

Summary

This document is a listing of the reader heads and their associated scales available from ANILAM. It includes most reader heads sold, listed in order from the oldest to newest models.

Diagrams of the scales and reader heads accompany the text descriptions. (All reader heads with different cable lengths have different part numbers.) None of the described reader heads are interchangeable among different scale versions.

Refer to **Table 1-Scale Types, Scale P/N, Reader Head P/N** on pages 3-4. Use this table as a quick reference guide. Many of the reader heads come with different size cables to suit various applications. The standard cable length is 13 feet in length. Some custom applications use 10 in. (pigtail) cable lengths. On scales greater than 40 inches long, 19 feet cable is supplied. For reader heads requiring longer lengths, extension cables are available.

Some cable lengths are available by special order only.

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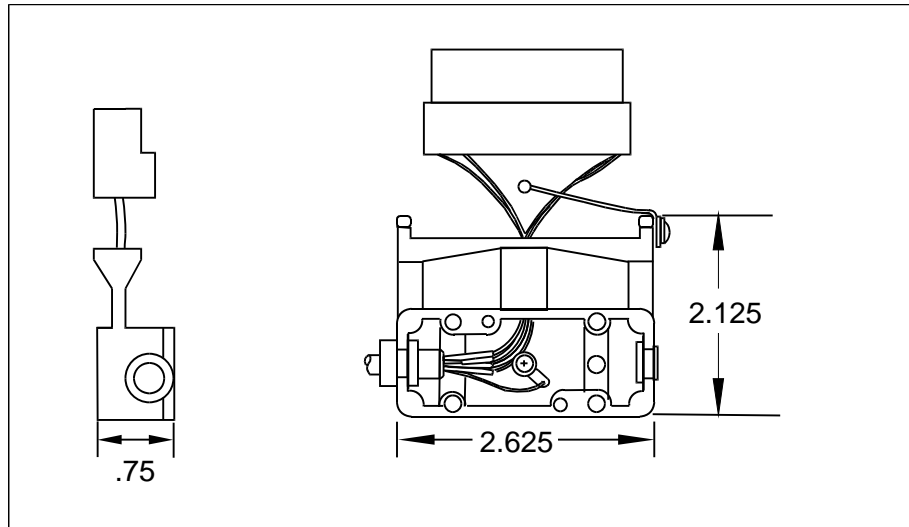
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Table 1-Scale Types, Scale P/N, Reader Head P/N

Scale Type	Scale Series P/N	Reader Heads used with scale (cable length)
BT	170005XX	17400010 (12')
MBT	171015XX	17400025 (12')
JB	170001XX	17400030 (12')
MJB	171011XX	17400040 (12')
SST/MJB	173007XX	17400080 (12') 17400081 (12")
SST/MBT	173004XX	17400060 (12') 17400061 (12")
SST/MDD	173002XX	17400070 (12') 17400071 (12")
A-10 QUANTUM	18100XXX or 18500XXX (w/10 in. cables)	19000006 (13') 19000106 (19') 19000116 (10")
A-2 QUANTUM	18300XXX or 18800XXX (w/ 10 in. cables)	19000012 (19', no X Box) 19000011 (13', no X Box) 19000008 (13', X Box) 19000124 (10", X Box)
B-5 QUANTUM	18200XXX	19000007 (13') 19000107 (19') 19000010 (10")
B-1 QUANTUM	18400XXX	19000009 (13', X Box) 19000013 (13', no X Box) 19000014 (19', no X Box)
C-10 QUANTUM	18600XXX	19000105 (19') 19000133 (10")
C-5 QUANTUM	18900XXX	19000131 (19') 19000134 (10")
C-2 QUANTUM	18700XXX	19000108 (19')
D-10 QUANTUM	200006XX	19000120 (13')

Scale Type	Scale Series P/N	Reader Heads used with scale (cable length)
E-5 QUANTUM	200001XX & 200007XX	19000119 (13')
E-1 QUANTUM	200003XX & 200009XXX	19000122 (13')
F-2 QUANTUM	200002XX & 200008XX	19000121 (13') 19000132 (10")
KM-10	19900XXX	19100131 (13')
KM-5	199001XX	19100132 (13')
PGSE/PGSP	19800XXX	19100133 (13') 19100134 (19')
RBS-1 Replaces B1	20101XXX 20201XXX	19000135 (13') 19000136 (19') 19000143 (10")
RBS-2 Replaces A2, C2	20102XXX	19000139 (13') 19000140 (19')
RBS-5 Replaces B5, C5	20105XXX 20205XXX	19000137 (13') 19000138 (19') 19000145 (10")
RBS-10 Replaces A10, C10	20110XXX 20210XXX	19000141 (13') 19000142 (19') 19000144 (10")

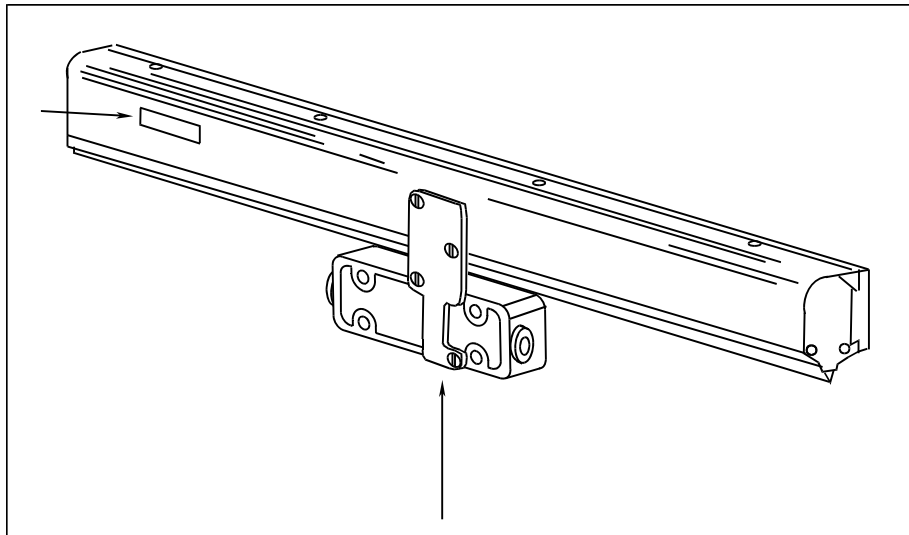
BT Scales**Figure 1, BT Reader Head Assembly**

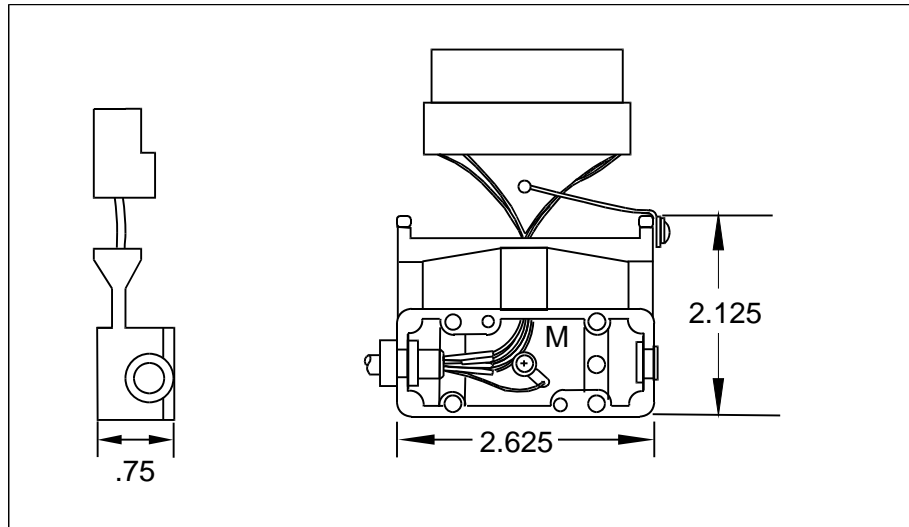
BT scales use ANILAM Reader Head P/N 17400010 with a 13 ft. cable.

Model D consoles and some Wizard consoles (those with a serial number starting with WL, WD or WLE) use BT scales. BT scales were manufactured from 1976 to 1981.

This reader head is similar to the MBT head. However, the labeling on the head or scale and the signals from the two heads differ. The label on the BT reader head reads: .0005"/10 μ m.

Refer to **Figure 1, BT Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 2, BT Scale** for the locations of the labels.

**Figure 2, BT Scale**

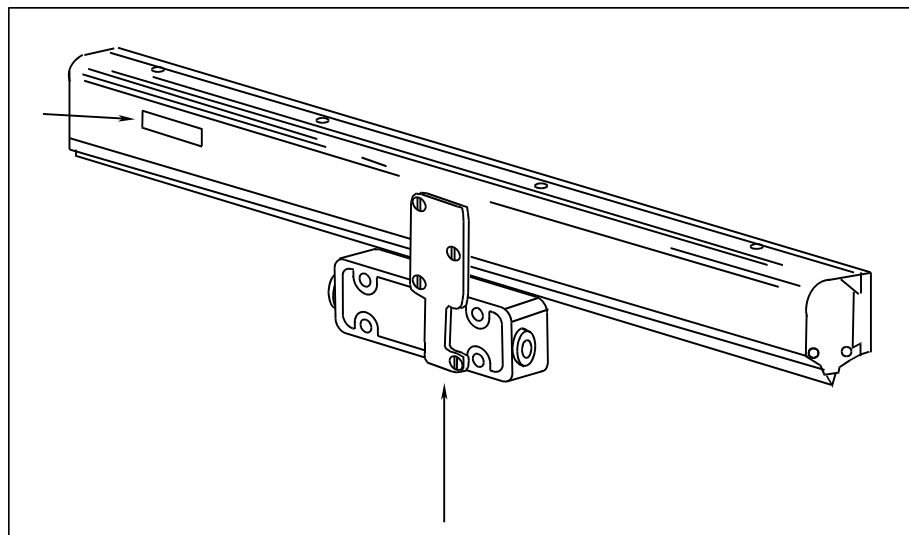
MBT Scales**Figure 3, MBT Reader Head Assembly**

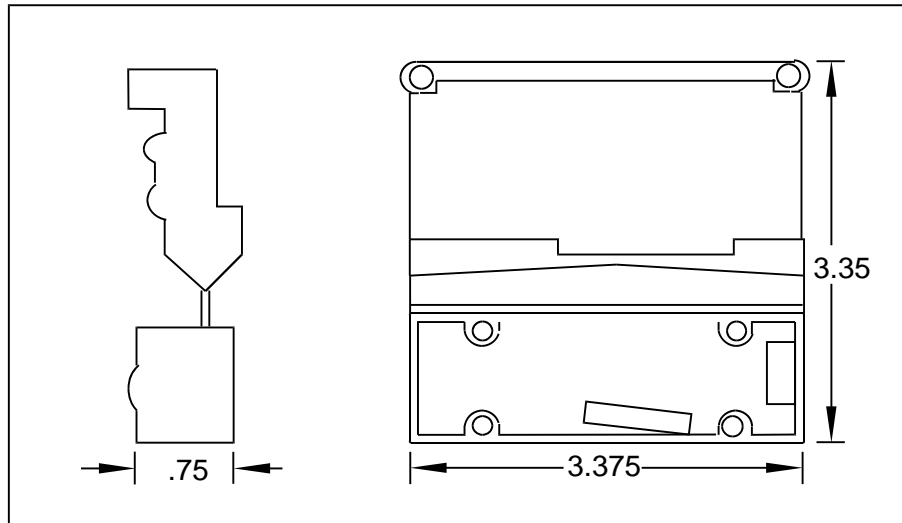
MBT scales use ANILAM Reader Head P/N 17400025 with a 13 ft. cable.

