

“Sensing the pulse of industry”

tekMag TM04 and TM05 Series All Stainless Steel Magnetic Flow Sensors

The **tekMag TM04 and TM05** Series is part of Tekflo’s family of magnetic flow sensors, each refreshingly having the highest signal to media noise ratio, with fast response and attractive prices. They range in sizes from 25 – 150mm (1” – 6”), type dependent.

Production is strictly adhered and certified to ISO 9001 conditions. This assures consistent quality and guarantees to operate correctly to customized conditions straight from the packing crate.

The **tekMag TM04** is an all stainless steel sanitary magnetic flow sensor, suitable for liquid food and beverages. It has USA 3A Approval Tri-Clamp or European DIN 11851 sanitary connections. The design ensures there are no internal crevices or irregularities, which could propagate bacteriological growth, to USA 3A guidelines.

The **tekMag TM05** has the same all stainless steel qualities as **TM04** but utilises industrial threaded connections. It is suitable for many chemicals and water based liquids.

tekMag TM04 and TM05 are no ordinary magnetic flow sensors. Their powerful magnetizing current, complete with adjustable high exciter frequencies, ensures insignificant media noise. For example, normal coatings, such as from various chemicals or calcium carbonate, have virtually no effect on accuracy.

There is a choice of compact or remote Converters, with an accuracy of 0.2% of reading. They have optional communication protocols and certified for use in explosive atmospheres. Please see the separate **tekMag TMC04** specification.

All **tekMags** are supplied with Calibration Certificates traceable to the USA National Institute of Standards and Technology (NIST) and other Internationally recognized standards.

Features:

- + **tekMag** technology offers the highest signal : media noise ratio
- + Suitable for permanent coatings of many chemicals, calcium carbonate and similar
- + High accuracy $\pm 0.2\%$ of reading > 0.1 m/s (0.3 fps) converter dependent
- + Repeatability <math>< 0.1\%</math> of reading > 0.1m/s (0.3 fps)
- + Resolution to 1000th of range
- + No internal crevices or irregularities, meeting USA 3A and European DIN 11851 guidelines
- + Calibration Certificates provided with traceability to USA NIST and other international standards
- + Quality Assurance to ISO 9001
- + Custom calibration guarantees operation to specification straight out of the packing crate
- + Range of sizes 25 – 150mm (1” – 6”), type dependent
- + Meets European EMC Conformity Standards EN 61326 – 1 for use in industrial locations
- + Meets European Pressure Equipment Directive – Sound Engineering Practice



TekMag TM04 Sensor



TekMag TM05 Sensor

tekMag TM04 and TM05 Specification

Accuracy:	< ±0.2% of reading > 0.1 m/s (0.33 fps) to 10m/s (33 fps) < 0.0002 m/s (0.00066 fps) for < 0.1 m/s (0,33 fps)
Maximum mean velocity:	10 m/s (33fps)
Sizes:	25 – 100mm diameter (1” – 6”)
Maximum pressures:	10 bar g (145 psig)
TM04 connections:	USA 3A Tri-Clamp or European DIN 11851 sanitary connections
TM05 connections:	NPT male or BSP parallel
European Pressure Equipment Directive:	tekMags conform to the European Pressure Directive PED97/23/EC, Article 3, Sound Engineering Practice (SEP), Table 7 Group 2, Table 8 Group 1 and Table 9, Group 2 to 10 bar g (145 psig) maximum
Maximum temperatures:	With compact tekMag TMC04 Converters : +100°C (212°F) With remote tekMag TMC04 Converters : +150°C (300°F)
Minimum temperature:	With remote or compact tekMag TMC04 Converters : - 25°C (-13° F)
Media minimum conductivity:	5 micro Siemens/cm (5 micro mhos/cm)
Materials of construction:	AISI 304 non-magnetic stainless steel flow tube, lined. Other construction materials: AISI 316 stainless steel
Electrode materials:	AISI 316L stainless steel, Hastelloy B, Hastelloy C, titanium, platinum, tantalum
Electrode seals:	Viton, Kalrez
Liner materials:	PTFE: F46 polyimide: PFA:
Sensor Protection class:	IP65 / NEMA 4X weatherproof for compact converters. For remote converters: IP67 temporary protection water immersion 1m w.g. IP 68 protected against water immersion to 5 m w.g. for long periods. IP 65 / NEMA 4X weatherproof NEMA 6P protected for water immersion to 5 m w.g for long periods
Cable length:	8 m (26 feet) standard. Special max cable length: 90 meters OR 3 x actual media conductivity 300 feet OR 10 x actual media conductivity whichever is less.
European EMC Conformity:	Meets EN 61326 – 1 Class A, Table 2 for industrial locations
tekMag compatible Converters:	TMC04 (compact), TMC 04 (remote) See separate specifications
Min and max ranges:	Min range 0 – 1 m/s (0 – 3 fps) mean velocity Max range 0 – 10/m/s (0 – 33 fps) mean velocity

