# Q.SONIC® MAX6

## Multi-Path Ultrasonic Gas Meter with widest operating ranges for Custody Transfer Measurement



**The ultrasonic gas flow meter Q.Sonic-max6 is a six-path ultrasonic gas flow meter ensuring suitability in harsh conditions even for special gas-compositions.**

**The Q.Sonic-max6 with its proven six-path design extends the existing Q.Sonic portfolio with an ultrasonic gas meter that has been optimized for a wider range of applications. This relates specifically to the core areas of operating pressure, operating conditions and special gas mixtures.**

Q.Sonic-max6 can be equipped with an internal pressure and temperature measurement function. This means that the device measures both the gas pressure and temperature of the measuring cell. On the one hand, these measurements allow for a more accurate calculation of the Reynolds number for the flow profile analysis and on the other, they can be used to correct the meter body diameter and path geometry. This is useful if the process conditions vary widely since both high pressure and high temperatures result in an increase in the tube cross section and a change in path lengths and angles.

Honeywell Process Solutions has an ISASecure® certified Security Development Lifecycle Assurance (SDLA) Program. In compliance to ANSI/ISA-62443-4-1-2018 as well as IEC 62443-4-1:2018 our state-of-the-art updated Cyber Security Package with Transport Layer Security (TLS), encryption of parameterization data and separated sensitive data encryption was introduced in our Q.Sonic series starting with Firmware 3.40A.

The electronics are located in a flame-proof housing with a separate connection compartment for field wiring. Thanks to its modular hardware design with a free slot, the device is also prepared to tackle future requirements. For user operation the system is equipped with a graphical user interface with touch screen functionality.

EnSuite supports during commissioning and configuration for a huge variety of Honeywell products, including the Q.Sonic series.

The simple and intuitive user interface enables to easily configure, diagnose, and monitor the Q.Sonic-max6 flow meter either local or remote.

Furthermore, customers are able to manage the Q.Sonic-max6 including secondary measurements optimally with Measurement-IQ (MIQ), receive actionable insights for intelligent autonomous operations and enhanced safety, reliability and efficiency.

## MAIN FEATURES

- 6-path direct technology
- Sizes 3" to 24" (DN 80 to DN 600)—larger sizes available upon request till 56"
- Pressure ratings: ASME 150 – 900 (1500/PN on request)
- All-titanium-encapsulated intrinsically safe transducers
- Internal temperature sensor
- Flow profile detection
- No moving parts
- No pressure drop
- Bi-directional measurement
- EnSuite PC software for configuration, diagnostics and healthcare
- OIML R137-1 (2014) class 1 approved
- ISO 17089-1 (2019) class 1 approved
- AGA 9 (2022) compliant
- MID approved

**Options**

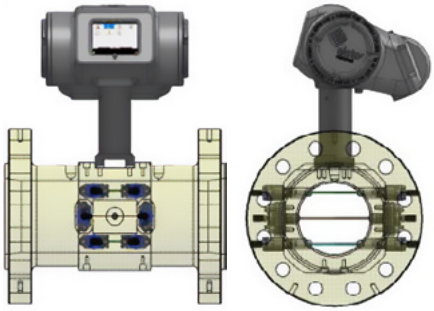
- SHDSL high-speed communication via Ethernet Range Extender (ERE)
- Pressure sensor for Reynolds and geometrical correction
- Retraction tool for transducer exchange 'under pressure'
- Stainless Steel SPU enclosure

**Applications**

- Custody transfer measurement of natural gas
- Gas exploration, transmission and distribution
- Non-custody transfer measurement of gas
- Other gases on request

Honeywell

## PATH CONFIGURATION

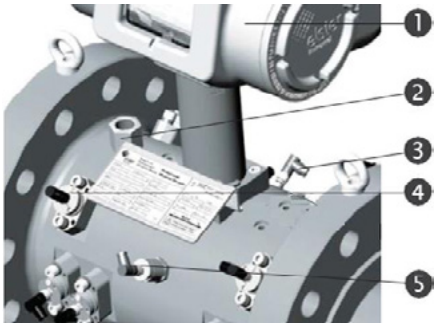


*The Q.Sonic-max6 uses three pairs of direct cross X paths in the same plane, ensuring a robust acoustic imagining and interrogation of the gas stream.*

## ULTRASONIC TRANSDUCERS MODEL NG

The transducers are all-metal encapsulated with titanium, which offers a smooth surface to minimize contamination. The ultrasonic frequency of 200 kHz ensures a good balance between resolution and attenuation/ propagation of the signal.

