

HEIMANN

CCTV components
IR measuring systems
Optoelectronics

Image Pick-up Tubes

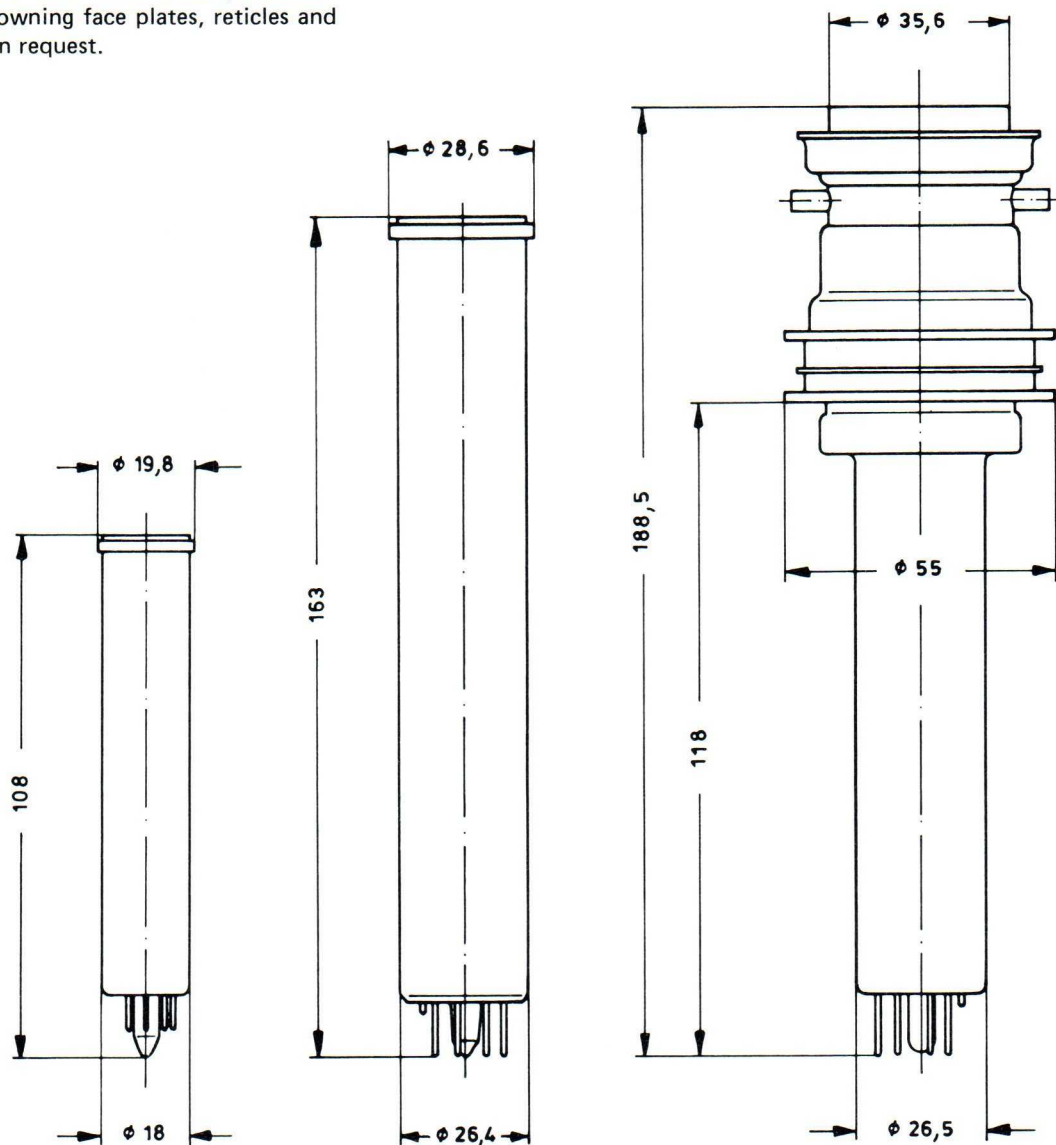


The HEIMANN production line covers image pick-up tubes for versatile applications in industrial, educational and medical CCTV as well as for commercial surveying systems, for image-transmitting systems in research and development and for low light level TV. For the various functions pick up tubes with antimony-trisulfide (Sb_2S_3), lead-oxide (PbO) and cadmium-selenide (CdSe) photoconductive layers as well as tubes with silicon (Si) multidiode targets are available in 2/3" and 1" tube diameter. Tubes with fiber optic face plates are suitable for coupling with image intensifiers. EIC- and SEC-tubes feature an extremely high sensitivity.