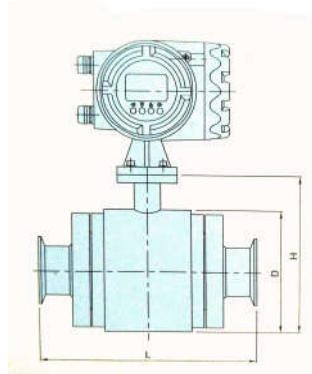
Note: Min Range $m^3/h = 0.0028 \text{ mm nominal size}^2$ Max Range $m^3/h = 0.028 \text{ x mm nominal size}^2$

Max range gpm = 8 x inches nominal size² Max Range gpm = 80 x inches nominal size²

Ranges are expressed 0 – max flow rate required. Choose any range between the min and max Note:

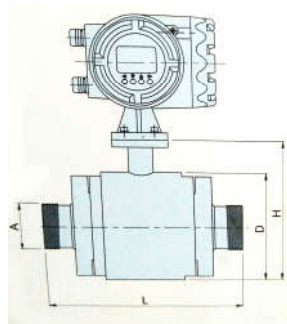
tekMag TM04 Dimensional Details

Nom Diameter		L		H		M Dia.		Compact Weight		Remote Weight	
mm	Ins	mm	Ins.	mm	Ins.	mm	Ins.	kg	lbs	kg	lbs
25	1"	180	7.08"	230	9.06"	91	3.58"	8	18	6	13
32	1.25"	190	7.48"	145	5.71"	105	4.13"	10	22	11	24
40	1.50"	200	7.87"	165	6.50"	120	4.72"	11	24	12	26
50	2"	220	8.66"	180	7.09"	140	5.51"	13	29	13	29
65	2.50"	230	9.06"	190	7.48"	150	5.91"	14	31	16	35
80	3"	250	9.84"	200	7.87"	160	6.30"	17	37	19	42
100	4"	270	10.6"	230	9.06"	190	7.48"	20	44	22	48



tekMag TM05 Dimensional Details

Nom Diameter		L		H		M Dia.		Compact Weight		Remote Weight	
mm	Ins	mm	Ins.	mm	Ins.	mm	Ins.	kg	lbs	kg	lbs
25	1"	190	7.48"	130	5.12"	91	3.58"	8	18	6	13
32	1.25"	200	7.87"	145	5.71"	105	4.13"	10	22	11	24
40	1.50"	220	8.66"	160	6.30"	120	4.72"	11	24	12	26
50	2"	230	9.06"	180	7.09"	140	5.51"	13	29	13	29
65	2.50"	240	9.45"	190	7.48"	150	5.91"	14	31	16	35
80	3"	250	9.84"	200	7.87"	160	6.30"	17	37	19	42
100	4"	270	10.6"	230	9.06"	190	7.48"	20	44	22	48
125	5"	290	11.4"	260	10.2"	220	8.66"	24	53	26	57
150	6"	310	12.2"	280	11.0"	240	9.45"	30	66	32	70



tekMag TM04 and TM05 Ordering Codes

Example: **tekMag TM04** - C3 - 2 - A - 025 - LV - 2 - A - 3 - B - 50 feet - 150gpm
tekMag TM05

