. The maximum run for an Ethernet cable between the PieceCounters and the switch or between the switch and the router is 100 meters (328 ft.).

Important Note: One of the most common problems experienced when installing the PieceCounters is Ethernet cables that do not have internet due to improperly built cables. If you are running your own Ethernet cables and installing your own RJ-45 ends, you will want to verify that you have internet on each of the cables.

A complex network requiring static IP's or other unique requirements can also prevent internet access by the PieceCounters and will usually require consulting with your network specialist.

1.2 PieceCounter Feedback Screen Installation

Find a suitable area at the work station where you will mount the PieceCounter. This should be low enough so the operator can easily reach the PieceCounter but not intrude on the operator's work area. It is also important to mount the PieceCounter so the operator can easily see the screen while they are working. In addition to making it easy for the operator to see, try and mount it so management can easily see the PieceCounter as they walk by.

Caution: Do not mount the PieceCounter in an area that gets any direct shots of steam, in an area prone to condensation or in areas with excessively high temperatures.

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1. Find Ram Mount RAM-108BU (1.5" ball hose clamp mount, Fig. 4.1) and remove the contents from the bag. You will choose either the larger or smaller hose clamp depending on the size of pipe you are mounting the ball on.

Fig. 4.1

2. Cut the non-slip rubber strap so that it just fits around the super structure or piping that you will be installing this mount on.
   a. You can easily cut the strap to the proper length by wrapping the rubber strap around the pipe (Fig 4.2) and cutting the strap so it doesn't overlap itself (Fig 4.3). A gap of 1/8" to ¼" is acceptable.

Fig 4.2

Fig 4.3

3. Determine whether you need the short or long hose clamp based on the size of the pipe you are attaching the mount to. The clamp will have to go around the pipe and through the Ram-Mount mounting ball.
4. Unscrew the clamp until the end comes out of the worm-screw and straighten the clamp (Fig 4.4).

Fig 4.4

5. Slide the clamp in to the hollow portion of the non-slip rubber strap. It is easier to pull the strap on to the clamp then push it on. Slide the strap all the way to the head of the worm-screw (Fig 4.5).

Fig 4.5

6. Insert the clamp through the opening in the ball mount and install the ball mount in your desired location by tightening the hose clamp around your overhead piping (Fig 4.6).

Fig 4.6

7. Find Ram Mount RAM-201U (Double Ball Socket Arm, Fig 4.7) and loosen the mount by turning the handle counter clockwise then attach the double socket arm over the ball you mounted in steps 1-6 by squeezing the open portion of the arm to open up the closed end enough to fit on the ball (Fig 4.8).

Fig 4.7

Fig 4.8

8. Attach the black Ram-Mount VESA plate (RAM 2461U) to the back of the PieceCounter with the included screws (Fig. 4.9) as seen in figure figure 4.10

Fig 4.9

Figure 4.10

9. Place the ball that is mounted on the back of the PieceCounter into the other end of the double socket arm, position the PieceCounter, and tighten the double socket arm (Fig 4.11 & 4.12).
   a. Note – if you need to adjust the angle of the PieceCounter, be sure to loosen the double ball socket arm first. Attempting to adjust the angle of the PieceCounter without first loosening the arm will cause damage to the PieceCounter.

Fig 4.11

Fig 4.12

10. Plug the power supply and Ethernet cable in to the corresponding ports on the PieceCounter. The sensor cable will be plugged in at a later step.
    a. It is easiest to first "rough in" the power, Ethernet and sensor cables with loose zip ties. Then, when all of the PieceCounters and sensors are installed, you can tighten up the cables with zip ties.

1.3 Sensor Installation

Each PieceCounter station will be connected to a sensor for counting pieces. The most common sensors are the proximity sensor, the photoelectric slot sensor and the barcode scanner. The PieceCounters can be connected to most any industrial sensor and even integrated with existing sensors on machinery. A typical installation will use one sensor per station.

1.3.1 Proximity Sensor Installation

The proximity sensor (Fig 4.13) operates by creating a magnetic field around the head of the sensor. When a metal hanger passes by the head of the sensor it disrupts the magnetic field and senses the hanger. The hanger does not need to touch the sensor for the piece to be counted (repeatedly hitting the sensor with a hanger will eventually damage the sensor).   The proximity sensor installation will include the sensor, sensor cable and sensor bracket.

Fig. 4.13

Proximity sensors are typically installed on either round pipe (i.e. 1" conduit) or flat rail. Each application requires a different type of mounting bracket.

Prox Mount – Round Rail

Fig 4.14

Prox Mount – Flat Rail

Fig 4.15

1.3.1.1 Proximity Sensor Mounting Location

The Proximity sensor should be mounted where the presser can easily push the hanger through the sensor. If the slick rail is angled so gravity helps the garment slide on the rail, you can mount the sensor farther away from the presser if necessary.

1.3.1.2 Round Pipe Proximity Installation

1. Using a 1/8" drill bit, drill a pilot hole at the center of the underside of the conduit where you will be mounting the sensor.

2.   Screw the self-tapping machine screw in to the pilot hole then remove the screw. You may want to use a drill or electric screwdriver for this step.