MBT scales were used with Model DM and Wizard consoles (SW, WL, WD and WLE). They were manufactured from 1978 to 1983.

This reader head is similar to the BT head. However, markings on the reader head and scale are different. Refer to the diagram above. The manufacturer stamped an M inside the casting on most MBT heads. The reader head and scale are labeled: .01mm or 10um (.0005").

Refer to **Figure 3, MBT Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 4, MBT Scale** for the locations of the labels.

**Figure 4, MBT Scale**

JB Scales**Figure 5, JB Reader Head Assembly**

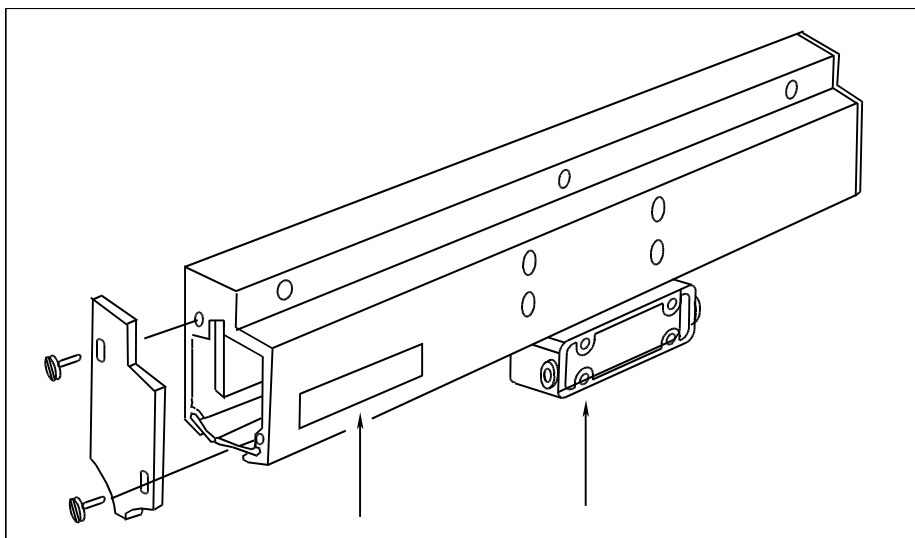
JB scales use ANILAM Reader Head P/N 17400030 with a 13 ft. cable.

Model D and Wizard consoles with a serial number starting with SW, WL, WD or WLE used JB scales. These scales were manufactured from 1978 to 1981.

This reader head is similar to the MJB head. However, the label marking on the head or scale and the signals from the two heads differ. They are not interchangeable.

The label on the JB reader head reads: .0001 in., the resolution of the scale.

Refer to **Figure 5, JB Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 6, JB Scale** for the locations of the labels.

**Figure 6, JB Scale**

MJB Scales

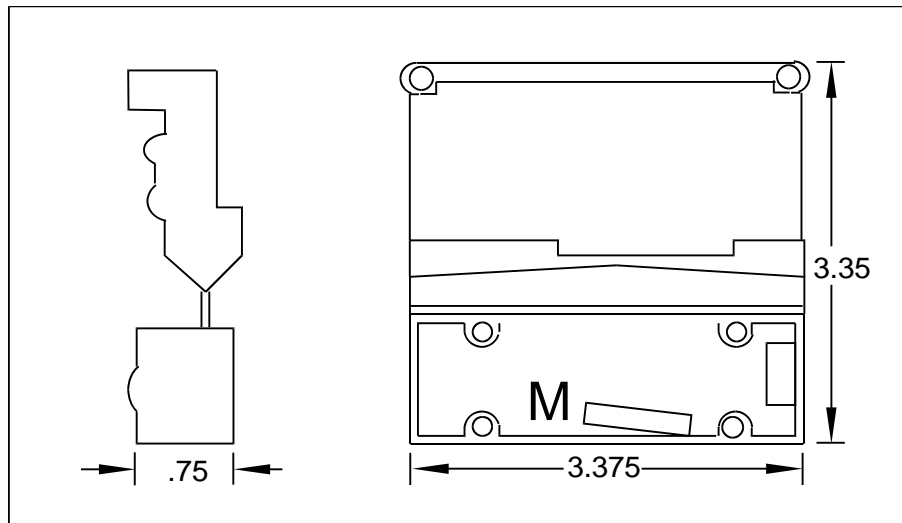


Figure 7, MJB Reader Head Assembly

MJB scales use ANILAM Reader Head P/N 17400040 with 13 ft. cable.

MJB scales are used with Wizard consoles with a serial number starting with SW, WL, WM, WW or WM. They were manufactured between 1978 and 1983. This reader head is similar to the JB head. The MJB reader head has an M stamped inside the casing.

The labeling on the MJB reader reader head and scale is: .002MM/.0001" or METRIC .002mm.

Refer to **Figure 7, MJB Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 8, MJB Scale** for the locations of the labels.

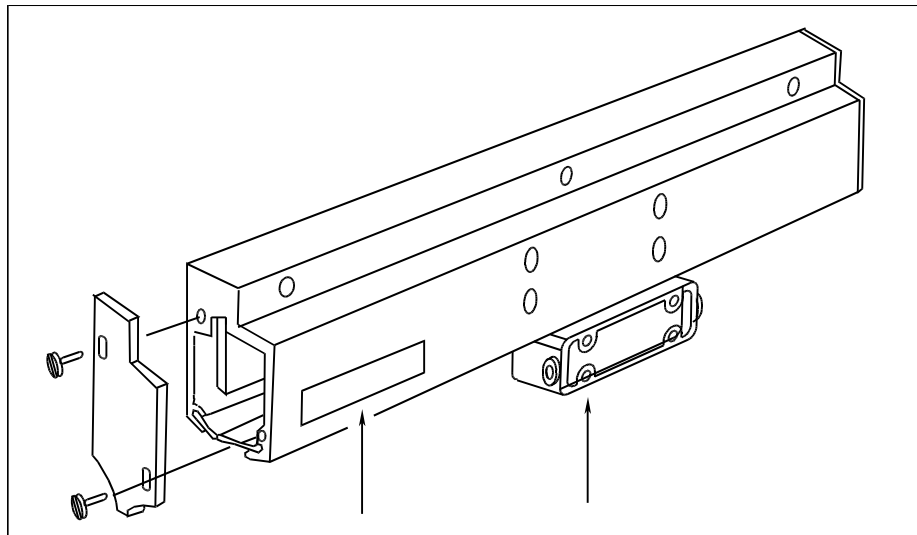


Figure 8, MJB Scale

SST/MJB Scales

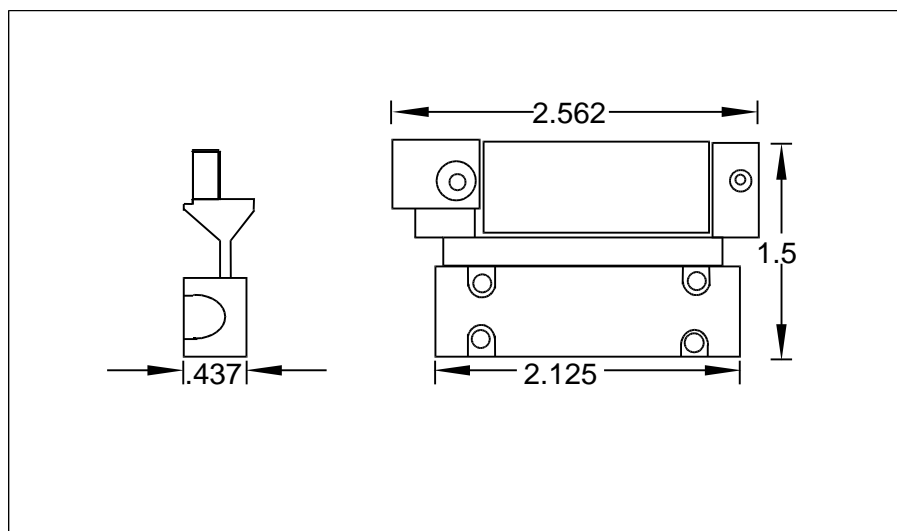


Figure 9, SST/MJB Reader Head Assembly

SST/MJB scales use ANILAM Reader Head P/N 17400080 with 13 ft. cables or P/N 17400081 with 12 in. cable.

Wizard consoles with a serial number beginning with SW, WL, WM, WW or WM use SST/MJB scales. The SST/MJB scales were manufactured from 1978 to 1986. The scale mounting bolts are at the end of the scale. This reader head is similar to the SST/MBT head. However, the markings on the head or scale differ.

The SST/MJB reader head is labeled: .002mm(.0001") or METRIC .002mm. If there are no markings on the scale, verify that the axis measures in .0001 in. increments when the scale moves.

Refer to **Figure 9, SST/MJB Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 10, SST/MJB Scale** for the locations of the labels.

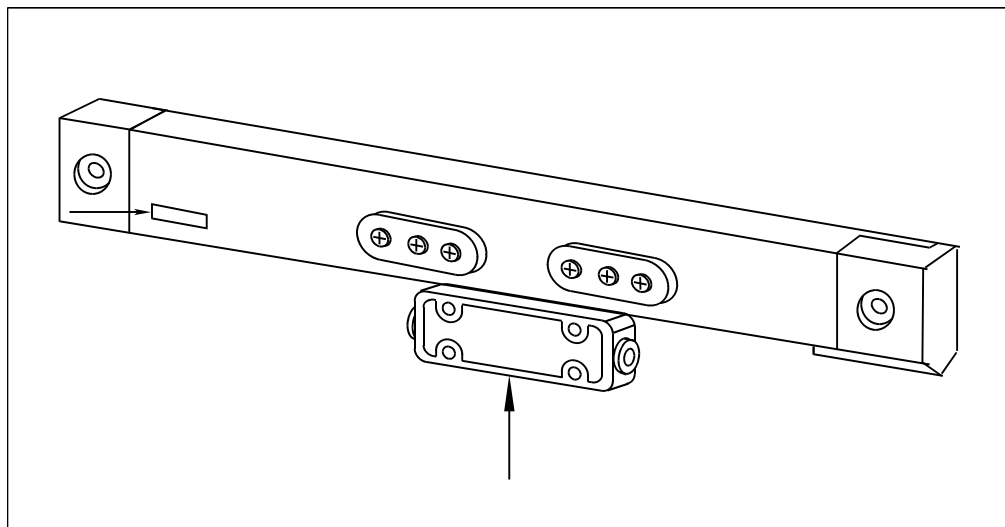


Figure 10, SST/MJB Scale

SST/MBT Scales

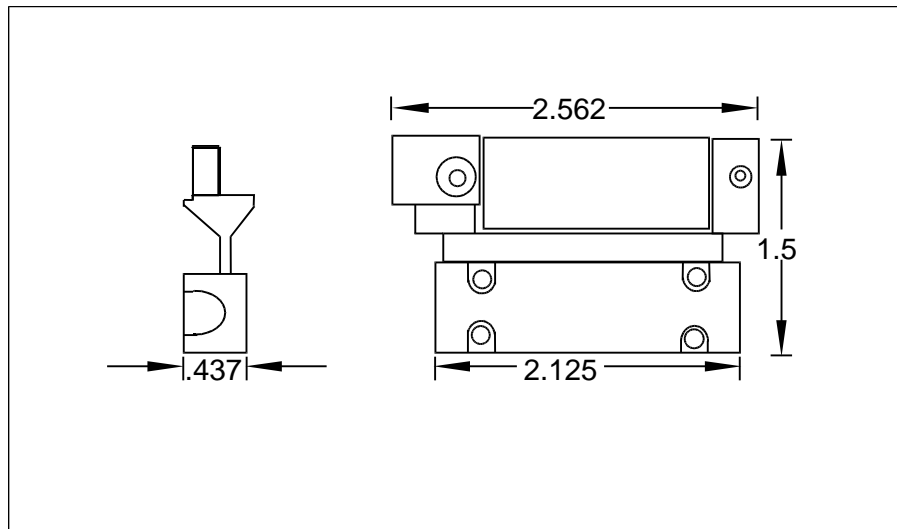


Figure 11, SST/MBT Reader Head Assembly

SST/MBT scales use ANILAM Reader Head P/N 17400060 with a 13 ft. cable or 17400061 with a 12 in. cable.

