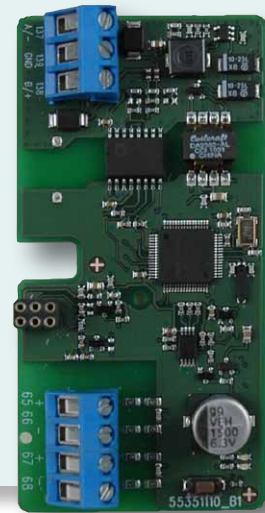


N2 module

DATA SHEET

- **Compatible with Metasys®**
- **N2 Open certified**
- **Two pulse inputs for additional water and electricity meters**
- **RS-485 galvanically isolated from meter**



Communication module for MULTICAL® 601/602/801

Application

N2 Open from Johnson Controls is a widespread and established field bus protocol used within building automation. The N2 module for MULTICAL® ensures a simple integration from Kamstrup's heat and cooling meters to N2 Open based systems.

The N2 module is mounted in MULTICAL® and is used for data transfer from MULTICAL® heat and cooling meters to an N2 Master in a Johnson Controls System.

The module is power supplied from the meter's internal 230 VAC/3.6 VDC or 24 VAC/3.6 VDC supply module.

Functionality

The N2 module transfers accumulated heat energy, accumulated cooling energy, accumulated volume flow, flow temperature, return temperature, temperature difference, actual flow, actual power, accumulated values from additional water and electricity meters. Furthermore infocodes for general alarm, flow error, temperature error, water leakage, pipe burst, air in system, and wrong flow direction are transitted to the N2 Master.

The two pulse inputs allow connection and reading of two additional meters for e.g. water and electricity with pulse output

Reliability

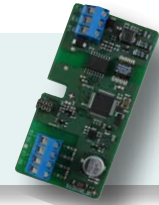
The RS-485 port of the N2 module is galvanically separated from the meter's voltage potential thereby improving the security for smooth operations. At the same time, the risk of influencing the meter due to influences of the RS-485 port is reduced to a minimum.

The N2 module is in full compliance with and included in the MID approval for MULTICAL®



N2 module

DATA SHEET



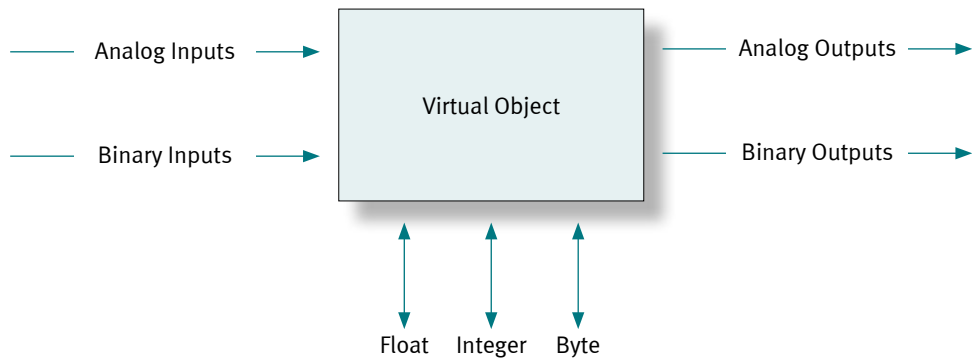
Address areas

The N2 module can be addressed in the area 1-255. The address of the N2 module is determined by the last three digits of the meter's customer number. If the customer number of the meter results in an address larger than 255, only the last two digits are used for the address of the N2 module.

Please note: If the customer number of the meter ends with 000, the N2 module will automatically change the address to 255.

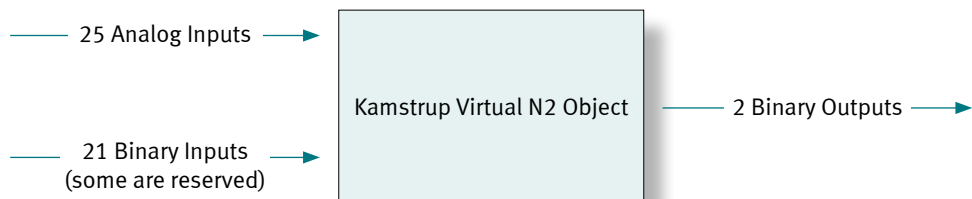
The address of the N2 module, is changeable via the optical interface of the meter and the PC program METERTOOL. Please contact Kamstrup for further information.

