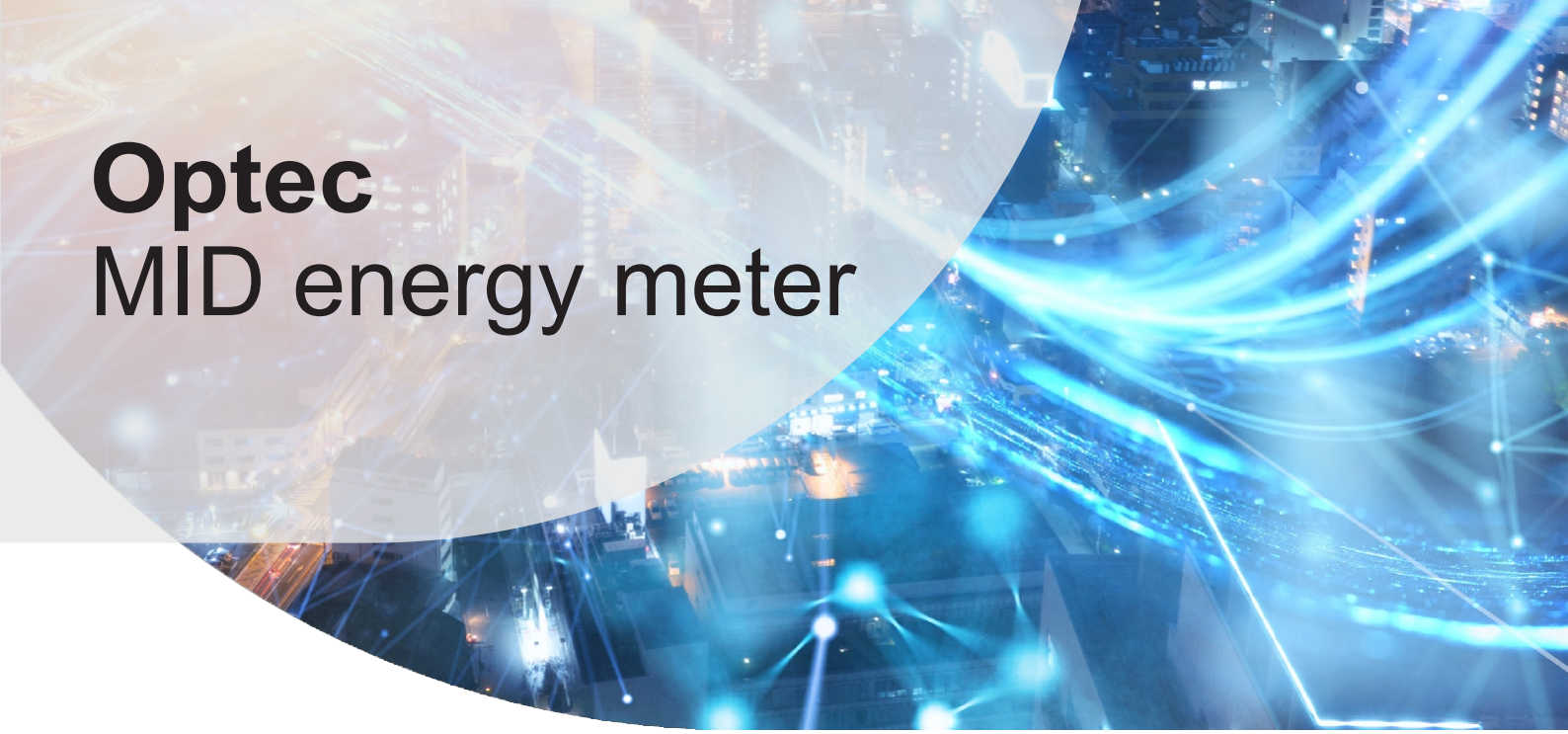

Optec
MID energy meter

MAGNITUDE SUMMATION VERSUS VECTORIAL SUMMATION

- There are two measurement methods for smart metering systems:
  - Amount summation
  - Vector summation
- Amount summation always takes into account the individual phase load depending on the sign and writes it either to the supplied or consumed energy register.
- The vector sum always forms the sum of all phases regardless of the signs of the individual phases.
  If the sum of all phases is positive, the register describes the energy consumed; if the sum is negative, the register describes the energy supplied.
- If a single-phase battery storage system or single-phase energy generation system is present, we always recommend using a vector summing energy meter.

COMPARISON OF VECTORIAL AND AMOUNT SUMMATION

Criterion	Amount summation	Vector summation
Takes cos(φ) into account	Yes	Yes
MID certified	Yes	Yes
Class 1 for active energy	Yes	Yes
Offsetting of energy consumers and producers on the same register	No	Yes

Important:

All functions and possible uses of the meters remain unchanged – only the type of summation has changed. The prices also remain the same.

PRACTICAL EXAMPLE

Phase 1: 40W
Phase 2: -25W
Phase 3: 50W

Vector summation example
+P: 40W - 25W + 50W = 65W
–P: 0W

Amount summing example
+P: 40W + 50W = 90W
–P: -25W

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PRODUCT COMPARISON TABLE

Item no.	Summation	Communication	Connection	Connection type	Optional modules
HC.ECSOP65	Amount	M-Bus	80 A	Direct	No
HC.ECSOP65-V	Vector	M-Bus	80 A	Direct	No
HC.ECSOP66	Amount	Modbus	80 A	Direct	No
HC.ECSOP66-V	Vector	Modbus	80 A	Direct	No
HC.ECSOP68	Amount	M-Bus	1-5 A	Converter	No
HC.ECSOP68-V	Vector	M-Bus	1-5 A	Converter	No
HC.ECSOP69	Amount	Modbus	1-5 A	Converter	No
HC.ECSOP69-V	Vector	Modbus	1-5 A	Converter	No
HC.ECSPM64	Amount	SO	80 A	Direct	Yes
HC.ECSPM64-V	Vector	SO	80 A	Direct	Yes
HC.ECSPM65	Amount	M-Bus	80 A	Direct	Yes
HC.ECSPM65-V	Vector	M-Bus	80 A	Direct	Yes
HC.ECSPM66	Amount	Modbus	80 A	Direct	Yes
HC.ECSPM66-V	Vector	Modbus	80 A	Direct	Yes
HC.ECSPM67	Amount	SO	1-5 A	Converter	Yes
HC.ECSPM67-V	Vector	SO	1-5 A	Converter	Yes
HC.ECSPM68	Amount	M-Bus	1-5 A	Converter	Yes
HC.ECSPM68-V	Vector	M-Bus	1-5 A	Converter	Yes
HC.ECSPM69	Amount	Modbus	1-5 A	Converter	Yes
HC.ECSPM69-V	Vector	Modbus	1-5 A	Converter	Yes

Contact

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