SST/MBT scales are used with Wizard consoles with a serial number starting with SW, WL, WM, WW or WM. They were manufactured from 1978 to 1986. The scale mounting bolts are at the end of the scale. ANILAM's CNC controls used the SST/MBT scales on the Z axis downfeed until 1988.

This reader head is similar to the SST/MDD head. However, the labeling on the head and scale differ. The labels on the SST/MBT read: .01mm(.0005") or 10 μ m (.0005") or METRIC .01mm. If no marking occurs on the scale, verify that the axis measures in .0005 in. increments when the scale moves.

Refer to **Figure 11, SST/MBT Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 12, SST/MBT Scale** for the locations of the labels.

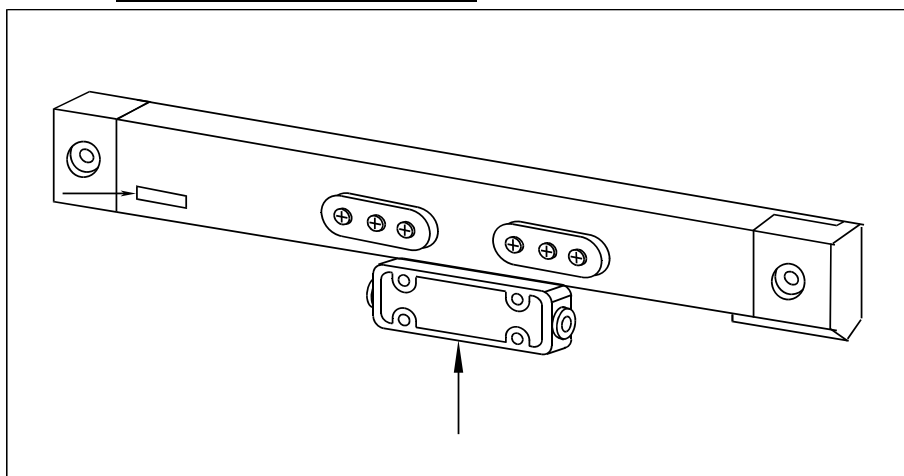
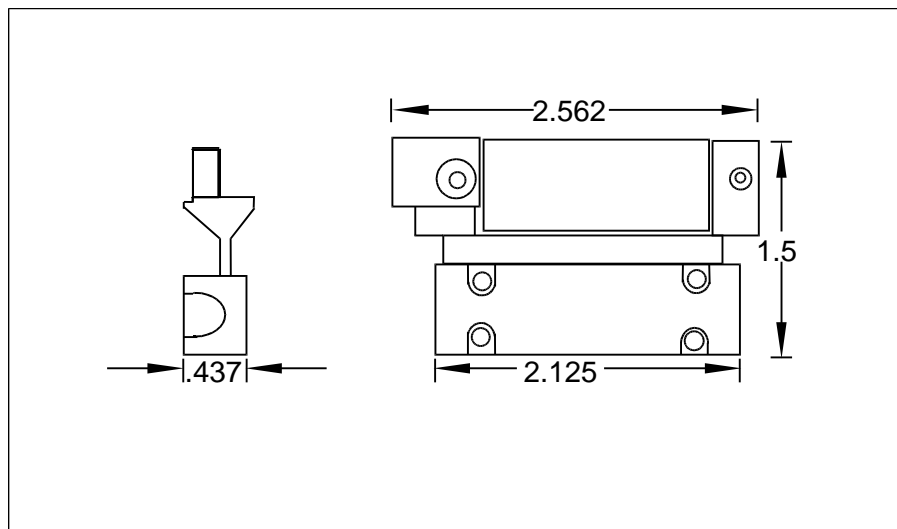


Figure 12, SST/MBT Scale

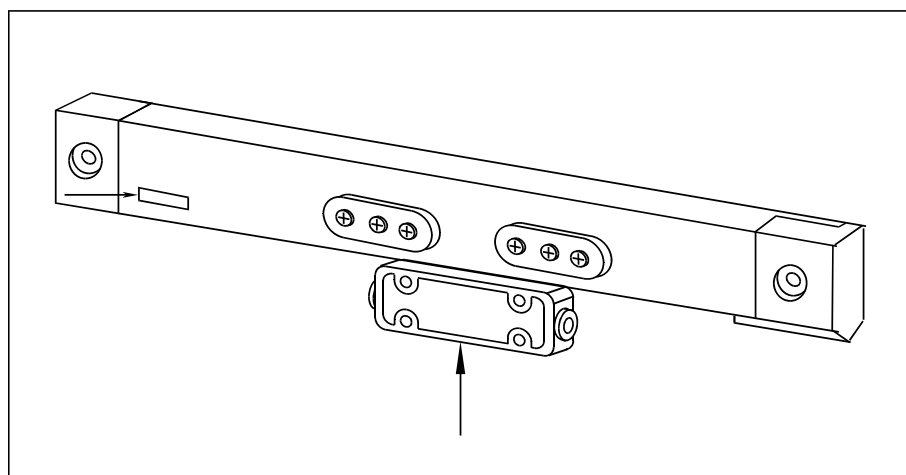
SST/MDD Scales**Figure 13, SST/MDD Reader Head Assembly**

SST/MDD scales use ANILAM Reader Head P/N 17400070 with a 13 ft. cable and 17400071 with a 12 in. cable.

Wizard consoles with beginning serial number SW, WL, WM, WW or WM use SST/MDD scales, manufactured from 1978 to 1983. Notice that these scales mount on the end of the scale. This reader head is similar to the SST/MBT head. However, the label marking on the head and scale differ. The label on the SST/MDD reads: $5\mu\text{m}$ (.0002") or METRIC .005mm; or $5\mu\text{m}$.

If there are no markings on the scale, verify that the axis measures .0002 in. increments when the scale moves.

Refer to **Figure 13, SST/MDD Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 14, SST/MDD Scale** for the locations of the labels.

**Figure 14, SST/MDD Scale**

A-10 Quantum Scales

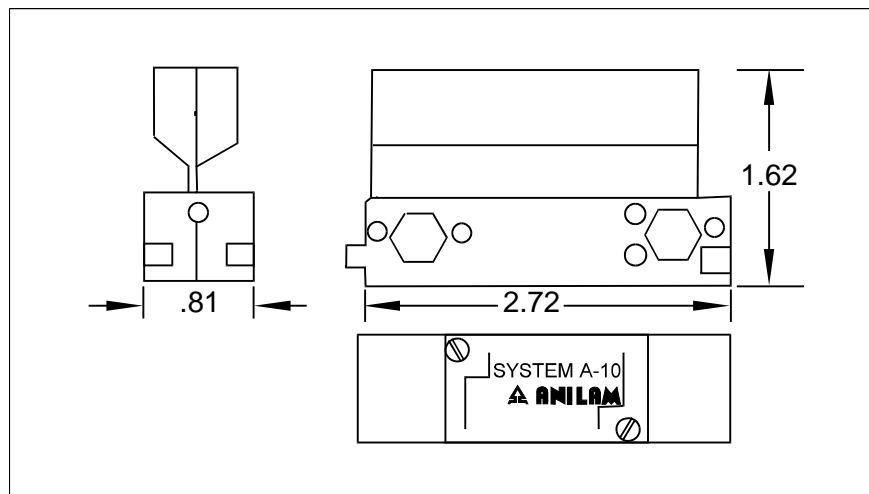


Figure 15, A-10 Reader Head Assembly

A-10 scales use ANILAM Reader Head P/N 19000006 with a 13 ft. cable; 19000106 with a 19 ft. cable; 19000116 with a 10 in. cable.

A-10 Quantum scales are used in Wizard consoles with a serial number starting with WW or WM or P/N beginning with an A. A-10 scales were introduced in 1983 and used until 1989, when they were replaced by the B-5 series. This reader head is similar in appearance to the A-2 head. The A-10 Quantum labels are red and silver or black and silver. SYSTEM A is printed on the scales; SYSTEM A-10 is printed on the reader head.

The resolution of the system is .01mm/.0005 in. If no marking occurs on the scale, verify that the axis measures in .0005 in. increments when the scale moves.

Refer to **Figure 15, A-10 Quantum Reader Head Assembly** for dimensions and description. Refer to **Figure 16, A-10 Quantum Scale** for the locations of the labels.

