

Ultrasonic Flow Meter



NCM Series Ultrasonic Flow Meter

Features:

- Clamp-on Transducers
- Pipe sizes 0.5" to 100"
- Bi-directional Flow
- Display Flow Rate / Total / BTU
- Analog, Ethernet, MSTP, RS485, Modbus, TCP/IP, BACnet & more



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

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
NCMBA-KIT20	Ultrasonic Flow Meter, Power VAC, Transducer 2" to 36" pipe size, 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" pipe size, 20 ft cable & Mtg Kit
NCMBD-KIT50	Same as NCMBD-KIT20 except with 50 ft of cable
NCMBD-KIT100	Same as NCMBD-KIT20 except 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

*See page 2 for more energy & communication options

SPECIFICATIONS:

NCMBD-KIT, NCMBA-KIT, NCMEA-KIT

Includes:

Transmitter / Indicator

- Enclosure.....Nema 4X(IP65) w/ Mtg Bracket
- Power..... **NCMBD** 10-28 VDC @ 5W max
NCMBA 90-264 VAC, 47-63 Hz
NCMEA 90-264 VAC, 47-63 Hz
- LCD Display.....Flow rate, total, direction, LCD, 8 digit Pos, 7 digit Neg max programmable units English & Metric.
- Data Entry.....Keypad or usb cable, Software
- Flow Range.....Bi-directional 0.2 to 40 FPS.
- Output..... RS485: Modbus RTU command set, 4-20mA, 0-1,000 Hz Rate Pulse (2) Alarm: (B series) Open-collector, alarm or totalizer pulse.
- Accuracy..... DTTN/DTTL/DTTH > 1 FPS +/- 1% of reading, < 1 FPS +/- 0.2 FPS is typical
- Temp..... Transmitter -40° to 185° F, (-40° to 85° C)



Transducers

- Type..... (Pair) 1 MHz transducers, Clamp-On NEMA 6 (IP 67)
- Pipe Size..... 2" to 36" (typical)
- 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° F (-40 to 121° C)
- RTDs..... NCMEA Strap-on 1000 Ohm Platinum RTDs with cable 20, 50 or 100' Range 32 to 212° F (0 to 100° C) includes mtg kit.

Ultrasonic Flow Meter



Select a transmitter, power, communications and transducer to make a system.

Customize

Part Number	Flow Meter - Transmitter
NCMB-ZNDKNN-FN	Transmitter / Indicator ,DC power
NCMB-ZNAKNN-FN	Transmitter / Indicator AC power
NCMB-ZNCKNN-FN	Transmitter / Indicator 28 VAC power
NCMB-ZNDKEN-FN	Transmitter / Indicator, IP Communications ,DC Power.
NCMB-ZNAKEN-FN	Transmitter / Indicator, IP Communications ,AC Power.
NCMB-ZNCKEN-FN	Transmitter / Indicator, IP Communications ,28 VAC
NCMB-ZNDKBN-FN	Transmitter / Indicator with BACnet MSTP 9600 baud Communications ,DC Power.
NCMB-ZNAKBN-FN	Transmitter / Indicator with BACnet MSTP 9600 baud Communications ,AC Power.
NCMB-ZNCKBN-FN	Transmitter / Indicator with BACnet MSTP 9600 baud Communications ,28 VAC
	Energy Meter - Transmitter
NCME-ZNDKNB-NN	Transmitter / Indicator ,DC power
NCME-ZNAKNB-NN	Transmitter / Indicator AC power
NCME-ZNCKNB-NN	Transmitter / Indicator 28 VAC power
NCME-ZNDKEB-NN	Transmitter / Indicator with IP Com , DC Power
NCME-ZNAKEB-NN	Transmitter / Indicator with IP Com ,AC Power
NCME-ZNCKEB-NN	Transmitter / Indicator with IP Com , 28 VAC Power
NCME-ZNDKBB-NN	Transmitter / Indicator with BACnet MSTP Com , DC
NCME-ZNAKBB-NN	Transmitter / Indicator with BACnet MSTP Com ,AC
NCME-ZNCKBB-NN	Transmitter / Indicator with BACnet MSTP Com ,28 VAC
	Transducers
DTTN-020-N000-N	Pipe Dia 2" to 36" with 20' cable, mtg kit, STD Temp
DTTN-050-N000-N	Pipe Dia 2" to 36" with 50' cable, mtg kit, STD Temp
DTTN-100-N000-N	Pipe Dia 2" to 36" with 100' cable, mtg kit, STD Temp
DTTL-020-N000-N	Pipe Dia 28" to 100" with 20' cable, mtg kit, STD Temp
DTTL-050-N000-N	Pipe Dia 28" to 100" with 50' cable. mtg kit, STD Temp
DTTL-100-N000-N	Pipe Dia 28" to 100" with 100' cable, mtg kit., STD Temp
NOTE:	Transducer < 2 Inch - page 3