## COMPONENTS ON THE METER BODY




1. Signal processing unit (SPU)
2. Pressure connection point for external transmitter
3. Temperature sensor for meter body temperature
4. Transducer with mounting bracket, prepared for retraction under pressure
5. Optional pressure sensor for geometry correction and line density estimation (profile correction)

| TRANSDUCER PATH | |
|---|---|
| **PATH NO.** | **PATH TYPE** |
| 1 | direct path (D-RT) |
| 2 | direct path (D-LT) |
| 3 | direct path (D-RM) |
| 4 | direct path (D-LM) |
| 5 | direct path (D-RB) |
| 6 | direct path (D-LB) |

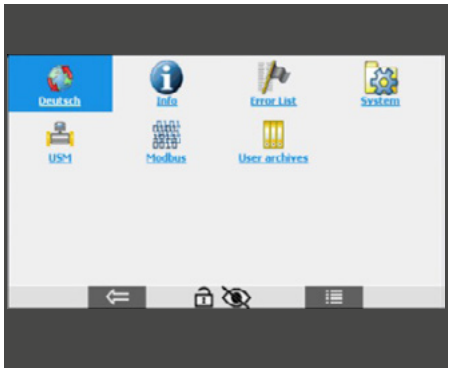
*D : direct path; RT: right top; LT : left top; RM: right middle; LM: left middle; RB : right bottom; LB : left bottom*

## ENSUITE

The Windows® application enSuite supports during commissioning and configuration for a huge variety of Honeywell products, including the Q.Sonic series starting with FW3.40 release.

The simple and intuitive user interface enables the devices to be installed quickly. In addition to the device configuration, enSuite also supports the remote operation panel, the readout and display functions as well as many other practical functions which feature on Elster devices. enSuite is available for free download from the Honeywell Elster website and will run in Windows 10 64bit.

## SIGNAL PROCESSING UNIT (SPU) SERIES 6




The SPU electronic resides in a flame-proof housing with a separate compartment for the terminal connections. The boards are mounted in a card cage with one free slot for future extensions.

A color graphic screen with 7 touch-sensitive sections allows easy operation by using a menu structure to access the data.

Thanks to the built-in web server, this can also be done remotely when a network connection is available. The heart of the system is the EnCore with up to 16 GB of data memory.

Diagnostic and self-checking functions in conjunction with a flexible, user-configurable data archive and an event list allow a detailed analysis of the meter's performance and the metering situation at any time.

