

Ultrasonic Flow Meter

Fixed Installation Clamp On Energy Meter



Transit-Time Ultrasonic Flowmeter



Features:

- Ideal for your Water, HVAC & Chemical Applications
- Clamp-On Transducers
- Line Sizes 0.5" to 100"
- Energy Model, Temperature, BTU

SPECIFICATIONS:

NCMBD-KIT20, 50, 100
NCMBA-KIT20, 50, 100



Includes the following: Transmitter / Indicator

- Enclosure.....Nema 4X(IP65) w/ Mtg Bracket
- Power..... **NCMBD** 10-28 VDC@5VA
NCMBA 90-264 VAC,47-63 Hz
- LCD Display.....Flow rate, total, direction,
Flow 6 digit LCD
programmable units English & Metric.
- Data Entry.....Keypad or usb cable, Software
- Flow Range.....Bi-directional 0.1 to 40 FPS.
- Output..... RS485: Modbus RTU
command set
4-20mA: 12-bit, internal power
0-1,000 Hz: open collector
(2) Alarm: Open-collector,
alarm or totalizer pulse
- Accuracy..... 1% of rate >0.1 FPS(.3 MPS)
within 0.01 FPS (0.003 MPS)
at lower rates.
- Temp..... Transmitter -4⁰ to 185⁰ F

Description

The *NonContact Meters™* NCM Series Clamp-on Ultrasonic Transit Time Flow and Energy Meter installs in seconds on most pipe materials. Recommended for full-pipe clean to dirty liquid applications. Typical examples include water, well water, chilled water, hot water, city water, cooling tower water, deionized water, sea water, sewage and acids.

The NCM is available in two versions: NCMB, a stand-alone flow meter and NCME, an energy flow meter monitoring flow and dual clamp-on RTDs. The energy flow meter measures energy usage in BTU or Tons and is ideal for retrofit, chilled water and other HVAC applications.

Reference the following list for quick ordering of complete KITS.

Part Number	Kits	Price
NCMBA-KIT20	Ultrasonic Flow Meter, Power VAC, Transducer 2" to 36", 20 ft cable & Mtg Kit	
NCMBA-KIT50	Same as NCMBA-KIT20 except with 50 ft of cable	
NCMBA-KIT100	Same as NCMBA-KIT20 except with 100 ft of cable	
NCMBD-KIT20	Ultrasonic Flow Meter, Power VDC, Transducer 2" to 36", 20 ft cable & Mtg Kit	
NCMBD-KIT50	Same as NCMBD-KIT20 except with 50 ft of cable	
NCMBD-KIT100	Same with 100 ft of cable	
NCMEA-KIT20	Energy Ultrasonic Flow Meter, Power VAC, Transducer 2" to 36", 20 ft cable, (2) Clamp-on RTD with 20 ft cable & Mtg Kit	
NCMEA-KIT50	Same as NCMEA-KIT20 except with 50 ft of Transducer cable	
NCMEA-KIT100	Same as NCMEA-KIT20 except with 100 ft of Transducer cable	



Transducers

- Type..... (Pair) 1 MHz transducers, Clamp-On NEMA 6 (IP 67)
- Pipe Size..... 2" to 36"
- Cable Coaxial cable
KIT20 = 20 ft
KIT50 = 50 ft
KIT100 = 100 FT.
- Pipe materials.... Rigid metal or plastic pipe - Carbon steel, ss, cast iron, copper, pvc, aluminum, ductile iron, pvdf & others.
- Mounting Kit..... Mtg strap(s) & sonic coupling compound.
- Temperature..... Transducer, -40 to 250⁰ F (-40 to 121⁰ C)

Ultrasonic Flow Meter

Transit-Time Ultrasonic Flow Meter



If you need to order specific parts, spare parts, accessories, sonic coupling compound, use the following table to customize your shopping list.