Special tubes with x-ray, UV- and IR-sensitive photoconductive layers, with non-browning face plates, reticles and other options are available on request.

All camera tubes have a separate field mesh connection and comply with international standards. They are fully compatible with tubes of other manufacturers.

For more information please contact the local HEIMANN-sales representative.



Dimensions of image pick-up tubes (maximum sizes in mm)

2/3" pick-up tubes

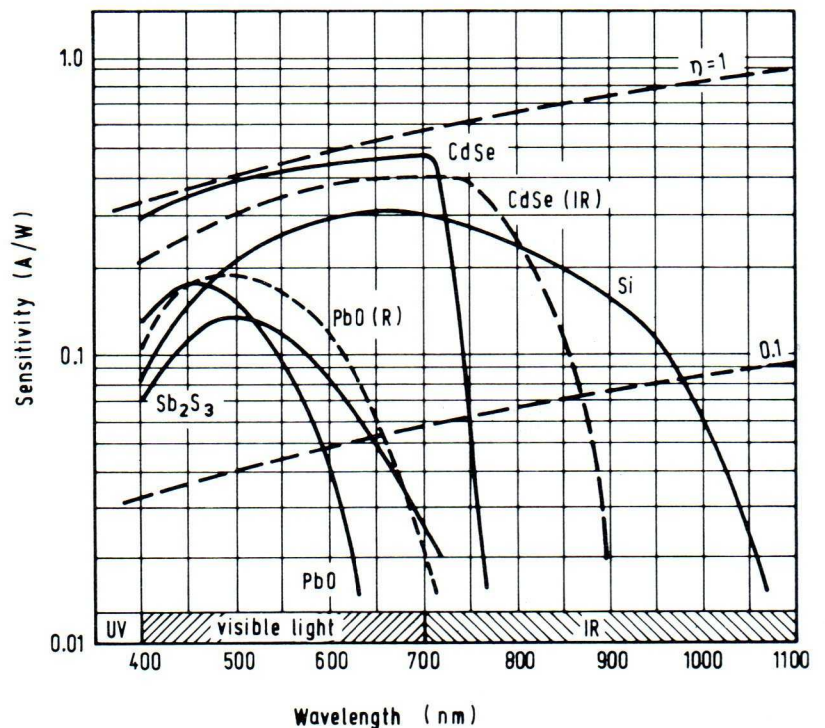
1" pick-up tubes

EIC and SEC pick-up tubes

Survey of image pick-up tubes

| Tube-type | Resistron [®] (Sb ₂ S ₃ -vidicon) | Lead-oxide vidicon | Pasecon [®] (CdSe-vidicon) | Silicon multi-diode vidicon | Special tubes |
|---|--|--|--|-----------------------------------|---|
| 2/3" pick-up tube with magnetic focusing and magnetic deflection | XQ 1310 XQ 1311 XQ 1312 XQ 1371 XQ 1372 XQ 1373 | | XQ 1451 XQ 1452 XQ 1453 | XQ 1313 | |
| 1" pick-up tube with magnetic focusing and magnetic deflection | XQ 1060 XQ 1290 XQ 1061 XQ 1291 XQ 1062 XQ 1292 XQ 1063 XQ 1293 XQ 1064 XQ 1294 XQ 1065 XQ 1295 XQ 1066* XQ 1296* XQ 1067* XQ 1297* XQ 1390 XQ 1395 XQ 1391 XQ 1396 XQ 1392 XQ 1397 | XQ 1350 XQ 1352 XQ 1353 XQ 1354 | XQ 1460 XQ 1461 XQ 1462 XQ 1462 F* XQ 1463 | XQ 1205 XQ 1206 XQ 1207 | EIC pick-up tube XQ 1330* XQ 1331* XQ 1332* SEC pick-up tube XQ 1190* XQ 1191* XQ 1192* Vidicon with integrated colour filter stripes XQ 1361 XQ 1362 XQ 1363 |
| 2/3" pick-up tube with electrostatic focusing and magnetic deflection | XQ 1305 | | XQ 1471 | | |
| 1" pick-up tube with electrostatic focusing and magnetic deflection | XQ 1120 XQ 1121 XQ 1122* XQ 1123* | | | | |