3.   Attach the proximity sensor bracket to the conduit with the machine screw through the pilot hole. Be sure to verify that the bracket is oriented the same direction as other J hooks on the conduit. Square the sensor bracket with the conduit and drill a second pilot hole through the second hole of the proximity sensor bracket and secure with a second machine screw.

4. Attach the sensor by threading one nut and a lock washer onto the proximity sensor. Insert the sensor into the top of the sensor bracket with the white tip pointing down and the lock washer between the top nut and the bracket. Thread the second lock washer and second

nut on to the sensor from the underside of the sensor bracket and hand tighten (you will adjust the sensor gap after the sensor is connected to the PieceCounter).
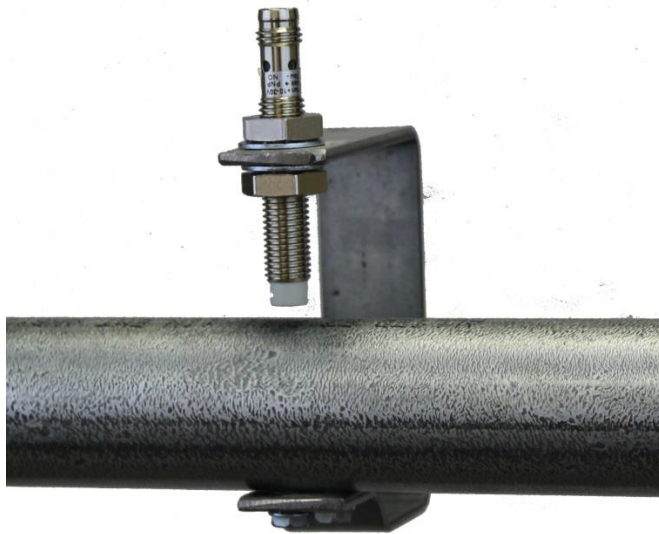
5. Attach one end of the sensor cable to the sensor and the other end to the Sensor 1 Input on the PieceCounter

1.3.1.3 Flat Rail Proximity Installation

Proximity sensor installation on flat rail is the same as round rail except you will use the flat rail bracket (Fig 4.15) and instead of using self-tapping screws, you will use the provided machine screws and nuts. It is recommended to use a cobalt drill bit for drilling through the flat rail.

1.3.1.4 Adjusting the Proximity Sensor

To adjust the sensor, make sure the sensor cable is connected to the sensor and to the PieceCounter and make sure the PieceCounter is powered on and the PieceCounter application is running.

There is an amber LED at the top of the sensor that lights up when it detects metal. If the sensor is adjusted too low, it will detect the slick rail and the amber LED will stay lit. If the sensor is too high, the LED will not light up when a hanger passes under the sensor.

To adjust the sensor:
1. Loosen the two lock nuts and adjust the sensor so it just turns on, and stays on, when it detects the slick rail.
2. Raise the sensor approximately 3 mm then tighten the lock nuts on the sensor.
3. Test the sensor by running a hanger under the sensor. If the amber LED turns on when the hanger is underneath the sensor then turns off when the hanger passes by, the sensor is adjusted correctly.

Too high - light is off with hanger in place.   Too low – light is on with no hanger.

1.3.2 Photoelectric Slot Sensor

The photoelectric sensor operates by creating an infrared beam between the legs of the sensors that counts pieces when that beam is interrupted. The installation will require the sensor, sensor cable, 12" flex arm and the RAM-B-108BU mount (1" ball hose clamp mount).

1.3.2.1 Photoelectric Sensor Mounting Location

The photoelectric sensor should be mounted parallel to the rail near where the presser normally hangs their finished garments. There will need to be another rail above the slick rail to suspend the sensor from.

1.3.2.2 Photoelectric Sensor Installation

1. Screw the 12" flex arm in to the aluminum mounting block that is attached to the photoelectric sensor.
2. Identify where you want to mount the photoelectric sensor.
3. Hold the proximity sensor in place where you want to mount it and, based on where the flex arm can reach, identify overhead railing that you will suspend the sensor from.

(Note: the slick rail is not shown in this picture)

4. Mount the RAM-B-108BU mount (1" ball hose clamp mount) using the same techniques you mounted the 1.5" ball hose clamp mount for the PieceCounter in section 1.2, steps 1-6.

5. Bend the flex arm so the end of the flex arm is near the ball mount and the PieceCounter is in the general position you want it in. Loosen the flex arm clamp, place the clamp over the ball mount then tighten the clamp. (Note: The flex arm clamp has a part that can rotate. One end of the rotating piece has a hole through it. Make sure the end of the rotating piece that has the hole in it is NOT touching the ball mount).
6. Attach one end of the sensor cable to the sensor and the other end to the Sensor 1 Input on the PieceCounter.
   a. You can order additional 1 and 3 meter sensor cables if you need additional cable length. The sensor cables plug in to each other end-to-end.

1.3.2.3 Photoelectric Sensor LED's and Adjustment.

- The green LED indicates there is power to the sensor and should be on at all times.
- The amber LED should light up whenever the infrared light beam is disrupted.
- The Photoelectric sensor should not require any adjustment. See picture below for factory settings.
    - The bottom dial should always be pointed to "DO"
    - The top dial controls the strength of the infrared beam. If it is turned up all the way the sensor will not detect small items. If it is turned down all the way the sensor will not be able to detect any items.