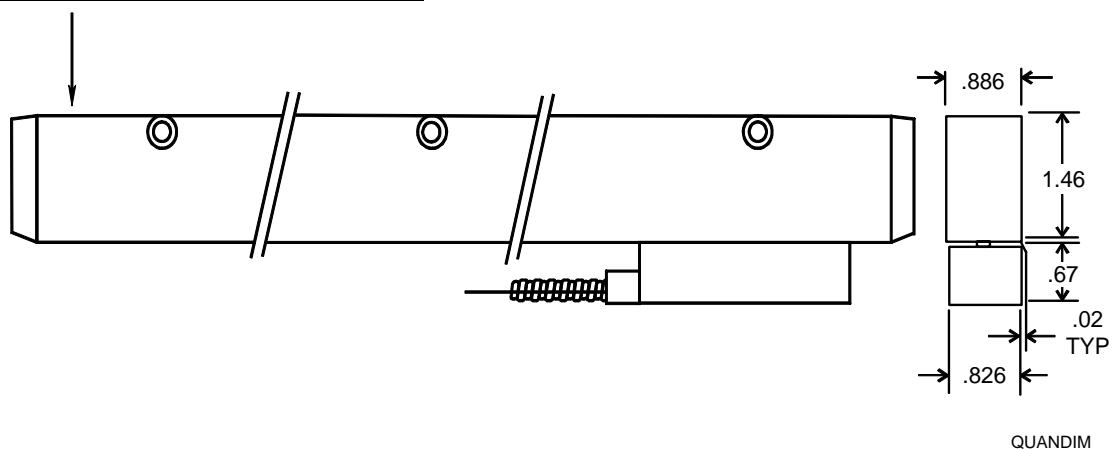


Figure 16, A-10 Quantum Scale

Converter Boxes

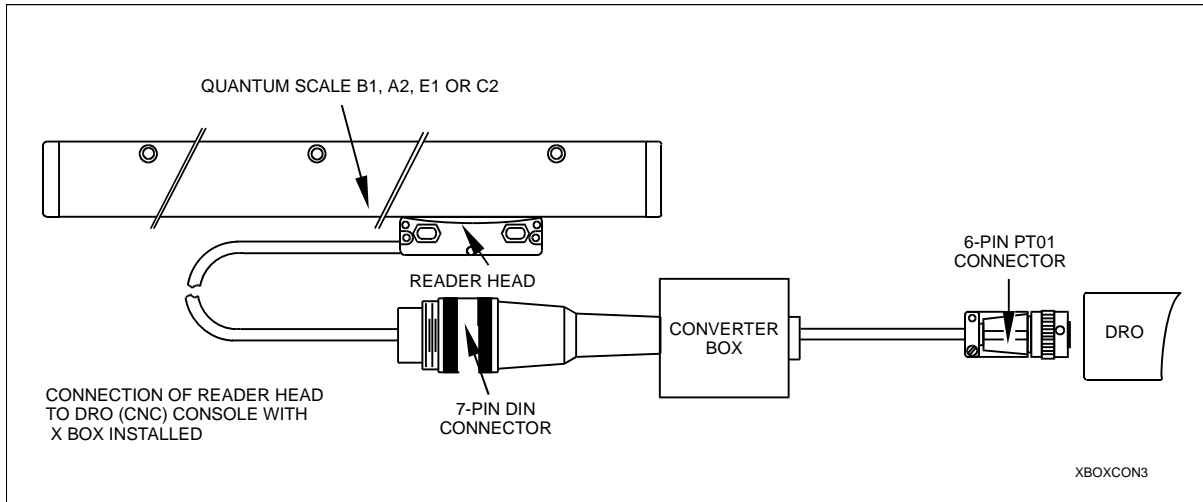


Figure 17, Converter Box Connector Configuration

Refer to **Figure 17, Converter Box Connector Configuration**. This configuration applies to A2, B1, E1 and C2 scale types, when the scales are used with a converter box. Before 1995, all these scales came with a converter box. The reader head connected to the converter box via a 7-pin DIN connector; while the converter box connected to the DRO (CNC) via a 6-pin PT01 connector.

Refer to **Figure 18, No Converter Box Used**. This configuration applies to A2, B1, E1 and C2 scale types, when no converter box is used. Most scales no longer come with a converter box. In this configuration, the reader head plugs into the DRO (CNC) via a 6-pin PT01 connector.

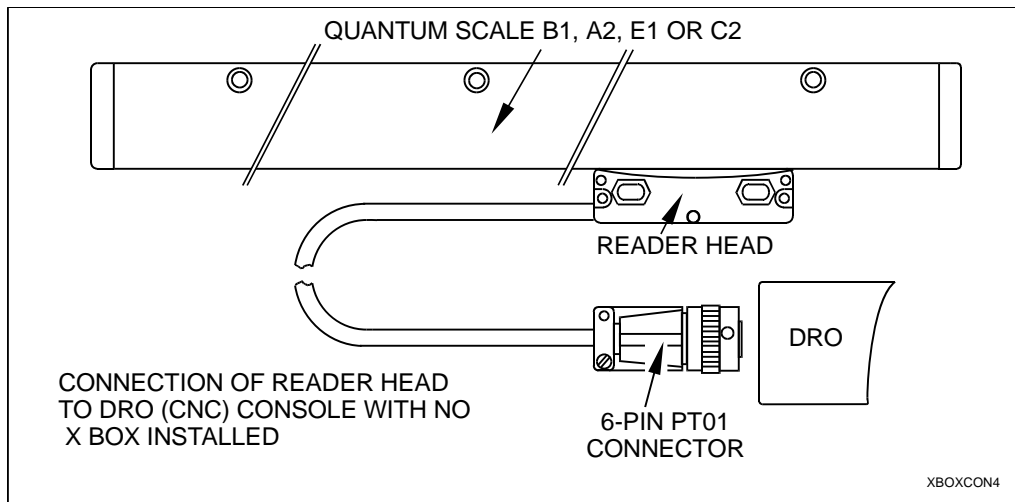


Figure 18, No Converter Box Used

A-2 Quantum Scales

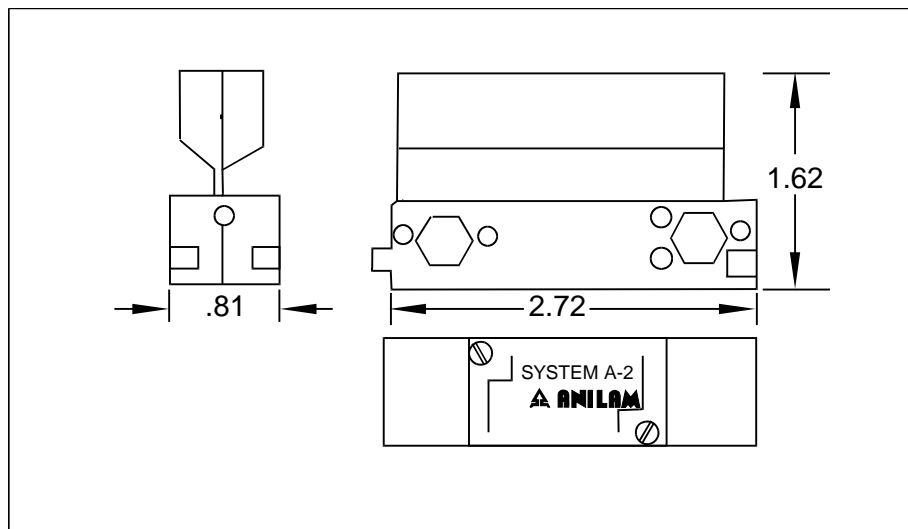


Figure 19, A-2 Quantum Reader Head Assembly

A-2 quantum scales use ANILAM Reader Head P/N 19000012 if there is no X Box and a 19 ft. cable is used; 19000011 if there is no X Box and a 13 ft. cable is used; 19000008 if there is an X Box and a 13 ft. cable is used; 19000124 if there is an X Box and a 10 in. cable is used. Refer to the section on **'Converter Boxes'** for more information.

A-2 scales were used in Wizard consoles with a serial numbers starting with WW or WM or P/N beginning with an A. A-10 scales were introduced in 1983 and used until April, 1996.

The A-2 reader head is similar to the A-10 head. The A-2 label is red and silver or black and silver with the words SYSTEM A-2 printed on it. The resolution of the system is $.002\mu\text{m}/.0001$ in. If there are no markings on the scale, verify that the axis measures in $.0001$ in. increments

Refer to **Figure 19, A-2 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 20, A-2 Quantum Scale** of the labels.

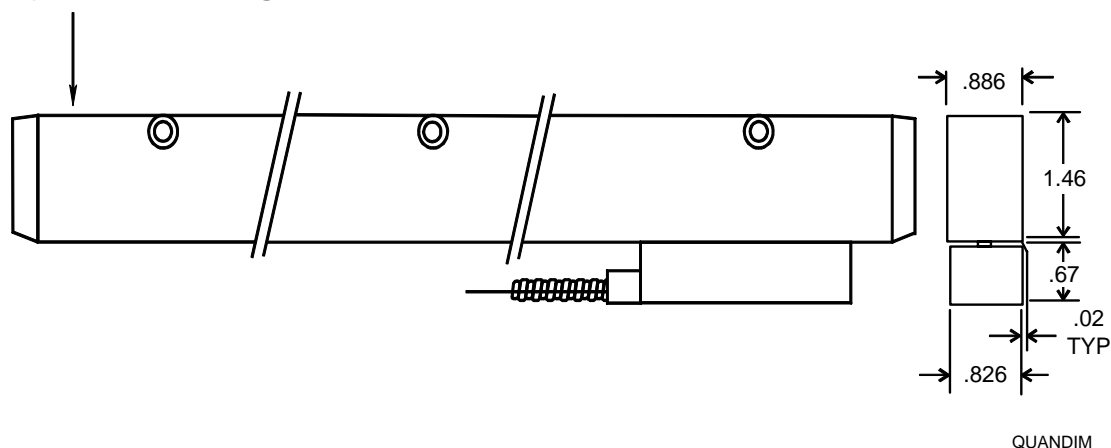


Figure 20, A-2 Quantum Scale

B-5 Quantum Scales

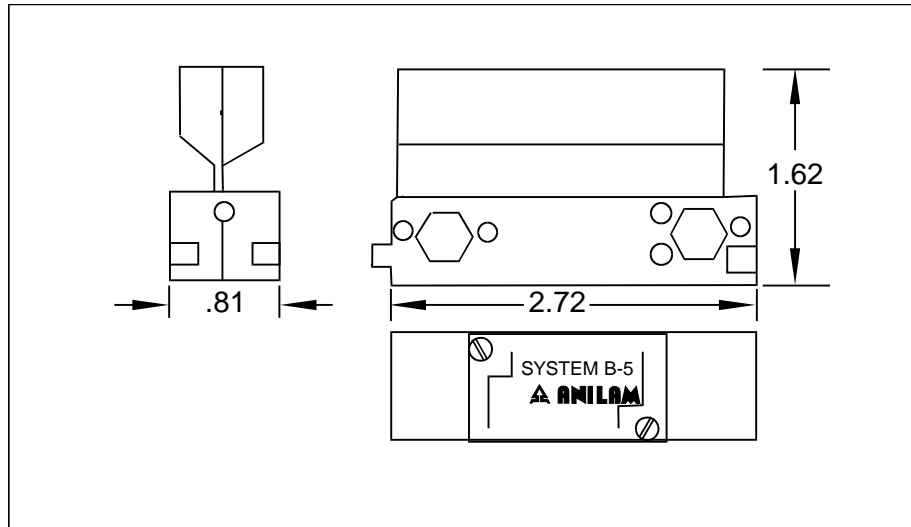


Figure 21, B-5 Quantum Reader Head Assembly

B-5 Quantum scales use ANILAM Reader Head P/N 19000007 with a 13 ft. cable; 19000107 with a 19 ft. cable; and 19000010 with a 10 in. cable.

The B-5 Quantum scale is used with Wizard consoles with a P/N beginning with an A. They were used between 1983 and April 1996.

This reader head is similar to the A-10 head. Labels on the B-5 reader head and scale are green and silver or black and silver, with the words SYSTEM B-5 printed on the label. The resolution of the system is .005mm/.0002 in. If there are no markings on the scale, verify that the axis measures .0002 in. increments when the scale moves.

Refer to **Figure 21, B-5 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 22, B-5 Quantum Scale** the locations of the labels.