Customize

Part Number	Flow Meter Model	
NCMB-ZNDKNN-FN	Transmitter / Indicator with DC Power.	
NCMB-ZNAKNN-FN	Transmitter / Indicator with AC Power.	
NCMB-ZNDKEN-FN	Transmitter / Indicator with Communications ,DC Power.	
NCMB-ZNAKEN-FN	Transmitter / Indicator with Communications ,AC Power.	
	Energy Meter Model	
NCME-ZNDKNB-NN	Transmitter / Indicator with DC Power. *	
NCME-ZNAKNB-NN	Transmitter / Indicator with AC Power *	
NCME-ZNDKEB-NN	Transmitter / Indicator with Comm, DC Power *	
NCME-ZNAKEB-NN	Transmitter / Indicator with Comm ,AC Power *	
	Strap-on RTD's*	
RTD-3B-20	RTD, 20ft wire, mtg kit	
RTD-3B-50	RTD, 50ft wire, mtg kit	
	Transducers	
DTTN-020-N000-N	Pipe Dia 2" to 36" with 20 FT of cable with mounting kit. 1 MHz, STD Temp	
DTTN-050-N000-N	Pipe Dia 2" to 36" with 50 FT of cable with mounting kit. 1 MHz, STD Temp	
DTTN-100-N000-N	Pipe Dia 2" to 36" with 100 FT of cable with mounting kit. 1 MHz, STD Temp	
DTTL-020-N000-N	Pipe Dia 28" to 100" with 20 FT of cable with mounting kit. 0.5 MHz, STD Temp	
DTTL-050-N000-N	Pipe Dia 28" to 100" with 50 FT of cable with mounting kit. 0.5 MHz, STD Temp	
DTTL-100-N000-N	Pipe Dia 28" to 100" with 100 FT of cable with mounting kit. 0.5 MHz, STD Temp	
NOTE:	Transducer < 2 Inch - page 3	
	Options	
NIST-CAL	Annual NIST Calibration, Traceable	
F-100-100	Sonic Silicone Grease, Tube 5oz	
PS-24-300	Power Supply 115 VAC to 24VDC, Panel mt.	

SPECIFICATIONS:

NCMB Flow Meter Model

NCME Energy & Communication Meter Model

Transmitter / Indicator

Enclosure..... Nema 4X(IP65) w/ Mtg Bracket
 Power..... **NCMBD** 10-28 VDC@5VA
NCMBA 90-264 VAC,47-63 Hz
 LCD Display..... Flow Rate, Total, direction,
 Flow 6 digit LCD
 Units..... **Flow Meter:** Feet, gallons,
 cubic feet, million gallons,
 barrels (liquor and oil), acre-
 feet, lbs., meters, cubic Meters,
 liters, million liters, kg
Energy Meter: BTU, MBTU, |
 MMBTU, Tons and the Flow
 Meter list from above
 Data Entry.....Keypad or usb cable, software
 Flow Range.....Bi-directional 0.1 to 40 FPS.
 Output..... RS485: Modbus RTU
 command set
 4-20mA: 12-bit, internal power
 0-1,000 Hz: open collector
 (2) Alarm: Open-collector,
 alarm or totalizer pulse

Communications Option STD
 10/100 Base-T, EtherNet,
 BACnet/IP, Modbus TCP/IP
 (Optional, BACnet/MS/TP)

Energy Meter Option
 3 wire RTD 1000 Ohm
 Meter STD temp range 32 to
 212^o F (-40 to 121^o C).

RTD.....(Option) P/N# RTD-3B-20,
 (set) 3 wire RTD 1000 Ohm,
 20 ft of wire, strap-on kit.
 (Option) P/N# RTD-3B-50
 (set) 50 ft of wire, strap on kit

Accuracy... 1% of rate >0.1 FPS(.3 MPS)
 within 0.01 FPS (0.003 MPS)
 at lower rates.

Temp..... Transmitter -4^o to 185^o F



Transducers

Type..... (Pair) Clamp-on. Nema 6(IP67)
 DTTS 2 MHz,
 DTTN 1 MHz,
 DTTL 0.5 MHz

Pipe Size..... DTTS 0.5 to 2",
 DTTN 2" to 36"
 DTTL 28" to 100".

Cable Coaxial cable
 KIT20 = 20 ft
 KIT50 = 50 ft
 KIT100 = 100 FT.

Pipe materials.... Rigid metal or plastic pipe -
 Carbon steel, ss, cast iron,
 copper, pvc, aluminum, ductile
 iron, pvdf & others.

Mounting Kit..... Mtg strap(s) & Sonic
 coupling compound.

Temperature..... Transducer, -40 to 250^o F
 (-40 to 121^o C)

2 MHz, DTTS-Small Pipe Remote Transducers

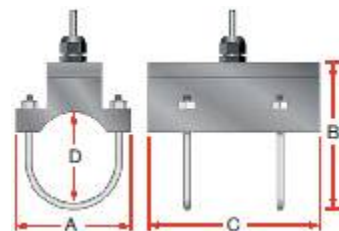
Select a transmitter from page 2 and select a Remote small pipe transducer for pipe sizes 2" to 0.5", Std cable length is 20 ft to make a system. For transmitters with Integral small pipe transducers go to page 4.