## FLOW RANGES METRIC - STANDARD METERS (FIXED DIAMETER TAPERED TO ANSI SCH 40/60/80)

| Size | | Internal Standard Diameter [inch] | Flow range according to MID:2014 [cfh] | | | | Flow range according to ISO 17089:2019 class 1 & OIML R137:2012 class 1 [cfh] | | | | Flow range according to AGA9:2022 [cfh] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [inch] | DN | | $Q_{min}$ | $Q_t$ | $Q_{max}$ | Turndown | $Q_{min}$ | $Q_t$ | $Q_{max}$ | Turndown | $Q_{min}$ | $Q_t$ | $Q_{max}$ | Turndown |
| 3 | 80 | 2.87 | 388 | 1907 | 19141 | 49 | 388 | 1907 | 19141 | 49 | 530 | 1907 | 19141 | 36 |
| | | 2.76 | 353 | 1766 | 17622 | 50 | 353 | 1766 | 17622 | 50 | 494 | 1766 | 17622 | 36 |
| 4 | 100 | 3.82 | 459 | 3390 | 33831 | 74 | 459 | 3390 | 33831 | 74 | 848 | 3390 | 33831 | 40 |
| 6 | 150 | 5.75 | 636 | 7663 | 76633 | 120 | 636 | 7663 | 76633 | 120 | 636 | 7663 | 76633 | 120 |
| | | 5.47 | 565 | 6957 | 69464 | 123 | 565 | 6957 | 69464 | 123 | 1448 | 6957 | 69464 | 48 |
| 8 | 200 | 7.48 | 1095 | 12960 | 129782 | 119 | 1095 | 12960 | 129782 | 119 | 2154 | 12960 | 129782 | 60 |
| | | 7.09 | 953 | 11654 | 116468 | 122 | 953 | 11654 | 116468 | 122 | 1942 | 11654 | 116468 | 60 |
| 10 | 250 | 9.45 | 1730 | 20694 | 207050 | 120 | 1730 | 20694 | 207050 | 120 | 2860 | 20694 | 207050 | 72 |
| | | 9.06 | 1589 | 18999 | 190170 | 120 | 1589 | 18999 | 190170 | 120 | 2649 | 18999 | 190170 | 72 |
| 12 | 300 | 11.61 | 2613 | 31289 | 312818 | 120 | 2613 | 31289 | 312818 | 120 | 4344 | 31289 | 312818 | 72 |
| | | 11.02 | 2366 | 28181 | 281811 | 119 | 2366 | 28181 | 281811 | 119 | 3920 | 28181 | 281811 | 72 |
| 16 | 400 | 14.57 | 4097 | 41913 | 492110 | 120 | 4097 | 49193 | 492110 | 120 | 6145 | 49193 | 492110 | 80 |
| | | 13.78 | 3673 | 44037 | 440339 | 120 | 3673 | 44037 | 440339 | 120 | 5509 | 44037 | 440339 | 80 |
| 20 | 500 | 18.81 | 6215 | 64273 | 642551 | 103 | 6215 | 64273 | 642551 | 103 | 9323 | 64273 | 642551 | 69 |
| | | 18.38 | 6533 | 67451 | 674370 | 103 | 6533 | 67451 | 674370 | 103 | 9782 | 67451 | 674370 | 69 |
| | | 17.94 | 6851 | 70665 | 706718 | 103 | 6851 | 70665 | 706718 | 103 | 10241 | 70665 | 706718 | 69 |
| 24 | 600 | 22.62 | 8970 | 92842 | 928318 | 103 | 8970 | 92842 | 928318 | 103 | 13490 | 92842 | 928318 | 69 |
| | | 22.06 | 9394 | 97186 | 972002 | 103 | 9394 | 97186 | 972002 | 103 | 14126 | 97186 | 972002 | 69 |
| | | 21.56 | 9888 | 102201 | 1022113 | 103 | 9888 | 102201 | 1022113 | 103 | 9888 | 102201 | 1022113 | 103 |

**The available standard diameters will be tapered to meet ANSI schedule 40/60/80. Others on request*

## ACCURACY REQUIREMENTS

| Subject | ISO 17089-1 [a] | | AGA9 [b] | | | OIML R137 [c] | | MID [d] |
|---|---|---|---|---|---|---|---|---|
| | 0.5 | 1 | <4" | 4"-10" | ≥12" | 0.5 | 1 | (1) |
| | | | A | B | C | | | |
| **Maximum permissible error (MPE)** | | | | | | | | |
| $q_t \leq q_i \leq q_{max}$ | ±0.5 % | ±1.0 % | ±2.0 % | ±1.0 % | ±0.7 % | ±0.5 % | ±1 % | ±1 % |
| $q_{min} \leq q_i < q_t$ | ±1.0 % | ±2.0 % | ±3.0 % | ±1.4 % | ±1.4 % | ±1 % | ±2 % | ±2 % |
| **Maximum peak-to-peak error** | | | | | | | | |
| $q_t \leq q_i \leq q_{max}$ | 0.5 % | 1.0 % | 1.0 % | 1.0 % | 0.7 % | - | | 0.5 % |
| $q_{min} \leq q_i < q_t$ | 1.0 % | 2.0 % | 1.4 % | 1.4 % | 1.4 % | - | | 1.0 % |
| **Repeatability** | | | | | | | | |
| $q_t \leq q_i \leq q_{max}$ | ≤0.17 % | ≤0.33 % | ≤0.2 % | | | ≤0.17 % | ≤0.33 % | ≤0.5 % |
| $q_{min} \leq q_i < q_t$ | ≤0.33 % | ≤0.66 % | ≤0.4 % | | | ≤0.33 % | ≤0.66 % | - |
| Maximum FWME | ±0.5 % | ±1.0 % | - | | | ±0.2 % | ±0.4 % | ±0.4 % |
| **Speed of sound deviation** | | | | | | | | |
| from theoretical value | ≤±0.2 % | | ≤±0.2 % | | | - | | - |
| spread between paths | ≤0.5 m/s | | ≤0.5 m/s | | | - | | - |