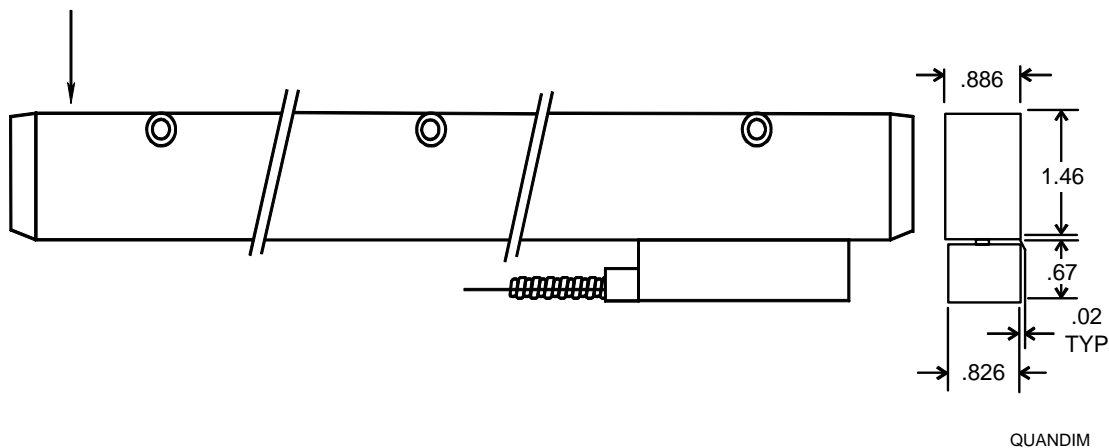


Figure 22, B-5 Quantum Scale

B-1 Quantum Scales

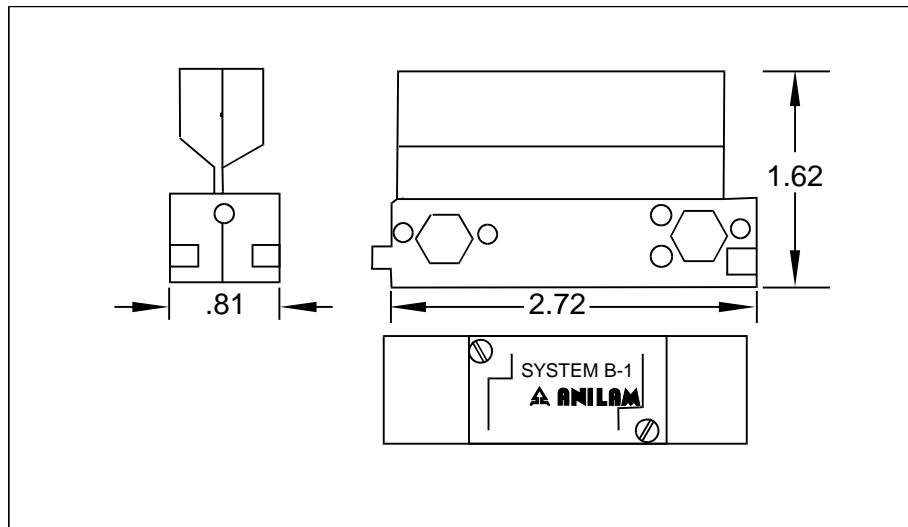


Figure 23, B-1 Quantum Reader Head Assembly

B-1 quantum scales use ANILAM Reader Head P/N 19000009 with a 13 ft. cable and converter box installed; 19000013 with a 13 ft. cable and no converter box; 19000014 with a 19 ft. cable and no converter box. Refer to the section on 'Converter Boxes' for more information.

B-1 scales are used in Wizard consoles that have a P/N beginning with an A. They were introduced in 1983 and used until 1996. This reader head is similar to the B-5 head. For newer systems without a converter box use Reader Heads 19000013 and 19000014.

Its label is green and silver or black and silver, with the words SYSTEM B-1 printed on the label. It is not interchangeable with System A scales.

The resolution of the system is .001mm/.00005 in.

Refer to **Figure 23, B-1 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 24, B-1 Quantum Scale** for the locations of the labels.

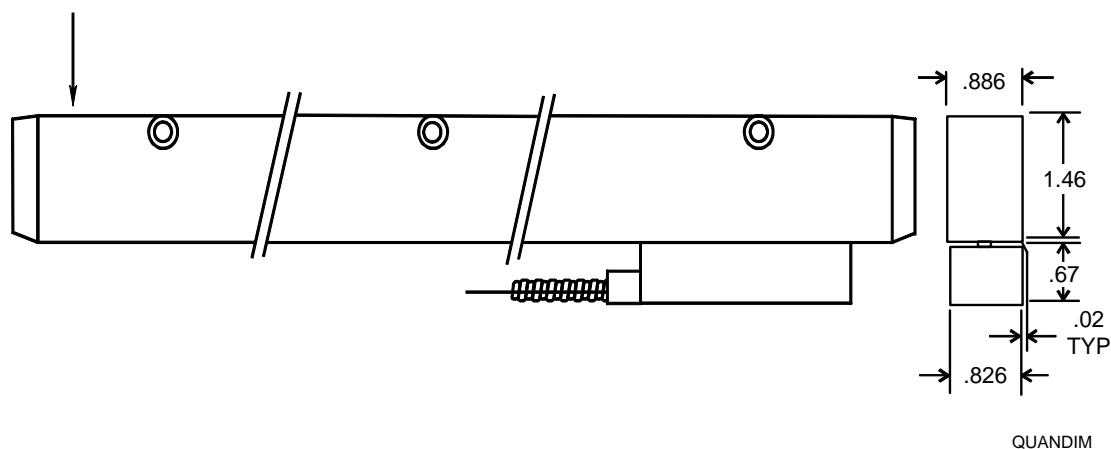


Figure 24, B-1 Quantum Scale

C-10 Quantum Scales

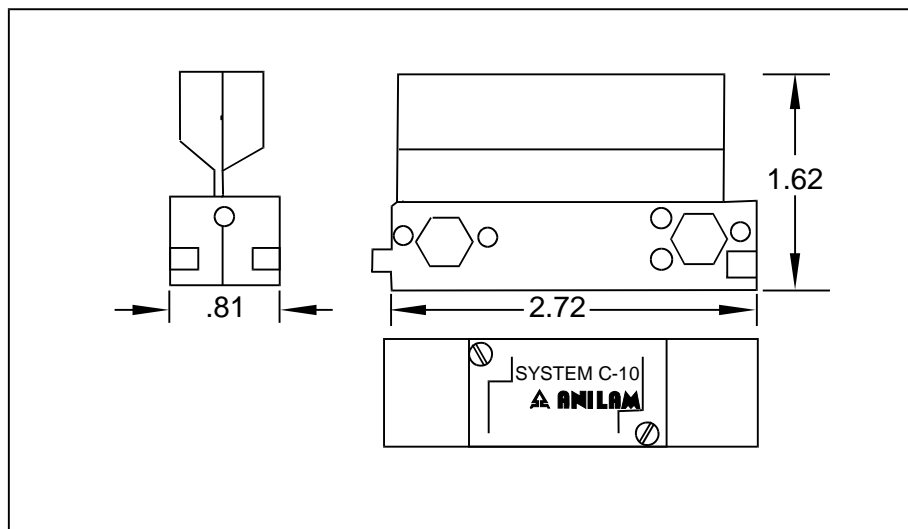


Figure 25, C-10 Quantum Reader Head Assembly

C-10 scales use ANILAM Reader Head P/N 19000105 with a 19 ft. cable and 19000133 with 10 in. cable.

C-10 scales are used in Wizard consoles that have a P/N that starts with an A. They were introduced in 1985. This reader head is similar to the C-5 and C-2 reader heads.

Labels on the C-10 reader head and scale are blue and silver or black and silver, with SYSTEM C-10 printed on the label. This head is not interchangeable with A or B reader heads.

The resolution of the system is .01mm/.0005 in. If no marking occurs on the scale, verify that the axis measures in .0005 in. increments when the scale moves.

Refer to **Figure 25, C-10 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 26, C-10 Quantum Scale** for the locations of the labels.

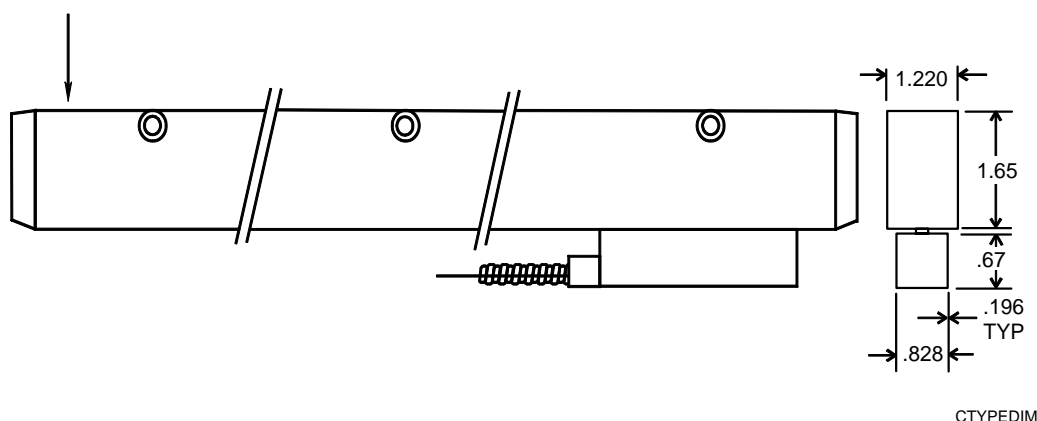


Figure 26, C-10 Quantum Scale

C-5 Quantum Scales

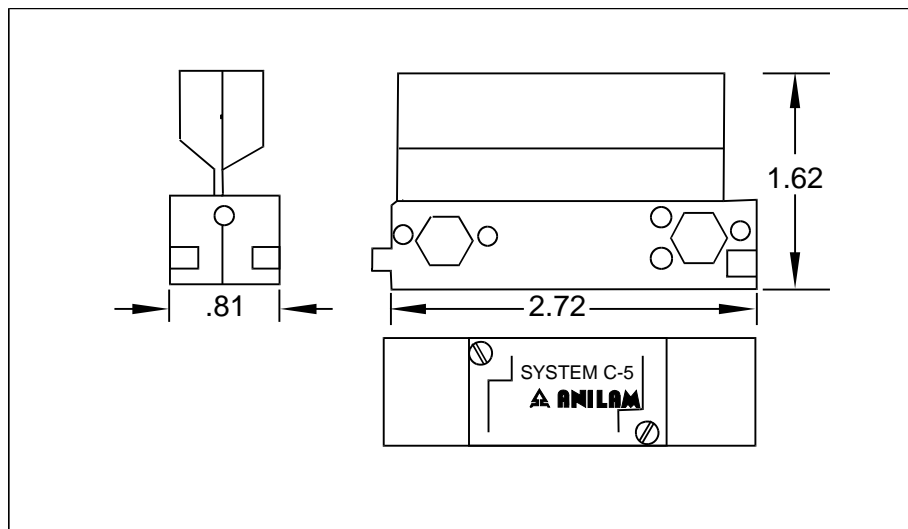


Figure 27, C-5 Quantum Reader Head Assembly

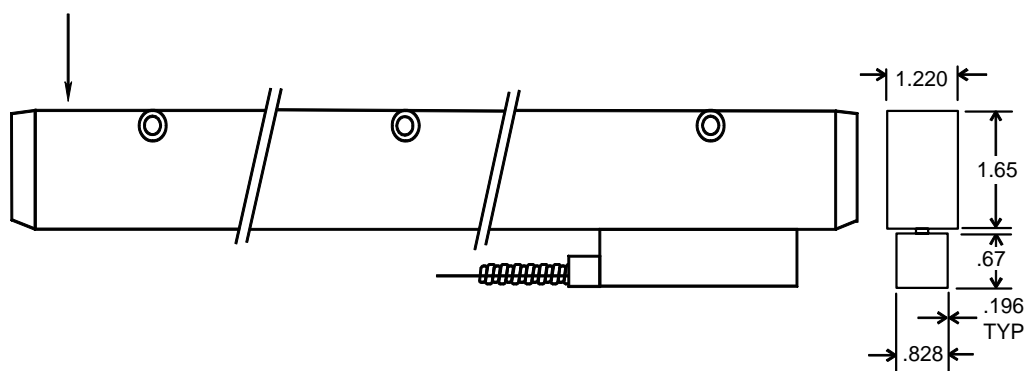
C-5 scales use ANILAM Reader Head P/N 19000131 with a 19 ft. cable and 19000134 with a 10 in. cable.