Pipe Size	P/N	Pipe Material	A	B	C	D	Measuring Range
1/2"	DTTSDP-020-N000	ANSI Pipe	2.46 (62.5)	1.86 (47.2)	2.50 (63.5)	.840 (21.3)	.5-25 GPM 2-100 LPM
	DTTSDC-020-N000	Copper Tube	2.46 (62.5)	2.13 (54.1)	3.33 (84.6)	.625 (15.9)	.5-25 GPM 2-100 LPM
	DTTSDT-020-N000	Tubing	2.46 (62.5)	1.99 (50.5)	3.33 (84.6)	.500 (12.7)	.5-25 GPM 2-100 LPM
3/4"	DTTSFP-020-N000	ANSI Pipe	2.46 (62.5)	2.07 (52.6)	2.66 (67.6)	1.050 (26.7)	1-55 GPM 4-200 LPM
	DTTSFC-020-N000	Copper Tube	2.46 (62.5)	2.25 (57.2)	3.56 (90.4)	.875 (22.2)	1-55 GPM 4-200 LPM
	DTTSFT-020-N000	Tubing	2.46 (62.5)	2.12 (53.8)	3.56 (90.4)	.750 (19.0)	1-55 GPM 4-200 LPM
1"	DTTSGP-020-N000	ANSI Pipe	2.46 (62.5)	2.42 (61.5)	2.86 (72.6)	1.315 (33.4)	2-100 GPM 8 - 375 LPM
	DTTSGC-020-N000	Copper Tube	2.46 (62.5)	2.37 (60.2)	3.80 (96.5)	1.125 (28.6)	2-100 GPM 8 - 375 LPM
	DTTSGT-020-N000	Tubing	2.46 (62.5)	2.25 (57.2)	3.80 (96.5)	1.000 (25.4)	2-100 GPM 8 - 375 LPM
1-1/4"	DTTSHP-020-N000	ANSI Pipe	2.79 (70.9)	2.68 (68.0)	3.14 (79.8)	1.660 (42.2)	4-150 GPM 15-570 LPM
	DTTSHC-020-N000	Copper Tube	2.46 (62.5)	2.50 (63.5)	4.04 (102.6)	1.375 (34.9)	4-150 GPM 15-570 LPM
	DTTSHT-020-N000	Tubing	2.46 (62.5)	2.37 (60.2)	4.04 (102.6)	1.250 (31.8)	4-150 GPM 15-570 LPM
1-1/2"	DTTSJP-020-N000	ANSI Pipe	3.02 (76.7)	2.92 (74.2)	3.33 (84.6)	1.900 (48.3)	5-220 GPM 18-830 LPM
	DTTSJC-020-N000	Copper Tube	2.71 (68.8)	2.63 (66.8)	4.28 (108.7)	1.625 (41.3)	5-220 GPM 18-830 LPM
	DTTSJT-020-N000	Tubing	2.71 (68.8)	2.49 (63.2)	4.28 (108.7)	1.500 (38.1)	5-220 GPM 18-830 LPM
2"	DTTSLP-020-N000	ANSI Pipe	3.50 (88.9)	3.42 (86.9)	3.69 (93.7)	2.375 (60.3)	8-400 GPM 30-1500 LPM
	DTTSLC-020-N000	Copper Tube	3.21 (81.5)	3.38 (85.9)	4.75 (120.7)	2.125 (54.0)	8-400 GPM 30-1500 LPM
	DTTSLT-020-N000	Tubing	3.21 (81.5)	3.24 (82.3)	4.75 (120.7)	2.000 (50.8)	8-400 GPM 30-1500 LPM

Pipe sizes 1/2" to 2" 12mm to 50mm



ANSI & Copper 2" (50 mm) Models

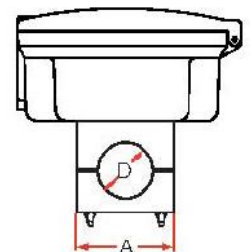
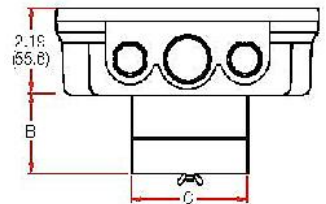


DTTS: Nema 6 (IP67), Temp -40 to 185^o F, (-40 to 85^o C), 2 MHz.
Cable length: STD 20 ft. Optional 50 & 100 ft lengths.

2 MHz, Integral Mount Small Pipe Transducers

The small pipe integral mount series comes with a NCMB or NCME transmitter / indicator and are pre-programmed for a specific pipe size and material. Note the mechanical pipe outside dimension dictate the correct part number. This meter is provided with a keypad to access additional programming, scaling and diagnostics. Programming and diagnostics are also accessible with included USB cable and software kit. Transducer specifications for this series are Nema 6 (IP67) Temperature range -40 to 185⁰ F, (-40 to 85⁰ C) , 2 MHz.