Basic Type _____

tekMag Converter _____

TMC04 compact high accuracy converter = C1
 TMC04 remote high accuracy converter = C2
 TMC04 **remote** intrinsically safe to Ex ib IIC T3 – T5 = C3
 TMC04 **remote** flameproof to Ex d IIC T3 – T6 = C4

Process Connections: _____

USA 3A Tri-Clamp sanitary (TM04 only) = 1
 DIN 11851 sanitary (TM04 only) = 2
 BSP parallel (TM05 only) = 3
 NPT taper (TM05 only) = 4

Process Connections / Casing Material: _____

AISI 304 stainless steel = A
 AISI 316 stainless steel = B

Sensor Diameter mm _____

25mm (1") = 025, 32mm (1 ¼") = 032
 40mm (1 ½") = 040, 50mm (2") = 050
 65mm (2 ½") = 065, 80mm (3") = 080
 100mm (4") = 100
 125mm (5") = 125 (TM05 only)
 150mm (6") = 150 (TM05 only)

Electrode Materials: _____

AISI 316L = L, Hast C = C, Hast B = B,
 Titanium = T, Pt = P, Tantalum = A
Note: Electrode Seals ADD V for Viton, K for Kalrez

Liner Materials: _____

PTFE = 1
 FA46 polyimide = 2
 PFA = 3

Protection: _____

IP 65 (NEMA 4X) = A
 IP67 with remote converter = B
 IP68 (NEMA6P) with remote converter = C

Outputs (see separate converter type specifications): _____

4-20mA with scaled pulse output = 1
 4-20mA with scaled pulse output + RS485 = 2
 4-20mA with scaled pulse output + HART = 3

Power Supply: _____

85 – 265 Vac, 50 Hz = A
 85 – 265 Vac, 60 Hz = B
 24V dc = C

Cable Length for Remote Converters: _____

10 m (30 feet) standard = 1
 Longer cable length (specify) = _ m or _ feet cable
 Compact converter – no cable = 2

Flow Range: _____

Select between zero and min or max ranges and state units, eg 0 – 150 gpm



Technical Data Sheet & General Specifications

tekMag TM04 and TM05 Enquiry Form

Customer's Name, Project Name, & Location:						
Detail	Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6
Quantity						
Media Type ADD any special notes, such as Dirty (D), Clean (C), Deionised Water(DW) Note: For energy measurement, solutions of ethylene glycol, propylene glycol, glycol substitutes, or brine, a special flow configuration is necessary. Please provide % solution by weight.....						
Typical Flow Rate With Units						
Min & Max Flow Rate With Units						
Cable Length (8m / 26 feet standard)						
Bi-directional (B)/ Uni-directional (U)						
Pressure Range and Units						
Temperature Range and Units						
Liquid Viscosity and Units						
Explosive Atmosphere and Type Required						
Nominal Pipe Size (N) or ID (I) Specify mm or inches						
Pipe Schedule or Wall Thickness Specify mm or inches						
Straight Pipe Runs Available						
Pipe Material Is Pipe Electrically Isolated (Yes/No)						
Is the flow sensor to be used in an area of magnetic field ? Yes / No						
Electronics Weatherproof (WP), Local (L), or Remote (R)						
Analog and Pulse Frequency						
Is Communication Network Required? If yes, specify which						
Complete Energy System (Yes/No) Requires 2 temperature sensors						
Mass (M) or Volumetric (V) Flow.						
Sensor Submersible (Yes/No) If yes, to how many metres w.g. Not available with temperature sensors						

Note: For energy flow applications a separate Energy Flow Computer is necessary, with an integral temperature sensor and remote temperature sensor for supply and return pipes. Both temperature sensors are matched and require 4-20mA outputs and are provided with identical TekProbe protection.

tekflo sensors®

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Specifications are subject to change without notice