

PQ – MAVOWATT 2xx: MODBUS Schnittstellenbeschreibung

Produktgruppe:	PQ: Prüfgeräte Netzqualität
Produkt:	MAVOWATT 230/240/270/270-400
Stand:	28.04.2022



1 Einführung

Diese Schnittstellenbeschreibung enthält Einzelheiten zur Adressierung / Befehlsoperanden für den Betrieb eines MAVOWATT 230 / 240 / 270 oder 270-400 in einer Modbus-Umgebung.

2 Information

Die MAVOWATT 2xx - Serie stellt Messwerte über das Modbus-Protokoll zur Verfügung, das auf den Transportprotokollen TCP/IP, TCP/PPP oder asynchron-seriell (RS-485) läuft.

3 Einrichten des Messgerätes

Alle Modbus-Register enthalten vorkalierte 32-Bit-Gleitkommawerte. Jedes 32-Bit-Register erfordert zwei Modbus-Adressen (zwei 16-Bit-Register).

4 Modbus Adressen

Modbus Register	Units	Abbreviation	Register Description
40001	Volts	Vrms-a	Phase A to Neutral RMS Volts
40003	Volts	Vrms-b	Phase B to Neutral RMS Volts
40005	Volts	Vrms-c	Phase C to Neutral RMS Volts
40007	Volts	Vrms-d	Phase D to Ground RMS Volts
40009	Volts	Vrms-ab	Phase A to B RMS Volt
40011	Volts	Vrms-bc	Phase B to C RMS Volt
40013	Volts	Vrms-ca	Phase C to A RMS Volt
40015	Volts	Vdc-a	Phase A DC Voltage
40017	Volts	Vdc-b	Phase B DC Voltage
40019	Volts	Vdc-c	Phase C DC Voltage
40021	Volts	Vdc-d	Phase D DC Voltage
40023	Volts	Vdc-ab	Phase A to B DC Voltage
40025	Volts	Vdc-bc	Phase B to C DC Voltage
40027	Volts	Vdc-ca	Phase C to A DC Voltage
40099	Volts	VrmsFunda	Phase A to Neutral RMS Fund Volts
40101	Volts	VrmsFund-b	Phase B to Neutral RMS Fund Volts
40103	Volts	VrmsFund-c	Phase C to Neutral RMS Fund Volts
40105	Volts	VrmsFund-d	Phase D to Ground RMS Fund Volts
40107	Volts	VrmsFund-ab	Phase A to B RMS Fund Volts
40109	Volts	VrmsFund-bc	Phase B to C RMS Fund Volts

Modbus Register	Units	Abbreviation	Register Description
40111	Volts	VrmsFund-ca	Phase C to A RMS Fund Volts
40113	Degrees	Vdeg-a	Channel A voltage phase
40115	Degrees	Vdeg-b	Channel B voltage phase
40117	Degrees	Vdeg-c	Channel C voltage phase
40119	Degrees	Vdeg-d	Channel D Voltage phase
40121	Degrees	Vdeg-ab	Channel A-B voltage phase
40123	Degrees	Vdeg-bc	Channel B-C voltage phase
40125	Degrees	Vdeg-ca	Channel C-A voltage phase
40127	percent	Vunbal-a	Phase A to Neutral Imbalance (from Avg)
40129	percent	Vunbal-b	Phase B to Neutral Imbalance (from Avg)
40131	percent	Vunbal-c	Phase C to Neutral Imbalance (from Avg)
40133	Percent	Vunbal-max	Worst Phase to Neutral Imbalance (from Avg)
40135	Volts	HVseqzro	Voltage Zero Sequence Component
40137	Volts	Hvseqpos	Voltage Positive Sequence Component
40139	Volts	Hvseqneg	Voltage Negative Sequence Component
40141	Volts	HVubalneg	Total Neg Sequence Voltage Unbalance
40143	Volts	HVubalzro	Total Zero Sequence Voltage Unbalance
40145	Hz	Freq	Line Freq at sync channel
41001	Amps	Irms-a	Phase A RMS Current
41003	Amps	Irms-b	Phase B RMS Current

