



-power in control

SWITCHBOARD INSTRUMENTATION



MIC, Multi-instrument

- choosing multi-instruments just got a lot easier

- Three-phase measurements of more than 50 parameters
 - Min./max. measurements with configurable outputs
 - RS485 Modbus communication is standard
 - Four-quadrant energy measurement

Advanced functionality offered at entry-level prices

The multi-instrument MIC from DEIF is a microprocessor-based measuring unit providing measurement of more than 50 parameters on a three-phase network. The individual measurements are indicated on the display and transmitted as an RS485 serial output.

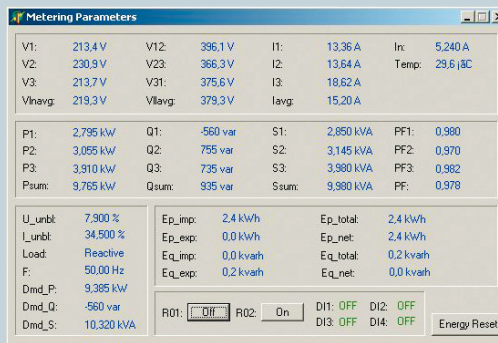
In order to provide you the easiest possible choice we have decided NOT to base the features of the MIC on options. Choosing the MIC you can forget all about time consuming product comparisons and product configurations - the MIC gives you advanced functionality for prices matching the basic versions of the alternative solutions.

Replacing several analogue meters and dramatically bringing down the wiring time the MIC is an obvious choice for gaining cost savings. In addition, MIC's serial interface makes it ideal for use as a remote valuereading unit transmitting to the remote control system or as 'transducer' for PLCs.

And it is an eye-opener too. With its powerful, blue illumination and remarkable design, the MIC will surely look good in your panel front.



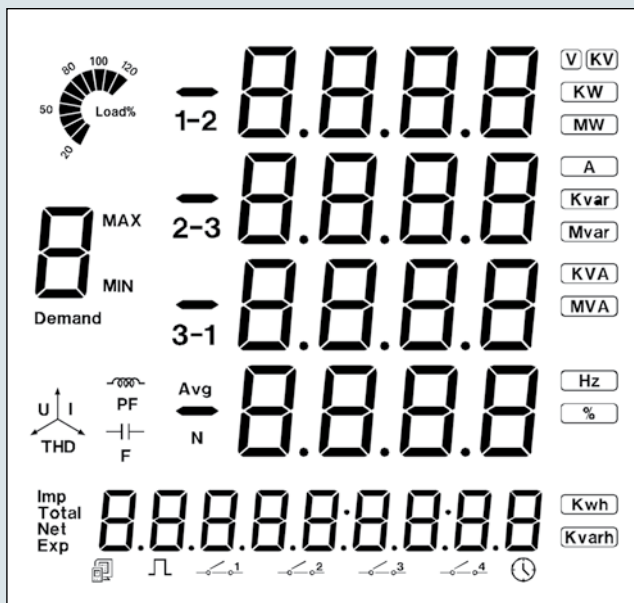
The bright blue display is not only easy to read, it also makes your solutions look good!



Free utility software for easy set-up of the device and for (remote) reading of all measured and calculated values.

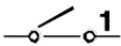


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	MIC 4002	MIC 4224
Display	LCD	LCD
I/O's		
RS485 Modbus	X	X
Relay outputs		2
Digital outputs		2
- configurable as min/max alarms or energy counter		X
Digital inputs	2	4
- display as open/closed breaker symbols	X	X
Measuring voltage (wo/ VT's)	400	400
Current input	5	5
Aux. voltage AC	85-264	85-264
Aux. voltage DC	24-48, 100-280	24-48, 100-280
Frequency	50/60	50/60
Build in depth (mm)	55	55
Memory		
Memory (non volatile), set-up	X	X
Memory (non volatile), measured min./max. values	X	X
Accuracy		
U, I, f	0.2/0.5	0.2/0.5
- others	0.5	0.5