a) Accuracy requirements shall be evaluated based on the calibration curve with respect to the FWME as per § 6.3.3 ISO 17089- 1:2019
b) Accuracy requirements shall be evaluated prior to making any error adjustment as per § 6.3 AGA9:2022
c) Accuracy requirements shall be evaluated based on the calibration curve with respect to the FWME as per §13.1.6 OIML R 137:2014
d) Accuracy requirements shall be evaluated based on the calibration curve with respect to the FWME as per MID 2014/32/EU Annex IV chapter 2 and according to national standards referenced in PTB Book 30:2003

## FLANGE RATING ANSI 150 METRIC

| Meter Size [Inch] | Meter Size [in] | Dimensions [in] | | | | Forged body Material | Weight [lbs] | Length |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | L | | | |
| 3" | DN 80 | 20.35 | 16.61 | 5.79 | 11.81 | LTCS | 55 | 3.75D |
| 4" | DN 100 | 21.50 | 16.97 | 6.02 | 13.78 | LTCS | 71 | 3.5D |
| 6" | DN 150 | 22.44 | 16.93 | 7.28 | 17.72 | LTCS | 163 | 3D |
| 8" | DN 200 | 24.61 | 17.80 | 8.27 | 19.69 | LTCS | 262 | 2.5D |
| 10" | DN 250 | 26.77 | 18.78 | 10.00 | 24.61 | LTCS | 337 | 2D |
| 12" | DN 300 | 29.41 | 19.88 | 11.02 | 23.62 | LTCS | 545 | 2D |
| 16" | DN 400 | 33.82 | 22.09 | 13.50 | 31.50 | LTCS | 917 | 2D |
| 20" | DN 500 | 37.83 | 24.06 | 16.02 | 39.37 | LTCS | 1488 | 2D |
| 24" | DN 600 | 42.09 | 26.06 | 18.50 | 47.24 | LTCS | 2271 | 2D |

## FLANGE RATING ANSI 300 METRIC

| Meter Size [Inch] | Meter Size [in] | Dimensions [in] | | | | Forged body Material | Weight [lbs] | Length |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | L | | | |
| 3" | DN 80 | 20,35 | 16,61 | 5,79 | 11,81 | LTCS | 64 | 3,75D |
| 4" | DN 100 | 21,50 | 16,97 | 6,02 | 13,78 | LTCS | 90 | 3,5D |
| 6" | DN 150 | 22,44 | 16,93 | 7,28 | 17,72 | LTCS | 205 | 3D |
| 8" | DN 200 | 24,61 | 17,80 | 8,27 | 19,69 | LTCS | 309 | 2,5D |
| 10" | DN 250 | 26,77 | 18,78 | 10,00 | 24,61 | LTCS | 401 | 2D |
| 12" | DN 300 | 29,41 | 19,88 | 11,02 | 23,62 | LTCS | 633 | 2D |
| 16" | DN 400 | 33,82 | 22,09 | 13,50 | 31,50 | LTCS | 1098 | 2D |
| 20" | DN 500 | 37,83 | 24,06 | 16,02 | 39,37 | LTCS | 1781 | 2D |
| 24" | DN 600 | 42,09 | 26,06 | 18,50 | 47,24 | LTCS | 2749 | 2D |