Metasys® N2 Object



Kamstrup's N2 module for MULTICAL® is based on "N2 point mapping table for BTU meters" from Johnson Controls.

In overall terms, the N2 module for MULTICAL® can be characterised as a virtual object with 25 analog inputs, 21 digital inputs and 2 digital outputs.



N2 module

DATA SHEET



Metasys® N2 Object

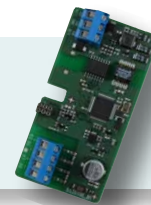
The below table shows the inputs and outputs as well as their links to the MULTICAL® registers.

N2 Point – KMP Register mapping

N2 NPT	NPA	Unit	Format	RW	Description	KMP RegID	Name	Notes
AI Region 1	1	L	6;0	R	Volume Heat (low)	68	V1	If BI7 = 0
	2	m³	6;0	R	Volume Heat	68	V1	If BI7 = 0
	3	Wh or kWh	3;0	R	Thermal Energy Heat (low)	60	E1	999999,999 E1
	4	kWh or MWh	6;0	R	Thermal Energy Heat (high)	60	E1	999999,999 E1
	5	Wh or kWh	3;0	RClr	Thermal Energy Heat (low) partial	-na-	E1*	Internal counter based on E1
	6	kWh or MWh	6;0	RClr	Thermal Energy Heat (high) partial	-na-	E1*	Internal counter based on E1
	7	L	6;0	R	Volume Cool (low)	68	V1	If BI7 = 1
	8	m³	6;0	R	Volume Cool (high)	68	V1	If BI7 = 1
	9	Wh or kWh	3;0	R	Thermal Energy Cool (low)	63	E3	999999,999 E3
	10	kWh or MWh	6;0	R	Thermal Energy Cool (high)	63	E3	999999,999 E3
	11	Wh or kWh	3;0	RClr	Thermal Energy Cool (low) partial	-na-	E3*	Internal counter based on E3
	12	kWh or MWh	6;0	RClr	Thermal Energy Cool (high) partial	-na-	E3*	Internal counter based on E3
	13	L	6;0	R	Volume Hot Water (low)	85	In B	From pulse input B
	14	m³	6;0	R	Volume Hot Water (high)	85	In B	From pulse input B
	15	L	6;0	RClr	Volume Hot Water (low) partial	-na-	In B *	Internal counter based on V2
	16	m³	6;0	RClr	Volume Hot Water (high) partial	-na-	In B *	Internal counter based on V2
	17	L	6;0	R	Volume Cold Water (low)	84	In A	From pulse input A
	18	m³	6;0	R	Volume Cold Water (high)	84	In A	From pulse input A
	19	L	6;0	RClr	Volume Cold Water (low) partial	-na-	In A*	Internal counter
	20	m³	6;0	RClr	Volume Cold Water (high) partial	-na-	In A*	Internal counter
	21	kW	6;0	R	Thermal Power	80	Pwr1	
	22	m³/h	6;1	R	Flow rate	74	Flow1	
	23	°C	6;1	R	Flow Temperature	86	T1	
	24	°C	6;1	R	Return Temperature	87	T2	
	25	°C	6;1	R	Delta Temperature	89	T1-2	
BI Region 2	1	number	a2 b4	R	General Alarm	99	INFO	0: All OK, 1: INFO 1 0
	2	number	a2 b4	R	RAM backup Alarm	-na-	INFO	Always 0
	3	number	a2 b4	R	ADC Alarm	-na-	INFO	Always 0
	4	number	a2 b4	R	Flow Temperature Alarm	99	INFO	T1 fault (bit 3)
	5	number	a2 b4	R	Return Temperature Alarm	99	INFO	T2 fault (bit 2)
	6	number	a2 b4	R	Delta Temperature Alarm	99	INFO	T1, T2 or T3 fault (bit 2,3,5)
	7	number	a2 b4	R	Plant Type: 0=Heat, 1=Cool	153	Cfg1	MULTICAL DDD always
	8	number	a2 b4	R	Local/Remote 0=Local	-na-		Always 0, Cfg by meter.
	9-15			R	reserved	-na-		Always 0
	16	number	a2 b4	R	Leakage Cold Water Alarm	99	INFO	(bit 6)
	17	number	a2 b4	R	Leakage Heat Alarm	99	INFO	(bit 8)
	18	number	a2 b4	R	Burst of Heat pipe Alarm	99	INFO	(bit 9)
19	number	a2 b4	R	Air in pipe Alarm	99	INFO	ULTRAFLOW V1 air (bit 12)	
20	number	a2 b4	R	Flow sensor com. fault	99	INFO	ULTRAFLOW V1 com. (bit 4)	
21	number	a2 b4	R	Wrong flow direction Alarm	99	INFO	ULTRAFLOW V1 dir. (bit 14)	
BO Region 4	1	number	ignored	W	Plant Type: Controlled by meter	-na-		Not used BI8 = 0 always
	2	number	a2 b1,6	W	Reset partial counts: 1=Clear	-na-		Clears all internal counters