Simplicity providing ease of installation and use

Icon	Function	Description
	Four lines of big digits in the metering area	Display metering data Voltage, current, power, power factor, frequency, THD, demand, unbalance factor, max, min etc.
	One line of smaller digits in the energy display area	Energy data display or running hours counter
	Load rating	Display load current percentage
Max, min., etc.	Item label – letter abbreviation plus text: MAX, MIN, Avg, Demand, PF, F, and THD	U: voltage, I: current, P: power, q: reactive power, S: apparent power, PF: power factor, F: frequency MAX: maximum value, MIN: minimum value, Demand: Max. demand value, Avg: average value, I with N: neutral current, PF, F, Avg and N indicate
	Three phase unbalance label	With letter U: voltage unbalance factor With letter I: Current unbalance factor
	Load nature	Inductor: inductive load Capacitor label: capacitive load
Imp Total Net Exp	Energy label	imp: consumption energy exp: generating energy total: absolute sum of imp and exp energy net: algebraic sum
	Communication indicator	One label: inquiry Two labels: inquiry and answer
	Energy pulse output indicator	Off: no pulse output On: pulse output
	Digital input indicator	Switch 1 to 4 indicate DI1 to DI4
	Running hours label	Running hour display in energy area
	Unit	Indicate data unit Voltage: V, KV, Current: A, Power: KW and MW, Reactive Power: Kvar and Mvar, Apparent Power: KVA and MVA, Frequency: Hz, Energy: Kwh, Reactive Power: Kvarh, Percentage: %

Alarm Settings

Group 1: Status: ACTIVE D01: ON D02: OFF Limit: Below Item: F (Frequency) Value: 50.00 Hz

Group 2: Status: ACTIVE D01: OFF D02: ON Limit: Above Item: Iavg (Current Average) Value: 20.00 A

Group 3: Status: OFF D01: OFF D02: OFF Limit: Below Item: F (Frequency) Value: 0.00 Hz

Group 4: Status: OFF D01: OFF

Group 5: Status: OFF D01: OFF

Group 6: Status: OFF D01: OFF

Group 7: Status: OFF D01: OFF

Group 8: Status: OFF D01: OFF

Group 9: Status: OFF D01: OFF D02: OFF Limit: Below Item: F (Frequency) Value: 0.00 Hz

Alarm Delay: 1200 ms

Set

Meter Settings

Access Code: 0000 D01 (Pulse) Selecting: Ep+ R01-Output Mode: Momentary PT1 400

Meter Address: 1 D02 (Pulse) Selecting: Eq+ R01-Momentary On Time: 3000 ms PT2 400

Baud Rate: 9600 Pulse Width: 40 ms R02-Output Mode: Latch CT1 25

Voltage Wiring: 3LN Pulse Rate: 1 R02-Momentary On Time: 100 ms DO Mode: Energy Pulse

Current Wiring: 3CT Demand Window Width: 15 Min Backlight On Time: 1 Min

Set

The setting of the MIC can be done either via the push-buttons on the front or swiftly via the free utility software. The utility software is also used for configuration of alarm levels triggering the digital outputs - meaning that the MIC can potentially replace protection relays and the like.

Simplicity providing ease of installation and use

Below is a list of the features of the standard MIC. If you require features not on the list, please contact DEIF for a discussion of the vast possibilities such as event-logging, more/other power quality parameters, alternative I/O-configuration, etc. The MIC is based on a very flexible hardware platform allowing for a perfectly matched solution also to your application!



	Available measurements	MIC 4002 / 4224
Voltage	Phase Voltages (L-N)	X
	Average Phase Voltages (L-N)	X
	Line Voltages (L-L)	X
	Average Line Voltages (L-L)	X
	Voltage unbalance factor	X
Current	Phase Current	X
	Average Current	X
	Neutral Current	X
	Bimetallic function (adjustable)	X
	Current unbalance factor	X
Power	Active Power	X
	Total Active Power	X
	Reactive Power	X
	Total Reactive Power	X
	Apparent Power	X
	Total Apparent Power	X
	Power Factor	X
	Total Power Factor	X
	Kwh (I, E, T, N)	IETN
	Kvarh (I, E, T, N)	IETN
Various	Running hours counter	X
	Real time clock	X
	Angle between phases	X
	Frequency	45-65
Max./min.	Phase Voltages (L-N)	X
	Line Voltages (L-L)	X
	Phase Current	X
	Total Power	X
	Total Reactive Power	X
	Total Apparent Power	X
	Average system power factor	X
	Frequency	X
THD	THD phase voltages (L-N)	X
	THD average phase voltages (L-N)	X
	THD line voltages (L-L)	X
	THD average line voltages (L-L)	X
	THD phase current (L)	X
	THD average phase current (L)	X



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