## FLANGE RATING ANSI 600 METRIC

| Meter Size [Inch] | Meter Size [in] | Dimensions [in] | | | | Forged body Material | Weight [lbs] | Length |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | L | | | |
| 3" | DN 80 | 20,35 | 16,61 | 5,79 | 11,81 | LTCS | 68 | 3,75D |
| 4" | DN 100 | 21,50 | 16,97 | 6,02 | 13,78 | LTCS | 112 | 3,5D |
| 6" | DN 150 | 22,44 | 16,93 | 7,28 | 17,72 | LTCS | 249 | 3D |
| 8" | DN 200 | 24,61 | 17,80 | 8,27 | 19,69 | LTCS | 386 | 2,5D |
| 10" | DN 250 | 26,77 | 18,78 | 10,00 | 24,61 | LTCS | 613 | 2,5D |
| 12" | DN 300 | 29,41 | 19,88 | 11,02 | 23,62 | LTCS | 767 | 2D |
| 16" | DN 400 | 33,82 | 22,09 | 13,50 | 31,50 | LTCS | 1305 | 2D |
| 20" | DN 500 | 37,83 | 24,06 | 16,02 | 39,37 | LTCS | 2110 | 2D |
| 24" | DN 600 | 42,09 | 26,06 | 18,50 | 47,24 | LTCS | 3212 | 2D |

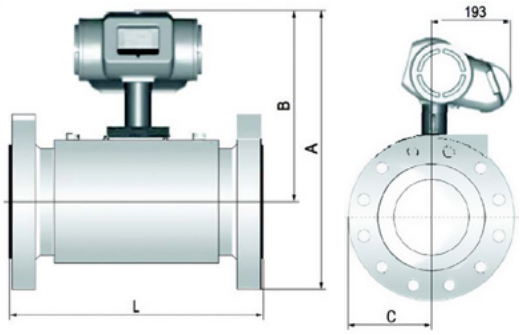
## FLANGE RATING ANSI 900 METRIC

| Meter Size [Inch] | Meter Size [in] | Dimensions [in] | | | | Forged body Material | Weight [lbs] | Length |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | L | | | |
| 3" | DN 80 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 4" | DN 100 | 22,68 | 16,97 | 6,02 | 15,75 | LTCS | 141 | 4D |
| 6" | DN 150 | 24,41 | 16,93 | 7,48 | 23,62 | LTCS | 340 | 4D |
| 8" | DN 200 | 27,05 | 17,80 | 9,25 | 23,62 | LTCS | 522 | 3D |
| 10" | DN 250 | 29,53 | 18,78 | 10,75 | 24,61 | LTCS | 714 | 2,5D |
| 12" | DN 300 | 31,89 | 19,88 | 12,01 | 23,62 | LTCS | 950 | 2D |
| 16" | DN 400 | 35,94 | 22,09 | 12,72 | 31,50 | LTCS | 1457 | 2D |
| 20" | DN 500 | 40,94 | 24,06 | 16,89 | 39,37 | LTCS | 2491 | 2D |
| 24" | DN 600 | 46,57 | 26,06 | 20,51 | 47,24 | LTCS | 4372 | 2D |

## FLANGE RATING ANSI 1500 METRIC

| Meter Size [Inch] | Meter Size [in] | Dimensions [in] | | | | Forged body Material | Weight [lbs] | Length |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | L | | | |
| 3" | DN 80 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 4" | DN 100 | 23,07 | 16,97 | 6,10 | 15,75 | LTCS | 172 | 4D |
| 6" | DN 150 | 24,72 | 16,93 | 7,80 | 23,62 | LTCS | 414 | 4D |
| 8" | DN 200 | 27,36 | 17,80 | 9,57 | 23,62 | LTCS | 637 | 3D |
| 10" | DN 250 | 30,31 | 18,78 | 11,54 | 29,53 | LTCS | 1063 | 3D |
| 12" | DN 300 | 33,15 | 20,59 | 13,31 | 35,43 | LTCS | 1612 | 3D |
| 16" | DN 400 | 37,64 | 22,09 | 16,26 | 39,37 | LTCS | 2703 | 2,5D |
| 20" | DN 500 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| 24" | DN 600 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

| MATERIAL SPECIFICATIONS ANSI 150-1500 (FORGED BODY) | |
|---|---|
| LTCS Forging | ASTM A350-LF2 Cl.1 - 18<br>ASTM A694 up till grade F70 |
| Stainless Steel | ASTM A182-F316 - 22a /<br>ASTM A182-F316L - 22a dual certified |
| ANSI flanges up to 24" (DN600) are as per ASME B16.5 | |
| 3.1 Material certificate as per EN10204; On request: 3.2 Material certificate as per EN10204, PMI (Positive Material Identification), NACE | |