* tubes with fiber optic face plate



Spectral sensitivity of
HEIMANN pick-up tubes

Resistron[®] pick-up tube (Sb₂S₃-vidicon)

| tube diameter | type | typical application/ remarks | heater (mA) | focusing | deflection | typical characteristics | | | | |
|---------------|----------------------------|--|-------------|----------|------------|------------------------------|-------------------|--------------------|---------------------------|----------------------|
| | | | | | | illumination (lx) | dark current (nA) | output signal (nA) | modulation at 400 TVL (%) | lag (% after 400 ms) |
| 1" | XQ 1060 | medical x-ray/extremely high sensitivity a. resolution | 300 | M | M | 1,7 ^{a)} (green) | 30 | > 150 | > 60 | < 12 |
| | XQ 1061 | studio TV black a. white and colour/extremely high picture quality | 300 | M | M | 8 | 20 | > 300 | > 60 | < 7 |
| | XQ 1062 | industrial TV/high picture quality | 300 | M | M | 8 | 20 | > 270 | > 60 | < 9 |
| | XQ 1063 | industrial TV/medium picture quality | 300 | M | M | 8 | 20 | > 240 | > 50 | < 10 |
| | XQ 1064 | surveillance/low cost tube | 300 | M | M | 8 | 20 | > 190 | > 50 | < 12 |
| | XQ 1065 | particularily suitable for film scanning | 300 | M | M | 400 | 5 | > 350 | > 60 | < 3 |
| | XQ 1066 | with fiber optic face plate/high picture quality | 300 | M | M | 8 | 20 | > 190 | > 50 | < 10 |
| | XQ 1067 | with fiber optic face plate/medium picture quality | 300 | M | M | 8 | 20 | > 170 | > 45 | < 12 |
| | XQ 1120 | industrial TV/high picture quality | 300 | E | M | 8 | 20 | > 250 | > 30 | < 10 |
| | XQ 1121 | industrial TV/medium picture quality | 300 | E | M | 8 | 20 | > 200 | > 25 | < 12 |
| | XQ 1122 | with fiber optic face plate/high picture quality | 300 | E | M | 8 | 20 | > 190 | > 25 | < 10 |
| | XQ 1123 | with fiber optic face plate/medium picture quality | 300 | E | M | 8 | 20 | > 170 | > 20 | < 12 |
| | XQ 1290 | medical x-ray/extremely high sensitivity a. resolution | 95 | M | M | 1,7 ^{a)} (green) | 30 | > 150 | > 60 | < 12 |
| | XQ 1291 | studio TV black a. white and colour/extremely high picture quality | 95 | M | M | 8 | 20 | > 300 | > 60 | < 7 |
| | XQ 1292 | industrial TV/high picture quality | 95 | M | M | 8 | 20 | > 270 | > 60 | < 9 |
| | XQ 1293 | industrial TV/medium picture quality | 95 | M | M | 8 | 20 | > 240 | > 50 | < 10 |
| XQ 1294 | surveillance/low cost tube | 95 | M | M | 8 | 20 | > 190 | > 50 | < 12 | |

a) raster size 12,6 mm x 16,8 mm

Resistron[®] pick-up tube (continue)