Pipe Size	P/N	Power	Pipe Material	A	B	C	D	Measuring Range
1/2"	NCMB-APAKNNFN	AC	ANSI Pipe	2.46	1.86	2.50	.840	.5-25 GPM
	NCMB-APDKNNFN	DC		(62.5)	(47.2)	(63.5)	(21.3)	2-100 LPM
	NCMB-GPAKNNFN	AC	Copper Tube	2.46	2.13	3.33	.625	.5-25 GPM
	NCMB-GPDKNNFN	DC		(62.5)	(54.1)	(84.6)	(15.9)	2-100 LPM
	NCMB-MPAKNNFN	AC	Tubing	2.46	1.99	3.33	.500	.5-25 GPM
	NCMB-MPDKNNFN	DC		(62.5)	(50.5)	(84.6)	(12.7)	2-100 LPM
3/4"	NCMB-BPAKNNFN	AC	ANSI Pipe	2.46	2.07	2.66	1.050	1-55 GPM
	NCMB-BPDKNNFN	DC		(62.5)	(52.6)	(67.6)	(26.7)	4-200 LPM
	NCMB-HPAKNNFN	AC	Copper Tube	2.46	2.25	3.56	.875	1-55 GPM
	NCMB-HPDKNNFN	DC		(62.5)	(57.2)	(90.4)	(22.2)	4-200 LPM
	NCMB-NPAKNNFN	AC	Tubing	2.46	2.12	3.56	.750	1-55 GPM
	NCMB-NPDKNNFN	DC		(62.5)	(53.8)	(90.4)	(19.0)	4-200 LPM
1"	NCMB-CPAKNNFN	AC	ANSI Pipe	2.46	2.42	2.86	1.315	2-100 GPM
	NCMB-CPDKNNFN	DC		(62.5)	(61.5)	(72.6)	(33.4)	8 - 375 LPM
	NCMB-IPAKNNFN	AC	Copper Tube	2.46	2.37	3.80	1.125	2-100 GPM
	NCMB-IPDKNNFN	DC		(62.5)	(60.2)	(96.5)	(28.6)	8 - 375 LPM
	NCMB-PPAKNNFN	AC	Tubing	2.46	2.25	3.80	1.000	2-100 GPM
	NCMB-PPDKNNFN	DC		(62.5)	(57.2)	(96.5)	(25.4)	8 - 375 LPM
1-1/4"	NCMB-DPAKNNFN	AC	ANSI Pipe	2.79	2.68	3.14	1.660	4-150 GPM
	NCMB-DPDKNNFN	DC		(70.9)	(68.0)	(79.8)	(42.2)	15-570 LPM
	NCMB-JPAKNNFN	AC	Copper Tube	2.46	2.50	4.04	1.375	4-150 GPM
	NCMB-JPDKNNFN	DC		(62.5)	(63.5)	(102.6)	(34.9)	15-570 LPM
	NCMB-QPAKNNFN	AC	Tubing	2.46	2.37	4.04	1.250	4-150 GPM
	NCMB-QPDKNNFN	DC		(62.5)	(60.2)	(102.6)	(31.8)	15-570 LPM
1-1/2"	NCMB-EPAKNNFN	AC	ANSI Pipe	3.02	2.92	3.33	1.900	5-220 GPM
	NCMB-EPDKNNFN	DC		(76.7)	(74.2)	(84.6)	(48.3)	18-830 LPM
	NCMB-KPAKNNFN	AC	Copper Tube	2.71	2.63	4.28	1.625	5-220 GPM
	NCMB-KPDKNNFN	DC		(68.8)	(66.8)	(108.7)	(41.3)	18-830 LPM
	NCMB-RPAKNNFN	AC	Tubing	2.71	2.49	4.28	1.500	5-220 GPM
	NCMB-RPDKNNFN	DC		(68.8)	(63.2)	(108.7)	(38.1)	18-830 LPM
2"	NCMB-FPAKNNFN	AC	ANSI Pipe	3.50	3.42	3.69	2.375	8-400 GPM
	NCMB-FPDKNNFN	DC		(88.9)	(86.9)	(93.7)	(60.3)	30-1500 LPM
	NCMB-LPAKNNFN	AC	Copper Tube	3.21	3.38	4.75	2.125	8-400 GPM
	NCMB-LPDKNNFN	DC		(81.5)	(85.9)	(120.7)	(54.0)	30-1500 LPM
	NCMB-SPAKNNFN	AC	Tubing	3.21	3.24	4.75	2.000	8-400 GPM
	NCMB-SPDKNNFN	DC		(81.5)	(82.3)	(120.7)	(50.8)	30-1500 LPM



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Data Sheet NCMB/E series rev 12.05.11