SPECIFICATIONS:

NCMB Flow Meter Model

NCME Energy & Communication Meter Model Transmitter / Indicator

- Enclosure..... Nema 4X(IP65) w/ Mtg Bracket
- Power:..... **NCMBD** 10-28 VDC@ 5W Max
NCMBA 90-264 VAC,47-63 Hz
NCMC** 20-28VAC,47.63Hz
- LCD Display.....Flow Rate, Total, direction, Flow 8 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 0.2 to 40 FPS.
- Output.....RS485: Modbus RTU command set
4-20mA: 12-bit, internal power
0-1,000 Hz: open collector
(2) Alarm: (B series)
Open-collector, alarm or totalizer pulse
- Communications...**Communications Options**
10/100 Base-T, EtherNet, BACnet/IP, Modbus TCP/IP (Optional, BACnet/MS/TP)
- Input..... **Energy Meter Option**
3 wire RTD 1000 Ohm
Meter STD temp range 32 to 212⁰ F (0 to 100⁰ C).
- RTD..... P/N# RTD-3B-20,50,100, (pair) 3 wire RTD 1000 Ohm, 20, 50 or 100' of wire, strap-on mtg kit.
- Accuracy..... DTTN/DTTL/DTTH
> 1 FPS +/- 1% of rate.
< 1 FPS +/- 0.1 FPS is typical
- Temp..... Transmitter -4⁰ to 185⁰ F, (-40⁰ to 85⁰ C



Transducers

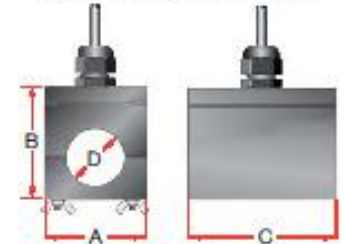
- Type..... (Pair) Clamp-on. Nema 6(IP67)
DTTS 2 MHz,
DTTN 1 MHz,
DTTL 0.5 MHz
- Pipe Size..... DTTS 0.5 to 2",
DTTN 2" to 36"
DTTL 28" to 100".
- Cable Coaxial cable
KIT20 = 20 ft
KIT50 = 50 ft
KIT100 = 100 FT.
- Pipe materials.... Rigid metal or plastic pipe - Carbon steel, ss, cast iron, copper, pvc, aluminum, ductile iron, pvdf & others.
- Mounting Kit..... Mtg strap(s) & Sonic coupling compound.
- Temperature..... Transducer, -40 to 250⁰ F (-40 to 121⁰ C)

2 MHz, DTTS-Small Pipe Remote Transducers

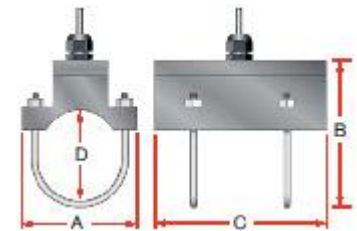
Select a transmitter from page 2 and select a Remote small pipe transducer for pipe sizes 2" to 0.5", Std cable length is 20 ft to make a system. For transmitters with Integral small pipe transducers go to page 4.