C-5 quantum scales are used in Wizard consoles that have a P/N that begins with an A. They were used between 1985 and April 1996. This reader head is similar to the C-10 and C-2.

The C-5 label will be blue and silver or black and silver in color, with the words SYSTEM C-5 printed on it. It is not interchangeable with A or B reader heads. The resolution of the system is $.005\mu\text{m}/.0002\text{ in.}$ If there is no label, verify that the scale is measuring in $.0002''$ increments when the scale moves.

This head is not interchangeable with A or B reader heads.

Refer to **Figure 27, C-5 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 28, C-5 Quantum Scale** for the locations of the labels.



CTYPEDIM

Figure 28, C-5 Quantum Scale

C-2 Quantum Scales

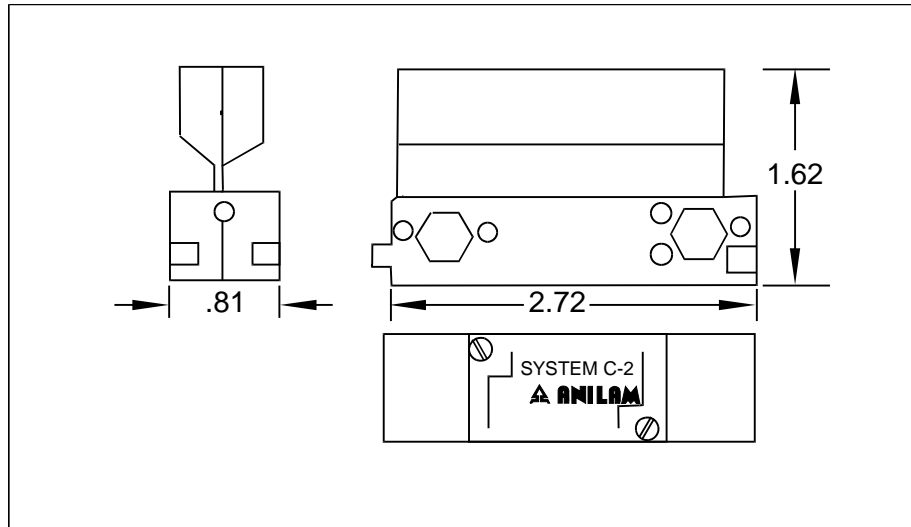


Figure 29, C-2 Quantum Reader Head Assembly

C-2 quantum scales use ANILAM Reader Head P/N 19000108 with a 19 ft. cable. The scale is sometimes used with a converter box. Refer to the section on **Converter Boxes** for more information.

C-2 scales are used in Wizard consoles that have a serial number that starts with an A. They were introduced in 1985 and used until April 1996. This reader head is similar to the C-5 and C-10 reader heads.

Labels on the C-2 reader head will be blue and silver or black and silver, with the words SYSTEM C-2 printed on the label. This head is not interchangeable with A or B reader heads.

The resolution of the system is .002mm/.0001 in. . If there are no markings on the scale, verify that the axis measures in .0001 in. increments when the scale moves.

Refer to **Figure 29, C-2 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 30, C-2 Quantum Scales** for the locations of the labels.

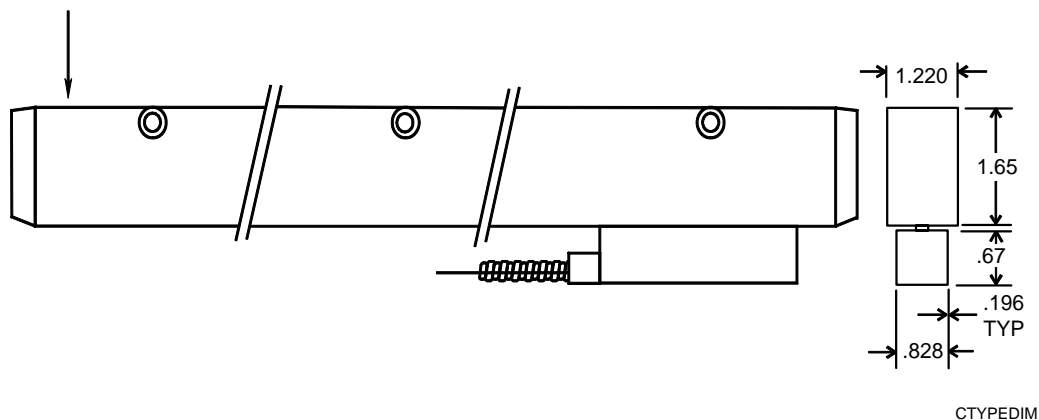


Figure 30, C-2 Quantum Scales

D-10 Quantum Scales

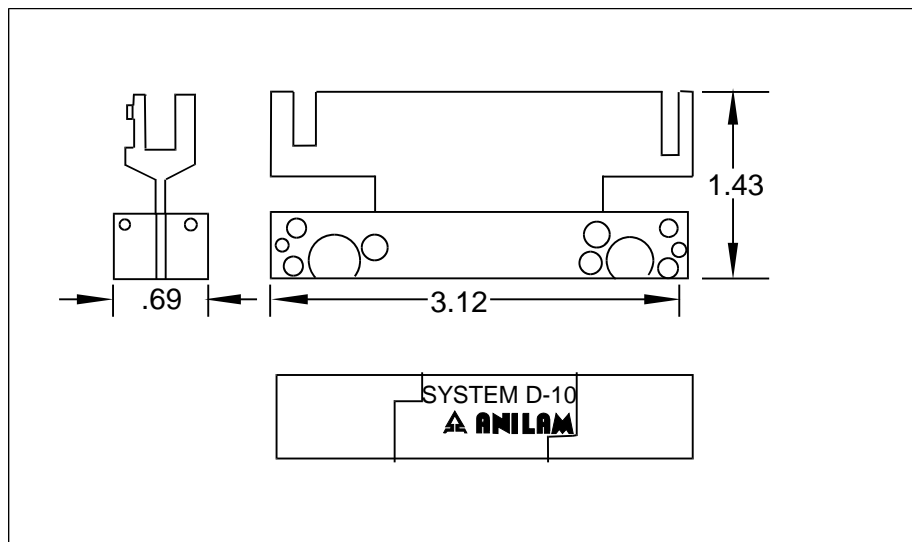


Figure 31, D-10 Quantum Reader Head Assembly

D-10 quantum scales use ANILAM Reader Head P/N 19000120 with a 13 ft. cable. ANILAM CNCs used series D-10 microscales for the Z axis downfeed.

D-10 scales are used in Wizard consoles that have serial number that begin with an A. They were introduced in 1986 and used until 1989, when it was replaced by the E-5 scale. The D-10 reader head is similar to the E-5, F-2 and E-1 reader heads. However, the D-10 label on the head and scale is red and silver or black and silver, with the words SYSTEM D-10 printed on the label.

This head is not interchangeable with E or F reader heads. The resolution of the system is .01mm/.0005 in. If no marking occurs on the scale, verify that the axis measures in .0005 in. increments when the scale moves.

Refer to **Figure 31, D-10 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 32, D-10 Quantum Scale** for the locations of the labels.

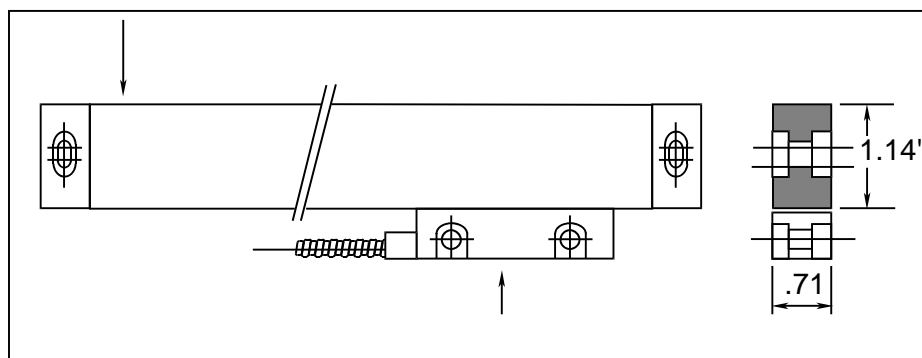


Figure 32, D-10 Quantum Scale

E-5 Quantum Scales

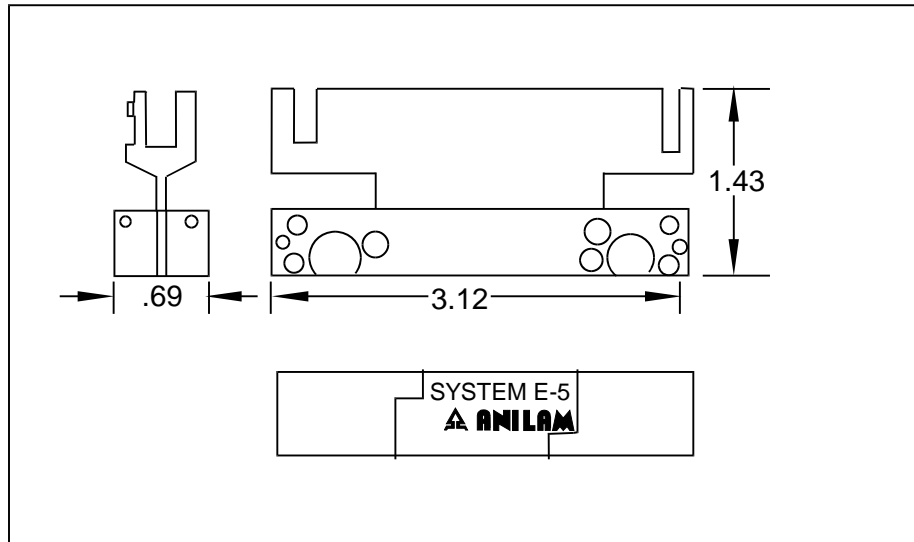


Figure 33, E-5 Quantum Reader Head Assembly

E-5 quantum scales use ANILAM Reader Head P/N 19000119 with a 13 ft. cable.

E-5 scales are used in Wizard consoles that have a serial number that starts with an A. They were introduced in 1986 and are still used in current models. The E-5 reader head is similar to the D-10, F-2 and E-1 reader heads. The labeling and electronics differ. The E-5 label is green and silver or black and silver, with the words SYSTEM E-5 printed on the label.

The resolution of the system is .005mm/.0002 in. If there are no markings on the scale, verify that the axis measures .0002 in. increments when the scale moves.

E-5 scales are not interchangeable with D or F reader heads.

Refer to **Figure 33, E-5 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 34, E-5 Quantum Scales** for the locations of the labels.