| tube diameter | type | typical application/ remarks | heater (mA) | focusing | deflection | typical characteristics | | | | |
|---------------|---------|--|-------------|----------|------------|------------------------------|-------------------|--------------------|---------------------------|----------------------|
| | | | | | | illumination (lx) | dark current (nA) | output signal (nA) | modulation at 400 TVL (%) | lag (% after 400 ms) |
| 1" | XQ 1295 | particular suitable for film scanning | 95 | M | M | 400 | 5 | > 350 | > 60 | < 3 |
| | XQ 1296 | with fiber optic face plate/high picture quality | 95 | M | M | 8 | 20 | > 190 | > 50 | < 10 |
| | XQ 1297 | with fiber optic face plate/medium picture quality | 95 | M | M | 8 | 20 | > 170 | > 45 | < 12 |
| 2/3" | XQ 1305 | surveillance/commercial level | 95 | E | M | 8 | 20 | > 100 | > 20 | < 7 |
| | XQ 1310 | surveillance/commercial level | 95 | M | M | 8 | 20 | > 100 | > 25 | < 7 |
| | XQ 1311 | industrial TV/high picture quality | 95 | M | M | 8 | 20 | > 160 | > 30 | < 5 |
| | XQ 1312 | industrial TV/medium picture quality | 95 | M | M | 8 | 20 | > 130 | > 25 | < 6 |
| | XQ 1371 | industrial TV/high sensitivity and picture quality | 95 | M | M | 8 | 20 | > 200 | > 45 | < 9 |
| | XQ 1372 | industrial TV/high picture quality | 95 | M | M | 8 | 20 | > 180 | > 45 | < 10 |
| | XQ 1373 | surveillance/medium picture quality | 95 | M | M | 8 | 20 | > 150 | > 40 | < 12 |
| 1" | XQ 1390 | medical x-ray/extremely high resolution a. picture quality | 300 | M | M | 1,7 ^{a)} (green) | 30 | > 150 | > 80 | < 12 |
| | XQ 1391 | industrial TV/high resolution a. picture quality | 300 | M | M | 8 | 20 | > 300 | > 75 | < 9 |
| | XQ 1392 | industrial TV/high resolution, medium picture quality | 300 | M | M | 8 | 20 | > 270 | > 70 | < 10 |
| | XQ 1395 | medical x-ray/extremely high resolution a. picture quality | 95 | M | M | 1,7 ^{a)} (green) | 30 | > 150 | > 80 | < 12 |
| | XQ 1396 | industrial TV/high resolution a. picture quality | 95 | M | M | 8 | 20 | > 300 | > 75 | < 9 |
| | XQ 1397 | industrial TV/high resolution, medium picture quality | 95 | M | M | 8 | 20 | > 270 | > 70 | < 10 |

a) raster size 12,6 mm x 16,8 mm

Lead-oxide vidicon

| tube diameter | type | typical application/ remarks | heater (mA) | focusing | deflection | typical characteristics | | | | |
|---------------|---------|---|----------------|----------|------------|------------------------------|----------------------|-----------------------|---------------------------------|---------------------------|
| | | | | | | illumination (lx) | dark current (nA) | output signal (nA) | modulation at 400 TVL (%) | lag (% after 60 ms) |
| 1" | XQ 1350 | medical x-ray/extremely high sensitivity a. picture quality | 95 | M | M | 1,7 ^{a)} (green) | 1 | > 200 | > 40 | < 4 |
| | XQ 1352 | industrial TV/high picture quality | 95 | M | M | 8 | 1 | > 400 | > 38 | < 2 |
| | XQ 1353 | industrial TV/medium picture quality | 95 | M | M | 8 | 1 | > 380 | > 34 | < 3 |
| | XQ 1354 | industrial TV/ low cost tube | 95 | M | M | 8 | 1 | > 350 | > 30 | < 3 |

Pasecon[®] pick-up tube (CdSe-vidicon)

| tube diameter | type | typical application/ remarks | heater (mA) | focusing | deflection | typical characteristics | | | | |
|---------------|----------|---|----------------|----------|------------|------------------------------|----------------------|-----------------------|---------------------------------|---------------------------|
| | | | | | | illumination (lx) | dark current (nA) | output signal (nA) | modulation at 400 TVL (%) | lag (% after 60 ms) |
| 2/3" | XQ 1451 | industrial TV/high picture quality, no burn-in | 95 | M | M | 1 | 1 | > 150 | > 40 | < 8 |
| | XQ 1452 | industrial TV/medium picture quality, no burn-in | 95 | M | M | 1 | 1 | > 150 | > 35 | < 10 |
| | XQ 1453 | surveillance/commercial level, no burn-in | 95 | M | M | 1 | 3 | > 140 | > 25 | < 12 |
| 1" | XQ 1460 | medical x-ray/extremely high sensitivity a. picture quality | 95 | M | M | 1,7 ^{a)} (green) | 2 | > 450 | > 65 | < 14 |
| | XQ 1461 | industrial TV/high picture quality, no burn-in | 95 | M | M | 1 | 1 | > 300 | > 65 | < 12 |
| | XQ 1462 | industrial TV/medium picture quality, no burn-in | 95 | M | M | 1 | 1 | > 300 | > 60 | < 12 |
| | XQ 1462F | with fiber optic face plate/medium picture quality | 95 | M | M | 1 | 1 | > 250 | > 55 | < 14 |
| | XQ 1463 | surveillance/commercial level, no burn-in | 95 | M | M | 1 | 3 | > 280 | > 55 | < 14 |
| 2/3" | XQ 1471 | industrial TV/ surveillance, no burn-in | 95 | E | M | 1 | 3 | > 140 | > 20 | < 12 |