Pipe Size	P/N	Pipe Material	A	B	C	D	Measuring Range
1/2"	DTTSDP-020-N000	ANSI Pipe	2.46 (62.5)	2.36 (59.9)	2.66 (67.6)	0.84 (21.3)	2-38 GPM 8-144 LPM
		Copper Tube	2.46 (62.5)	2.36 (59.9)	3.33 (84.6)	0.63 (15.9)	1.8-27 GPM 7-102 LPM
	DTTSDT-020-N000	Tubing	2.46 (62.5)	2.28 (57.9)	3.72 (94.5)	0.50 (12.7)	1.5-18 GPM 6-68 LPM
3/4"	DTTSFP-020-N000	ANSI Pipe	2.46 (62.5)	2.57 (65.3)	2.66 (67.6)	1.05 (26.7)	2.75-66 GPM 10-250 LPM
		Copper Tube	2.46 (62.5)	2.50 (63.5)	3.56 (90.4)	0.88 (22.2)	2.5-54 GPM 10-204 LPM
	DTTSFT-020-N000	Tubing	2.46 (62.5)	2.50 (63.5)	3.56 (90.4)	0.75 (19.0)	2.5-45 GPM 10-170 LPM
1"	DTTSGP-020-N000	ANSI Pipe	2.46 (62.5)	2.92 (74.2)	2.86 (72.6)	1.32 (33.4)	3.5-108 GPM 13-409 LPM
		Copper Tube	2.46 (62.5)	2.87 (72.9)	3.80 (96.5)	1.13 (28.6)	3.5-95 GPM 13-360 LPM
	DTTSGT-020-N000	Tubing	2.46 (62.5)	2.75 (69.9)	3.80 (96.5)	1.00 (25.4)	3.5-85 GPM 13-320 LPM
1-1/4"	DTTSHP-020-N000	ANSI Pipe	2.80 (71.0)	3.18 (80.8)	3.14 (79.8)	1.66 (42.2)	5-186 GPM 19-704 LPM
		Copper Tube	2.46 (62.5)	3.00 (76.2)	4.04 (102.6)	1.38 (34.9)	4.5-152 GPM 17-575 LPM
	DTTSHT-020-N000	Tubing	2.46 (62.5)	3.00 (76.2)	4.04 (102.6)	1.25 (31.8)	4-136 GPM 15-514 LPM
1-1/2"	DTTSJP-020-N000	ANSI Pipe	3.02 (76.7)	3.42 (86.9)	3.33 (84.6)	1.90 (48.3)	6-250 GPM 23-946 LPM
		Copper Tube	2.71 (68.8)	2.86 (72.6)	4.28 (108.7)	1.63 (41.3)	5-215 GPM 19-814 LPM
	DTTSJT-020-N000	Tubing	2.71 (68.8)	3.31 (84.1)	4.28 (108.7)	1.50 (38.1)	5-200 GPM 19-757 LPM
2"	DTTSLP-020-N000	ANSI Pipe	3.70 (94.0)	3.42 (86.9)	5.50 (139.7)	2.375 (60.3)	8-420 GPM 30-1590 LPM
		Copper Tube	3.70 (94.0)	3.38 (85.9)	5.50 (139.7)	2.125 (54.0)	8-375 GPM 30-1419 LPM
	DTTSLT-020-N000	Tubing	3.21 (81.5)	3.85 (98.0)	4.75 (120.7)	2.00 (50.8)	8-365 GPM 30-1381 LPM

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



ANSI & Copper 2" (50 mm) Models

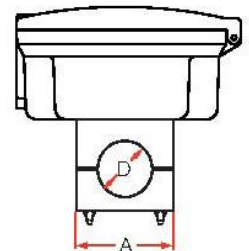
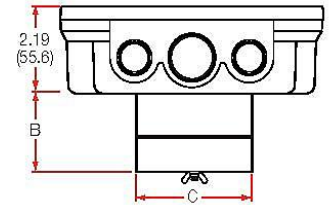


DTTS: Nema 4, (optional Nema 6), Temp -40 to 185^o F, (-40 to 85^o C), 2 MHz.
 Cable length: STD 20 ft. Optional 50 & 100 ft lengths.
 Accuracy: DTTS - sizes 1" to 2" are 1% of reading 10% to 100% of measuring range. +/- 0.1 FPS on rates < 4 FPS. DTTS - sizes 3/4" or < - 1% of full scale. (Refer to Measuring Range chart above. Accuracy is typical after calibration.)