Modbus Register	Units	Abbreviation	Register Description
41005	Amps	Irms-c	Phase C RMS Current
41007	Amps	Irms-d	Phase D RMS Current
41009	Amps	Idc-a	Phase A DC Current
41011	Amps	Idc-b	Phase B DC Current
41013	Amps	Idc-c	Phase C DC Current
41015	Amps	Idc-d	Phase D DC Current
41057	Amps	IrmsFund-a	Phase A Fund RMS Current
41059	Amps	IrmsFund-b	Phase B Fund RMS Current
41061	Amps	IrmsFund-c	Phase C Fund RMS Current
41063	Amps	IrmsFund-d	Phase D Fund RMS Current
41065	Degrees	Ideg-a	Channel A current phase
41067	Degrees	Ideg-b	Channel B current phase
41069	Degrees	Ideg-c	Channel C current phase
41071	Degrees	Ideg-d	Channel D current phase
41073	percent	Iunbal-a	Phase A Current Unbalance
41075	percent	Iunbal-b	Phase B Current Unbalance
41077	Percent	Iunbal-c	Phase C Current Unbalance
41079	percent	Iunbal-max	Worst Phase Current Unbalance
41081	Amps	Iseqzro	Current Zero Sequence Component
41083	Amps	Iseqpos	Current Positive Sequence Component

Modbus Register	Units	Abbreviation	Register Description
41085	Amps	Iseqneg	Current Negative Sequence Component
41087	Amps	HIunbalneg	Total neg Sequence Current Unbalance
41089	Amps	HIunbalZero	Total Zero Sequence Current Unbalance
41091	Amps	Ires	Residual Current
41093	Amps	I _{net}	Net Current
42001	Watts	W-a	Phase A Active Power
42003	Watts	W-b	Phase B Active Power
42005	Watts	W-c	Phase C Active Power
42007	Watts	W-d	Phase D Active Power
42009	Watts	Total	Phase Total Active Power
42011	VA	VAArithTot	Total Apparent Power Arithmetic Method
42013	VA	VAVectTot	Total Apparent Power Vector Method
42015	VA	VAFundArithTot	Total Apparent Fund Power Arithmetic Method
42017	VA	VAFundVecTot	Total Apparent Fund Power Vector Method
42019	Watts	Wfund-a	Phase A Active Fund Power
42021	Watts	Wfund-b	Phase B Active Fund Power
42023	Watts	Wfund-c	Phase C Active Fund Power
42025	Watts	Wfund-d	Phase D Active Fund Power

Modbus Register	Units	Abbreviation	Register Description
42027	VARS	VARfund-tot	Total Active Fund Power
42029	VARS	VARfund-a	Phase A Reactive Fund Power
42031	VARS	VARfund-b	Phase B Reactive Fund Power
42033	VARS	VARfund-c	Phase C Reactive Fund Power
42035	VARS	VARfund-d	Phase D Reactive Fund Power
42037	VARS	VARfund-tot	Total Reactive Fund Power
42039	VA	VA-a	Phase A Apparent Power
42041	VA	VA-b	Phase B Apparent Power
42043	VA	VA-c	Phase C Apparent Power
42045	VA	VA-d	Phase D Apparent Power
42047	p.u.	TPF-a	Phase A True Power Factor
42049	p.u.	TPF-b	Phase B True Power Factor
42051	p.u.	TPF-c	Phase C True Power Factor
42053	p.u.	TPF-d	Phase D True Power Factor
42055	p.u.	DPF-a	Phase A Displacement Power Factor
42057	p.u.	DPF-b	Phase B Displacement Power Factor
42059	p.u.	DPF-c	Phase C Displacement Power Factor
42061	p.u.	DPF-d	Phase D Displacement Power Factor