N2 module

DATA SHEET



Connection

The module is mounted in the connecting base of the meter in the following way:

The module is placed in the "Snap" at an angle and is thereafter pushed towards the connecting base until the "Release" clicks around the meter's PCB.

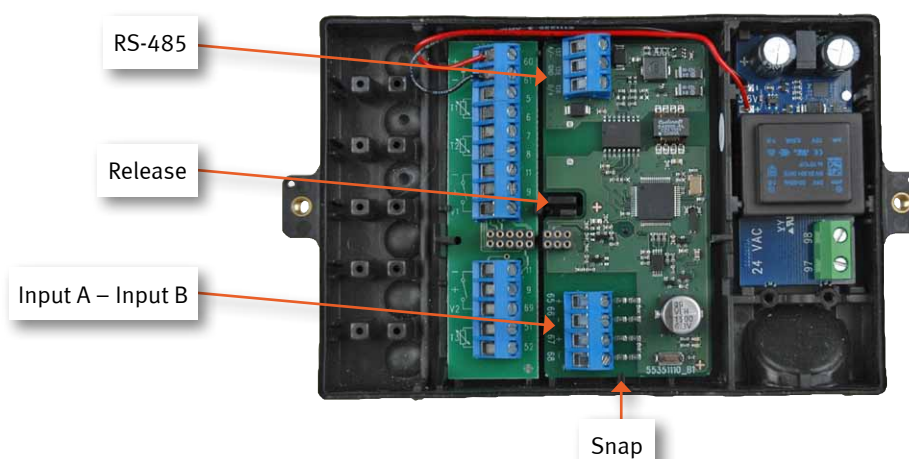
The module is removed in the following way:

The module is released by pressing the "Release" upwards, and at the same time drawing the connection terminals at the top of the module.

Electrical connection:

The N2 module is automatically connected with the meter via the 6-pole connector just below the "Release" when the top part of the meter is mounted.

The RS-485 cable is connected via the cable inlets to the right on the connecting base.



Technical data

Power supply	3.6 VDC +/- 0.1 VDC, max 32 mA. The module is supplied by the integrated 230 VAC or 24 VAC power supply of the meter.
Address area	1-255, determined by the last three digits of the meter's customer number.
Data communication	2-Bus, RS-485 (9600, 8, N, 1)
Connection	RS-485 (2-wire, Half-duplex)
Baud rate	9600 (N2 standard)
Data bits	8
Stop bit	1
Parity	No
Update frequency	The N2 module collects new values in the meter every 10 secs.

Ordering

Type No.	Model No.	Description
67-00-62-000-000	5550-110	Metasys N2 (RS-485) + 2 pulse inputs (VA, VB) module