*LTCS: Low Temperature Carbon Steel. Other Materials on Request.*

## FLOW RANGES METRIC - HIGHEST/LOWEST FLOWRANGE PER METER SIZE

| Size | | | Flow range according to MID:2014 / ISO17089:2019 / OIML R137:2014 [cfh] | | | Flow range according to ISO 17089:2019 class 1 & OIML R137:2012 class 1 [cfh] | | | Flow range according to AGA9:2022 [cfh] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [inch] | DN | Max./Min. Internal Diameter as per type approval** [in] | $Q_{min}$ | $Q_t$ | $Q_{max}$ | $Q_{min}$ | $Q_t$ | $Q_{max}$ | $Q_{min}$ | $Q_t$ | $Q_{max}$ |
| 3 | 80 | 2.87<br>2.76 | 372<br>342 | 1916<br>1761 | 19156<br>17614 | 372<br>342 | 1916<br>1761 | 19156<br>17614 | 532<br>489 | 1916<br>1761 | 19156<br>17614 |
| 4 | 100 | 3,82 | 470 | 3382 | 33822 | 470 | 3382 | 33822 | 846 | 3382 | 33822 |
| 6 | 150 | 6.5<br>4.72 | 816<br>431 | 10384<br>5493 | 103843<br>54925 | 816<br>431 | 10384<br>5493 | 103843<br>54925 | 2039<br>1222 | 10384<br>5493 | 103843<br>54925 |
| 8 | 200 | 8.46<br>6.5 | 1385<br>816 | 17631<br>10384 | 176314<br>103843 | 1385<br>816 | 17631<br>10384 | 176314<br>103843 | 2769<br>1903 | 17631<br>10384 | 176314<br>103843 |
| 10 | 250 | 10.63<br>8.07 | 2184<br>1259 | 27806<br>16029 | 278060<br>160294 | 2184<br>1259 | 27806<br>16029 | 278060<br>160294 | 3640<br>2518 | 27806<br>16029 | 278060<br>160294 |
| 12 | 300 | 12.6<br>10.04 | 3067<br>1948 | 39058<br>24802 | 390581<br>248023 | 3067<br>1948 | 39058<br>24802 | 390581<br>248023 | 5112<br>3246 | 39058<br>24802 | 390581<br>248023 |
| 14 | 350 | 13.78<br>8.86 | 3669<br>1516 | 46725<br>19310 | 467247<br>193097 | 3669<br>1516 | 46725<br>19310 | 467247<br>193097 | 5504<br>2780 | 46725<br>19310 | 467247<br>193097 |
| 16 | 400 | 15.75<br>12.8 | 4793<br>3164 | 61028<br>40288 | 610282<br>402882 | 4793<br>3164 | 61028<br>40288 | 610282<br>402882 | 7189<br>4746 | 61028<br>40288 | 610282<br>402882 |
| 18 | 450 | 17.72<br>14.37 | 6066<br>3991 | 66725<br>43898 | 667247<br>438982 | 6066<br>3991 | 66725<br>43898 | 667247<br>438982 | 9099<br>5986 | 66725<br>43898 | 667247<br>438982 |
| 20 | 500 | 19.69<br>15.94 | 7489<br>4913 | 82376<br>54047 | 823761<br>5404710 | 7489<br>4913 | 82376<br>54047 | 823761<br>5404710 | 11233<br>7370 | 82376<br>54047 | 823761<br>5404710 |
| 22 | 550 | 21.65<br>17.72 | 9061<br>6066 | 99675<br>66725 | 996751<br>667247 | 9061<br>6066 | 99675<br>66725 | 996751<br>667247 | 13592<br>9099 | 99675<br>66725 | 996751<br>667247 |
| 24 | 600 | 23.62<br>19.29 | 10784<br>7192 | 118622<br>79114 | 1186216<br>791140 | 10784<br>7192 | 118622<br>79114 | 1186216<br>791140 | 16176<br>10788 | 118622<br>79114 | 1186216<br>791140 |
| 26 | 650 | 25.59<br>23.82 | 12656<br>10964 | 139216<br>120607 | 1392157<br>1206069 | 12656<br>10964 | 139216<br>120607 | 1392157<br>1206069 | 18984<br>16446 | 139216<br>120607 | 1392157<br>1206069 |
| 30 | 750 | 25.59<br>23.82 | 16850<br>14469 | 185346<br>159159 | 1853463<br>1591589 | 16850<br>14469 | 185346<br>159159 | 1853463<br>1591589 | 25274<br>21703 | 185346<br>159159 | 1853463<br>1591589 |
| 36 | 900 | 35.75<br>33.46 | 24534<br>21642 | 269872<br>238067 | 2698725<br>2380670 | 24534<br>21642 | 269872<br>238067 | 2698725<br>2380670 | 36801<br>32464 | 269872<br>238067 | 2698725<br>2380670 |
| 42 | 1050 | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** |
| 48 | 1200 | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** |
| 56 | 1400 | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** | tbd*** |