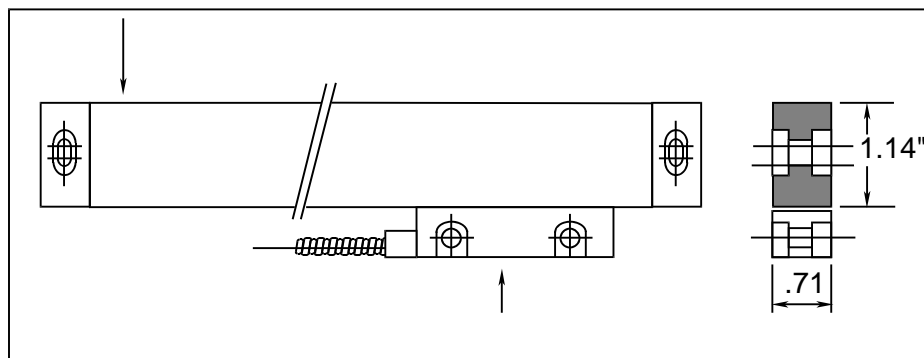


Figure 34, E-5 Quantum Scales

F-2 Quantum Scales

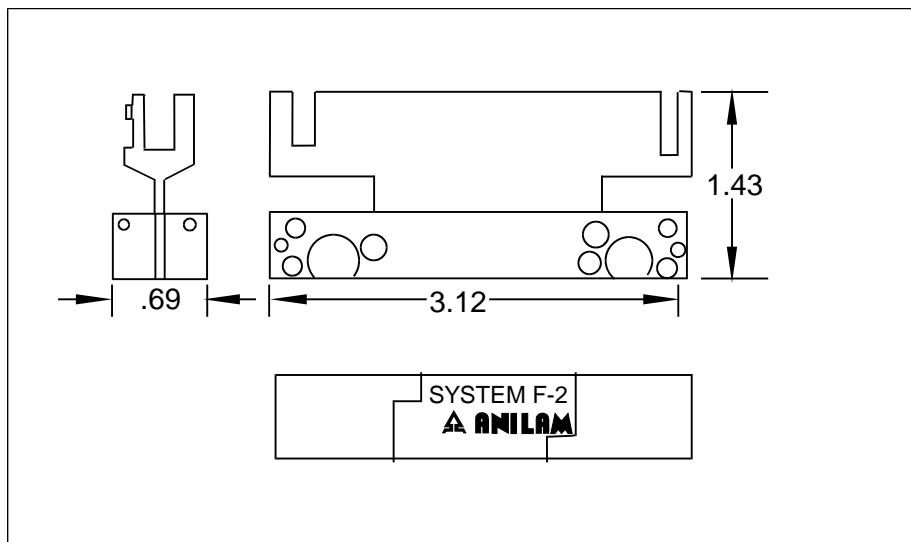


Figure 35, F-2 Quantum Reader Head Assembly

F-2 quantum scales use ANILAM Reader Head P/N 19000121 with a 13 ft. cable and 19000132 with a 10 in. cable.

F-2 scales are used in Wizard consoles with beginning model number A. They were introduced in 1986 and used until 1996. The F-2 reader head is similar to the D-10, E-5 and E-1 reader heads. The F-2 label printed on the reader head and scale is yellow and silver or black and silver color with the words SYSTEM F-2 printed on the label.

It is not interchangeable with D or E reader heads. The resolution of the system is .002mm/.0001 in. If there are no markings on the scale, verify that the scale measures .0001 in. when the scale moves.

Refer to **Figure 35, F-2 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 36, F-2 Quantum Scale** for the locations of the labels.

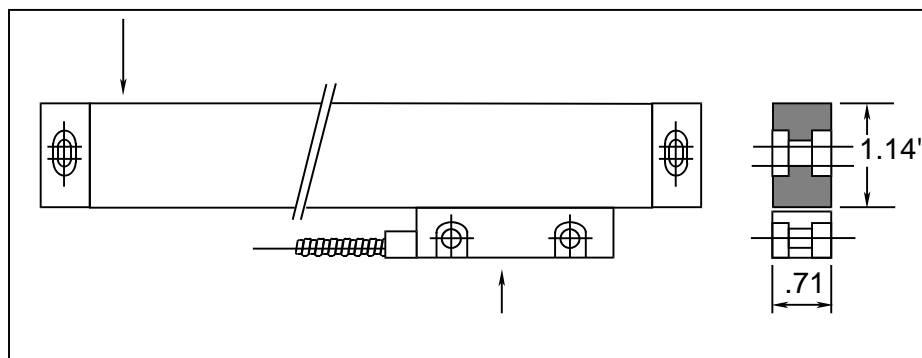


Figure 36, F-2 Quantum Scale

E-1 Quantum Scales

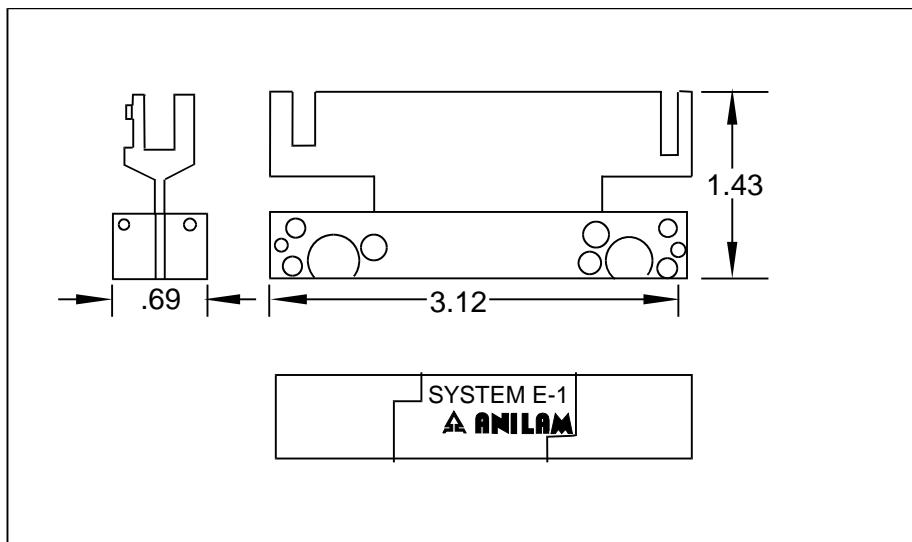


Figure 37, E-1 Quantum Reader Head Assembly

E-1 quantum scales use ANILAM Reader Head P/N 19000122 with a 13 ft. cable. The scale is sometimes used with a converter box. Refer to the section on **‘Converter Boxes’** for more information.

E-1 scales are used in Wizard consoles that have a serial number that starts with an A. They were introduced in 1986 and used until April 1996. The E-1 reader head is similar to the D-10, E-5 and F-2 heads, except for its labeling. The E-1 label is green and silver or black and silver, with the words SYSTEM E-1 printed on the label.

It is not interchangeable with D or F reader heads. The resolution of the system is .001mm/.00005 in. If there are no markings on the scale, verify that the scale measures .00005 in. when the scale moves.

Refer to **Figure 37, E-1 Quantum Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 38, E-1 Quantum Scale** for the locations of the labels.

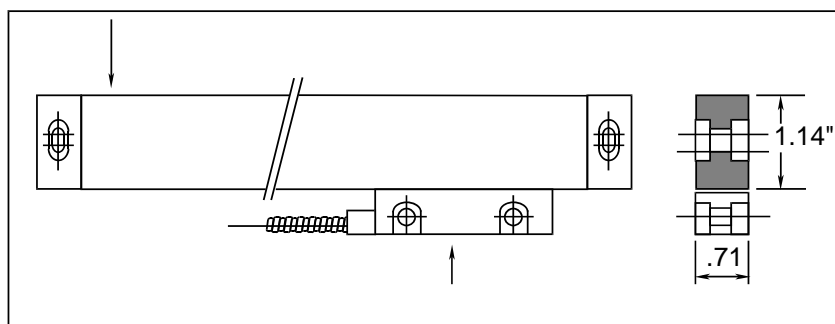


Figure 38, E-1 Quantum Scale

KM-10 Knee Mill Scales

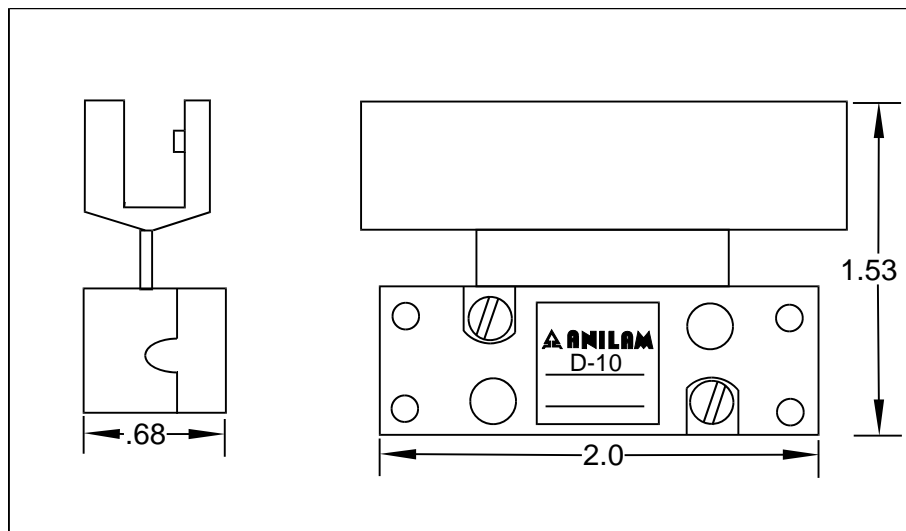


Figure 39, KM-10 Knee Mill Reader Head Assembly

The KM-10 quantum scales used ANILAM Reader Head P/N 19100131 with 13 ft. cable. The KM-10, introduced in 1988, was used in Wizard consoles with a P/N beginning with an A. They were replaced by PGSP scales in 1995.

KM-10 scales came with knee mill packages. The KM-10 reader head is similar to the KM-5 head. The resolution of the system is .01mm/.0005 in.

Caution: KM-10 heads are marked as D-10 heads. Identify the KM-10 by the size and color of the reader head. The KM-10 is a dull, cast color and the D-10 is a bright, chrome color. The KM-10 is not interchangeable with the D-10 reader head. Installing the wrong reader head could result in damage to the reader head or scale.

The KM-10 label is white with black lettering, with the words ANILAM D-10 printed on it.

Refer to **Figure 39, KM-10 Knee Mill Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 40, KM-10 Knee Mill Scale** for the locations of the labels.