a) raster size 12,6 mm x 16,8 mm

Silicon multidiode vidicon

| tube diameter | type | typical application/ remarks | heater (mA) | focusing | deflection | typical characteristics | | | | |
|---------------|---------|--|-------------|----------|------------|-------------------------|-------------------|--------------------|---------------------------|---------------------|
| | | | | | | illumination (lx) | dark current (nA) | output signal (nA) | modulation at 400 TVL (%) | lag (% after 60 ms) |
| 1" | XQ 1205 | industrial TV/high picture quality, no burn-in | 95 | M | M | 1 | < 25 | > 300 | > 35 | < 14 |
| | XQ 1206 | industrial TV/medium picture quality, no burn-in | 95 | M | M | 1 | < 25 | > 300 | > 30 | < 14 |
| | XQ 1207 | industrial TV/surveillance, no burn-in | 95 | M | M | 1 | < 25 | > 250 | > 25 | < 14 |
| 2/3" | XQ 1313 | industrial TV/surveillance, no burn-in | 95 | M | M | 1 | < 25 | > 150 | > 15 | < 10 |

Special pick-up tubes

| tube diameter | type | typical application / remarks | heater (mA) | focusing | deflection | typical characteristics | | | | |
|--|---------|---|-------------|----------|------------|-------------------------|-------------------|--------------------|---------------------------|----------------------|
| | | | | | | illumination (lx) | dark current (nA) | output signal (nA) | modulation at 400 TVL (%) | lag (% after 100 ms) |
| EIC pick-up tube | | | | | | | | | | |
| 1" | XQ 1330 | EIC-tubes for extremely low light level/with fiber optic face plate | 300 | M | M | 10 ⁻³ | < 25 | > 200 | > 25 | < 6 |
| | XQ 1331 | | 300 | M | M | 10 ⁻³ | < 25 | > 200 | > 20 | < 8 |
| | XQ 1332 | | 300 | M | M | 10 ⁻³ | < 25 | > 150 | > 15 | < 10 |
| SEC pick-up tube | | | | | | | | | | |
| 1" | XQ 1190 | SEC-tubes for low light level/with fiber optic face plate | 300 | M | M | 10 ⁻¹ | < 1 | > 40 | > 20 | < 2 |
| | XQ 1191 | | 300 | M | M | 10 ⁻¹ | < 1 | > 40 | > 15 | < 2 |
| | XQ 1192 | | 300 | M | M | 10 ⁻¹ | < 1 | > 40 | > 10 | < 2 |
| Vidicon with integrated colour filter stripes | | | | | | | | | | |
| 1" | XQ 1361 | industrial TV/high picture quality | 300 | M | M | 8 | 20 | > 200 | | < 18 |
| | XQ 1362 | industrial TV/medium picture quality | 300 | M | M | 8 | 20 | > 200 | | < 18 |
| | XQ 1363 | surveillance/commercial level | 300 | M | M | 8 | 20 | > 180 | | < 20 |

Deflection and focusing assemblies

| for tube diameter | type | dimensions | | focusing coil | | | horizontal deflection | | vertical deflection | |
|-------------------|-------|------------------|-------------|---------------|---------------------|-------------------------|-----------------------|-------------------------|---------------------|-------------------------|
| | | front-frame (mm) | length (mm) | current (nA) | field strength (mT) | resistance (Ω) | inductance (mH) | resistance (Ω) | inductance (mH) | resistance (Ω) |
| 1" | KV 9 | 58 x 58 | 114,5 | 90 | 4 | 100 | 1,6 | 4,4 | 70 | 120 |
| 2/3" | KV 12 | 46 x 46 | 84 | 120 | 5 | 55 | 0,86 | 3,2 | 28 | 146 |
| | KV 19 | \emptyset 30 | 81 | — | — | — | 0,5 | 4,4 | 26 | 145 |

Sockets for image pick-up tubes

| for tube diameter | type | remarks | dimensions | |
|-------------------|------|----------------------|--------------------|------------------|
| | | | max. diameter (mm) | max. length (mm) |
| 1" | 1030 | for printed circuits | 24 | 16 |
| | 1031 | with solder tags | 24 | 18 |
| 2/3" | 1033 | with solder tags | 18,5 | 12,5 |