*** The maximum/minimum diameter will influence several parameters of the Ultrasonicmeter (flowranges, pulses, etc.). Therefore, please reach out to your local sales and proposal team*

**** actual type approval is up to 36" only. Sizes not included (yet) need to be evaluated. Therefore, please reach out to your local sales and proposal team*

# Q.Sonic-max6 Technical Specifications

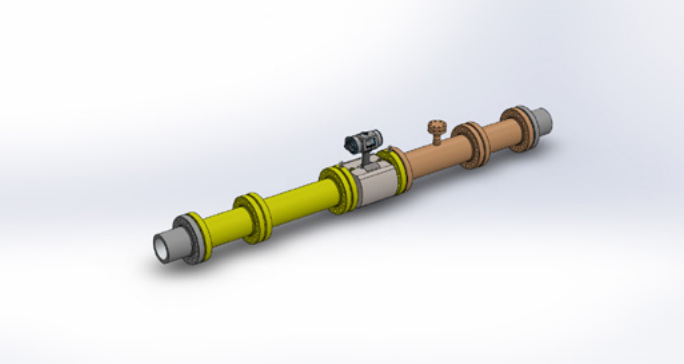
| TECHNICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| Measurement Principle | Ultrasonic transit time measurement | | | | | |
| Sizes | 3" to 24"– larger sizes available upon request (DN 80 to DN 600) till 56" | | | | | |
| Pressure range | **Meter size** | **Pmin (barg)** | These minimum operating pressures are applicable for "standard natural gas", which is defined as follows: | | | |
| | 3" | 58 | | | | |
| | 4" | 29 | **Component** | **Range** | **Component** | **Range** |
| | 6" | 29 | C1 | 0-95 | He | 0-3 |
| | 8" | 29 | N2 | 0-100 | H2 | 0-30 |
| | 10" | 44 | CO2 | 0-1.5 | CO | 0-3 |
| | 12" | 44 | C2 | 0-100 | Ar | 0-1 |
| | 16" | 58 | C4 | 0-6 | H2O | 0-DewPoint |
| | 20" | 73 | C5 | 0-4 | | |
| | 24" | 87 | C6+ | 0-DewPoint | Specific Gravity | 0.55-1.5 |
| Process Temperature Ranges [4] | Standard: -40°C to +60°C (-40°F to +140°F)<br>Extended: -40°C to +80°C (-40°F to +176°F)[5] | | | | MID: -40°C to +55°C (-40°F to +131°F) | |
| Ambient Temperature Range [4] | Standard: -40°C to +60°C (-40°F to +140°F)<br>Extended: -40°C to +55°C (-40°F to +131°F) | | | | MID: -40°C to +55°C (-40°F to +131°F) | |
| Repeatability | ≤0.05%1 [5] | | | | | |
| Typical Uncertainty | 0.5% of measured flow rate after zero flow calibration[2]<br>0.2% of measured flow rate after high-pressure flow calibration[2] | | | | 0.1% of measured flow rate after high-pressure flow calibration and linearization[2]<br>0.3% of measured flow rate after high-pressure flow calibration and linearization (as per AGA9)[1] | |
| Body Materials | Standard: LTCS (low-temperature carbon steel) ASTM A350-LF2 Cl.1 - 18<br>On request: ASTM A350-LF6 Cl. 1 - 18, ASTM A182-F316 - 22a / ASTM A182-F316L - 22a,<br>ASTM A694 up till Grade F70 | | | | | |
| Material Certificate | Standard: 3.1 Material certificate as per EN 10204<br>On request: 3.2 Material certificate as per EN 10204, PMI (Positive Material Identification), NACE | | | | | |
| Body Construction Details | ≤ 16": reduced bore, tapering angle 7° | | | | ≥ 18": full bore | |
| Pressure Reference Points | Standard connection point:: 1pcs ½" NPT(F) | | | | | |
| Electronic Enclosure Material | Signal Processing Unit (SPU) enclosure is made from casted aluminium. Stainless steel enclosure<br>is available as option incl. 5 threaded entries for glands/stopping plugs | | | | | |
| Power Supply | Nominal 24 V DC (18-30 V DC), 10-20 W (depending on installed optional cards) | | | | | |
| Local Display | GUI, 4.3" (10.9 cm) widescreen graphical colour display with 7 capacitive soft keys (touch), LEDs for power and status | | | | | |
| Interfaces | • 2 serial ports (RS 232/485 configurable)<br>• 1 Ethernet port; int. high-speed SHDSL board (and ext. extender) available as option<br>• 2 (high) frequency outputs, 0 to 3kHz / 0 to 5kHz<br>• 2 (low) frequency outputs | | | | • 2 digital outputs[3]<br>• 2 analogue outputs 4-20mA NAMUR[3]<br>• 1 USB port for service purpose only | |
| Communications Protocol | • Modbus (ASCII, RTU, TCP/IP)<br>• UNIFORM | | | | • MMS (Manufacturing Message Specification)<br>• Built-in web server<br>• Transport Layer Security (TLS) encryption (with FW3.40A) | |
| Metrological Approval | MID T10586 (optional)[2] | | | | | |
| MID Accuracy | Class 1.0 | | | | | |
| Metrological Approval | OIML R137/2012- A-NL1-20.07[2] | | | | | |
| OIML Accuracy | Class 1.0 | | | | | |
| Metrological Approval | ISO CoC-3684021-02[2] | | | | | |
| ISO Accuracy | Class 1.0 | | | | | |
| Hazardous Area Approvals | ATEX: Ex db ia [ia Ga] IIB+H2 T6 Gb<br>IECEx: Ex db ia [ia Ga] IIB+H2 T6 Gb | | | | FM: Class I, Division 1, Group A to D T6 | |
| Ingress Protection | IP 66/NEMA Type 4X | | | | | |