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 4 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	2.36	2.66	0.84	2-38 GPM
	NCMB-APDKNNFN	DC		(62.5)	(59.9)	(67.6)	(21.3)	8-144 LPM
	NCMB-GPAKNNFN	AC	Copper Tube	2.46	2.36	3.33	0.63	1.8-27 GPM
	NCMB-GPDKNNFN	DC		(62.5)	(59.9)	(84.6)	(15.9)	7-102 LPM
	NCMB-MPAKNNFN	AC	Tubing	2.46	2.28	3.72	0.50	1.5-18 GPM
	NCMB-MPDKNNFN	DC		(62.5)	(57.9)	(94.5)	(12.7)	6-68 LPM
3/4"	NCMB-BPAKNNFN	AC	ANSI Pipe	2.46	2.57	2.66	1.05	2.75-66 GPM
	NCMB-BPDKNNFN	DC		(62.5)	(65.3)	(67.6)	(26.7)	10-250 LPM
	NCMB-HPAKNNFN	AC	Copper Tube	2.46	2.50	3.56	0.88	2.5-54 GPM
	NCMB-HPDKNNFN	DC		(62.5)	(63.5)	(90.4)	(22.2)	10-204 LPM
	NCMB-NPAKNNFN	AC	Tubing	2.46	2.50	3.56	0.75	2.5-45 GPM
	NCMB-NPDKNNFN	DC		(62.5)	(63.5)	(90.4)	(19.0)	10-170 LPM
1"	NCMB-CPAKNNFN	AC	ANSI Pipe	2.46	2.92	2.86	1.32	3.5-108 GPM
	NCMB-CPDKNNFN	DC		(62.5)	(74.2)	(72.6)	(33.4)	13-409 LPM
	NCMB-IPAKNNFN	AC	Copper Tube	2.46	2.87	3.80	1.13	3.5-95 GPM
	NCMB-IPDKNNFN	DC		(62.5)	(72.9)	(96.5)	(28.6)	13-360 LPM
	NCMB-PPAKNNFN	AC	Tubing	2.46	2.75	3.80	1.00	3.5-85 GPM
	NCMB-PPDKNNFN	DC		(62.5)	(69.9)	(96.5)	(25.4)	13-320 LPM
1-1/4"	NCMB-DPAKNNFN	AC	ANSI Pipe	2.80	3.18	3.14	1.66	5-186 GPM
	NCMB-DPDKNNFN	DC		(71.0)	(80.8)	(79.8)	(42.2)	19-704 LPM
	NCMB-JPAKNNFN	AC	Copper Tube	2.46	3.00	4.04	1.38	4.5-152 GPM
	NCMB-JPDKNNFN	DC		(62.5)	(76.2)	(102.6)	(34.9)	17-575 LPM
	NCMB-QPAKNNFN	AC	Tubing	2.46	3.00	4.04	1.25	4-136 GPM
	NCMB-QPDKNNFN	DC		(62.5)	(76.2)	(102.6)	(31.8)	15-514 LPM
1-1/2"	NCMB-EPAKNNFN	AC	ANSI Pipe	3.02	3.42	3.33	1.90	6-250 GPM
	NCMB-EPDKNNFN	DC		(76.7)	(86.9)	(84.6)	(48.3)	23-946 LPM
	NCMB-KPAKNNFN	AC	Copper Tube	2.71	2.86	4.28	1.63	5-215 GPM
	NCMB-KPDKNNFN	DC		(68.8)	(72.6)	(108.7)	(41.3)	19-814 LPM
	NCMB-RPAKNNFN	AC	Tubing	2.71	3.31	4.28	1.50	5-200 GPM
	NCMB-RPDKNNFN	DC		(68.8)	(84.1)	(108.7)	(38.1)	19-757 LPM
2"	NCMB-FPAKNNFN	AC	ANSI Pipe	3.70	3.42	5.50	2.375	8-420 GPM
	NCMB-FPDKNNFN	DC		(94.0)	(86.9)	(139.7)	(60.3)	30-1590 LPM
	NCMB-LPAKNNFN	AC	Copper Tube	3.70	3.38	5.50	2.125	8-375 GPM
	NCMB-LPDKNNFN	DC		(94.0)	(85.9)	(139.7)	(54.0)	30-1419 LPM
	NCMB-SPAKNNFN	AC	Tubing	3.21	3.85	4.75	2.00	8-365 GPM
	NCMB-SPDKNNFN	DC		(81.5)	(98.0)	(120.7)	(50.8)	30-1381 LPM



Note(s):

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Data Sheet NCMB/E series rev 1.3.14

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