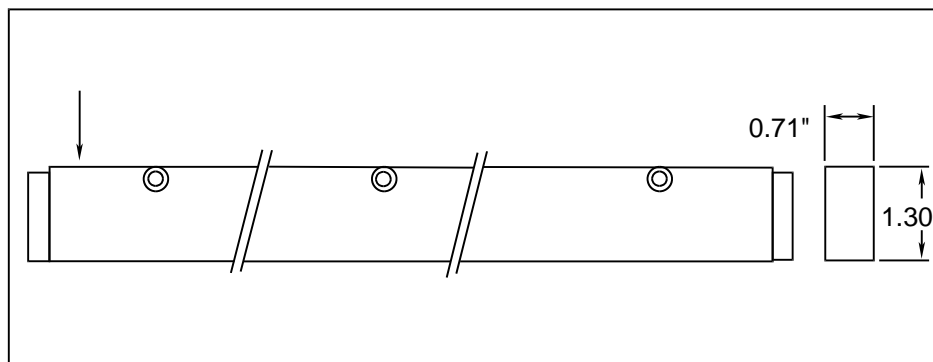


Figure 40, KM-10 Knee Mill Scale

KM-5 Knee Mill Scales

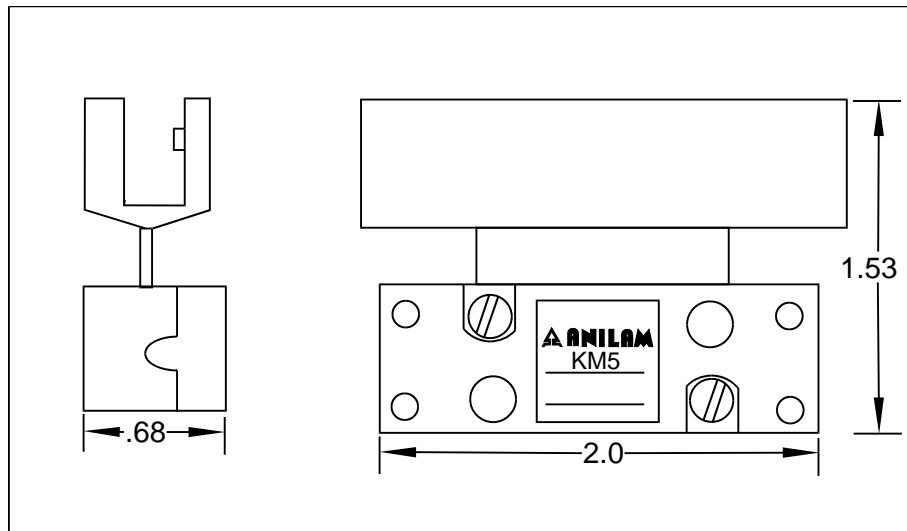


Figure 41, KM-5 Reader Head Assembly

KM-5 knee mill scales use ANILAM Reader Head P/N 19100132 with a 13 ft. cable.

KM-5 scales are used in Wizard consoles that have a serial number beginning with an A. They were introduced in 1988 and used until 1995. The KM-5 was replaced by the PGSP. These scales were used with knee mill packages. The KM-5 reader head is similar to the KM-10 head. The KM-5 label is white and the words ANILAM KM-5 are printed on the label in black lettering.

It is not interchangeable with D-10 or KM-10 reader heads.

Refer to **Figure 41, KM-5 Reader Head Assembly** for reader head dimensions and description. Refer to **Figure 42, KM-5 Knee Mill Scale** for the locations of the labels.

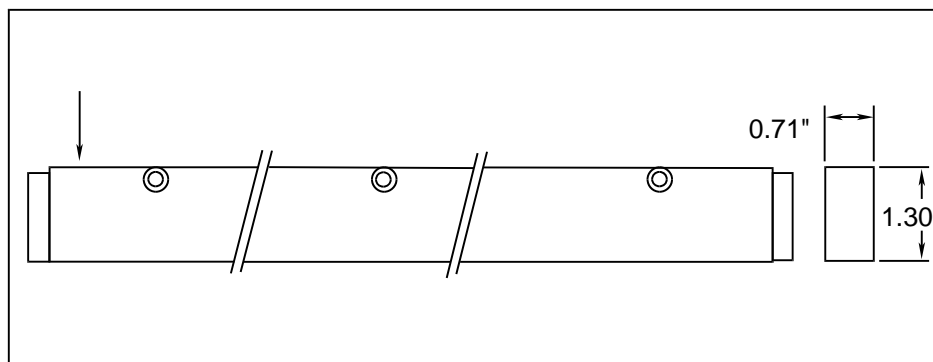


Figure 42, KM-5 Knee Mill Scale

PGS-P/PGS-E Knee Mill Scales

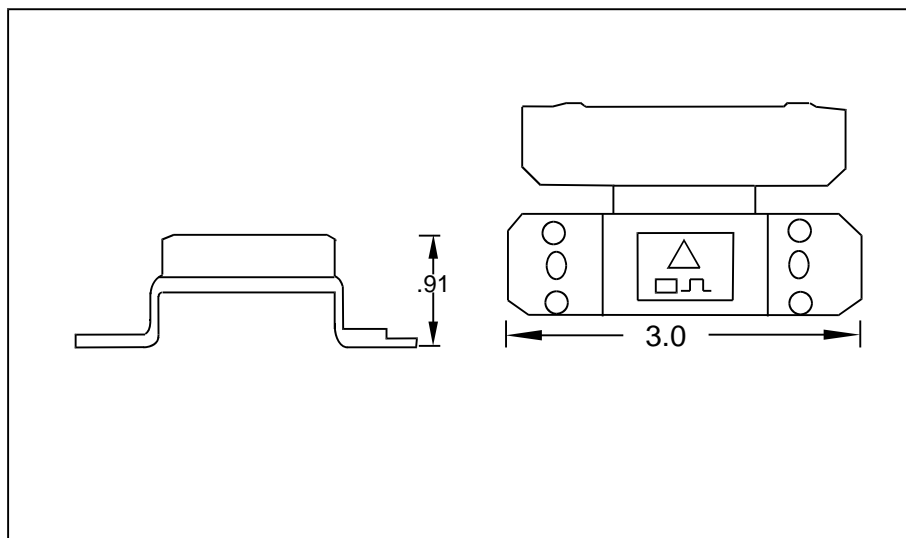


Figure 43, PGSP Knee Mill Reader Head Assembly

The PGSE/PGSP Knee Mill Scales use ANILAM P/N 19100133 with 13 ft. cable and 19100134 with a 19 ft. cable. These reader heads are unique to the PGSE scale and are not interchangeable with any other reader head.

The PGSE/PGSP knee mill scales are used in Wizard consoles that have a part number that begins with an A. They were introduced in 1993. The PGSP is still used on current models; the PGSE is no longer used. These scales were shipped with knee mill packages. PGSE labels are black and silver in color, with the words PGSE or PGSP printed on the label.

Refer to **Figure 43, PGSP Knee Mill Reader Head Assembly** for reader head dimensions and descriptions. Refer to **Figure 44, PGSP Knee Mill Scale** and **Figure 45, PGSE Knee Mill Scale**.

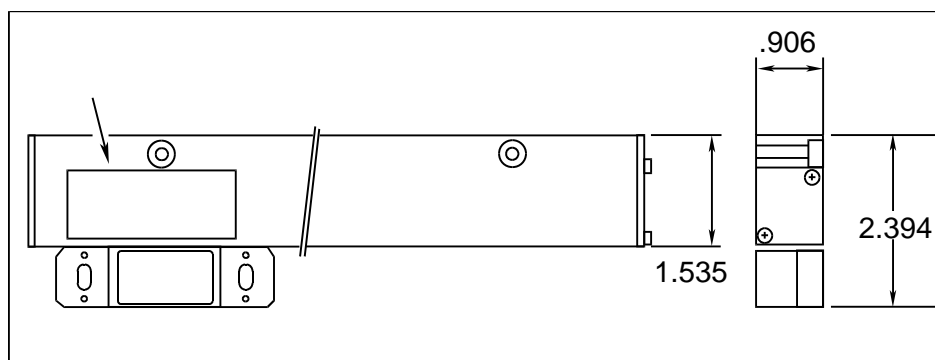


Figure 44, PGSP Knee Mill Scale

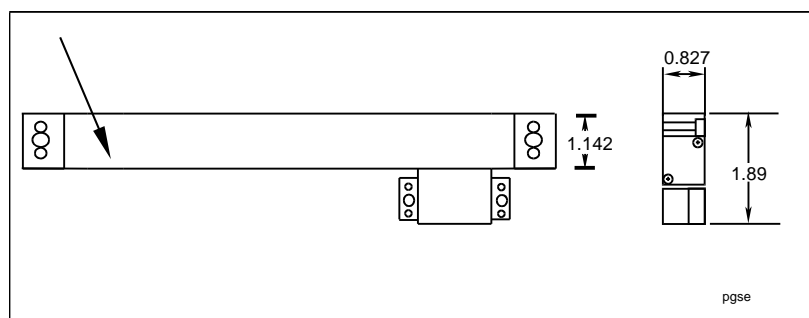


Figure 45, PGSE Knee Mill Scale

RBS Scales

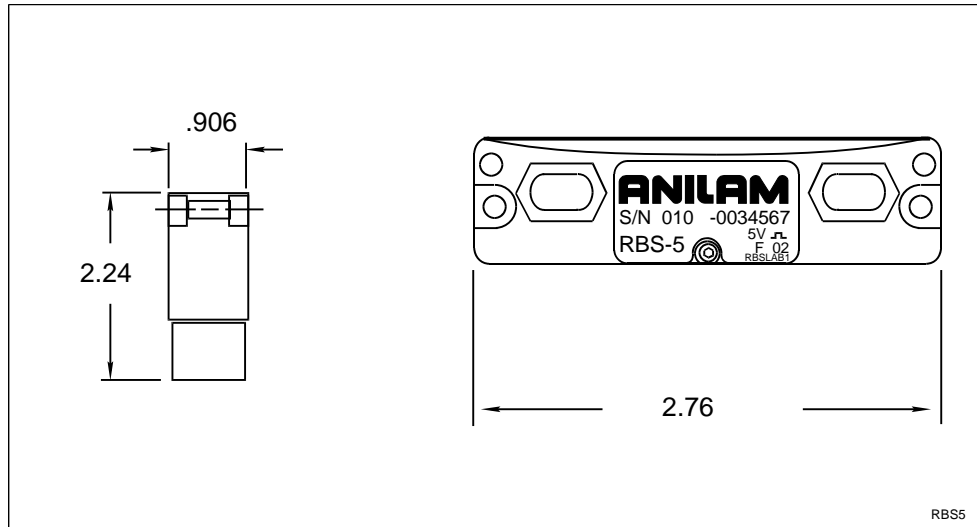


Figure 46, RBS Reader Head Assembly Example, RBS-5

The Roller Bearing System (RBS) scales were released in 1996 to replace the quantum scale line. RBS scales come in 1 micron or 5 micron resolutions for new scale installations and in 2 micron and 10 micron resolutions to replace quantum scales.

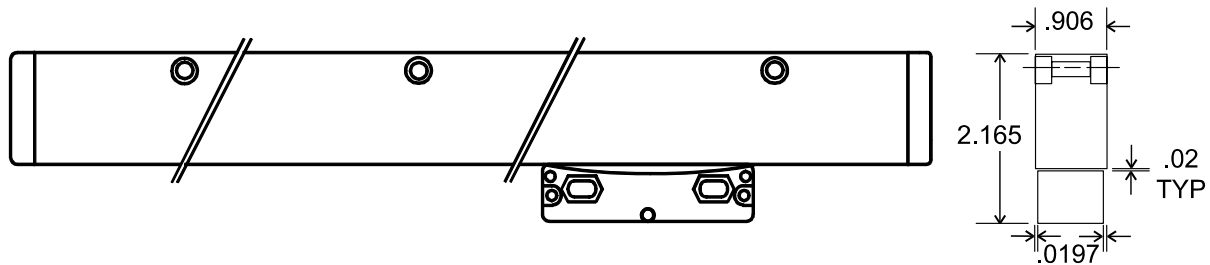


Figure 47, RBS Scale

RBS Scale	Cables Used With
RBS-1	19000135 (13') 19000136 (19') 19000143 (10")
RBS-2	19000139 (13') 19000140 (19')
RBS-5	19000137 (13') 19000138 (19') 19000145 (10")
RBS-10	19000141 (13') 19000142 (19') 19000144 (10")