*[1] Qt to Qmax*
*[2] Qt to Qmax with straight inlet/outlet*
*- Mild 6D/USM/3D*
*- Severe 3D/NOVA50E/5D/USM/3D 3*

*[3] Analogue outputs and digital outputs sharing the terminal clamps*

*[4] Ranges: subject to application and (hazardous area) approval*

*[5] If Process temperature is +80°C, ambient temperature is to be limited to +55°C*



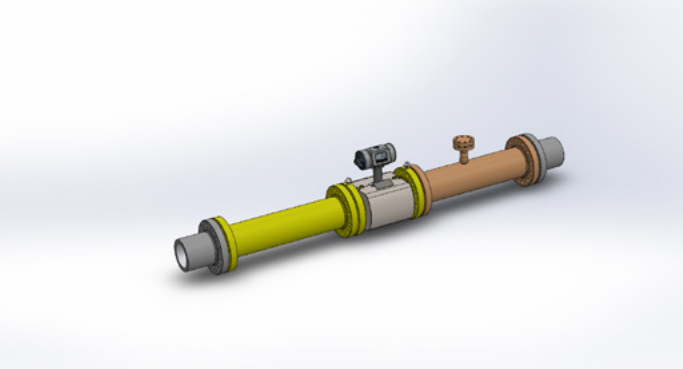
**Severe disturbances with flow conditioner**
3D – FC NOVA50E – 5D – Q.Sonic-max6 – 3D



**Severe disturbances with flow conditioner**
3D – FC NOVA50E – 5D – Q.Sonic-max6 – 5D – FC NOVA50E – 3D



**Q.Sonic-max6 – installation (MID/ISO/OIML)**
Mild disturbances without flow conditioner
6D – Q.Sonic-max6 – 3D



**Q.Sonic-max6 – bi-directional installation (MID/ISO/OIML)**
Mild disturbances without flow conditioner
6D – Q.Sonic-max6 – 6D

## For more information

To learn more about Honeywell Elster's Gas Solutions, visit process.honeywell.com or contact your Honeywell account manager.


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