Modbus Register	Units	Abbreviation	Register Description
42063	Degrees	Vldeg-a	Channel A Volts to Amps phase
42065	Degrees	Vldeg-b	Channel B Volts to Amps phase
42067	Degrees	Vldeg-c	Channel C Volts to Amps phase
42069	Degrees	Vldeg-d	Channel D Volts to Amps phase
42075	p.u.	TPFv-tot	Total True Power Factor Vector Method
42077	p.u.	TPFa-tot	Total True Power Factor Arithmetic Method
42083	p.u.	DPFvect-tot	Total Displacement Power Factor Vector Method
42085	p.u.	DPFarth-tot	Total Displacement Power Factor Arithmetic Method
43001	percent	Vthd-a	Volts THD Phase A Norm to Fund
43003	percent	Vthd-b	Volts THD Phase B Norm to Fund
43005	percent	Vthd-c	Volts THD Phase C Norm to Fund
43007	percent	Vthd-d	Volts THD Phase D Norm to Fund
43071	percent	HVudev-a	Phase A Vrms Under Deviation
43073	percent	HVudev-b	Phase B Vrms Under Deviation
43075	percent	HVudev-c	Phase C Vrms Under Deviation

Modbus Register	Units	Abbreviation	Register Description
43077	percent	HVudev-ab	Phase A-B Vrms Under Deviation
43079	percent	HVudev-bc	Phase B-C Vrms Under Deviation
43081	percent	HVudev-ca	Phase C-A Vrms Under Deviation
43083	percent	HVodev-a	Phase A Vrms Over Deviation
43085	percent	HVodev-b	Phase B Vrms Over Deviation
43087	percent	HVodev-c	Phase C Vrms Over Deviation
43089	percent	HVodev-ab	Phase A-B Vrms Over Deviation
43091	percent	HVodev-bc	Phase B-C Vrms Over Deviation
43093	percent	HVodev-ca	Phase C-A Vrms Over Deviation
43105	percent	HVo hd-a	Phase A Voltage Odd Harm Dist Fund Normalized
43107	percent	HVo hd-b	Phase B Voltage Odd Harm Dist Fund Normalized
43109	percent	HVo hd-c	Phase C Voltage Odd Harm Dist Fund Normalized
43111	percent	HVo hd-d	Phase D Voltage Odd Harm Dist Fund Normalized

Modbus Register	Units	Abbreviation	Register Description
43113	percent	HVehd-a	Phase A Voltage Even Harm Dist Fund Normalized
43115	percent	HVehd-b	Phase B Voltage Even Harm Dist Fund Normalized
43117	percent	HVehd-c	Phase C Voltage Even Harm Dist Fund Normalized
43119	percent	HVehd-d	Phase D Voltage Even Harm Dist Fund Normalized
43121	percent	Hlthdfnd-a	Phase A Current THD Norm to Fund
43123	percent	Hlthdfnd-b	Phase B Current THD Norm to Fund
43125	percent	Hlthdfnd-c	Phase C Current THD Norm to Fund
43127	percent	Hlthdfnd-d	Phase D Current THD Norm to Fund
43129	percent	Hltidfnd-a	Phase A Current TID Norm to Fund
43131	percent	Hltidfnd-b	Phase A Current TID Norm to Fund
43133	percent	Hltidfnd-c	Phase A Current TID Norm to Fund
43135	percent	Hltidfnd-d	Phase A Current TID Norm to Fund

Modbus Register	Units	Abbreviation	Register Description
43137	Amps	Hlthdrss-a	Phase A Current THD RSS
43139	Amps	Hlthdrss-b	Phase B Current THD RSS
43141	Amps	Hlthdrss-c	Phase C Current THD RSS
43143	Amps	Hlthdrss-d	Phase D Current THD RSS
43145	Amps	Hltidrss-a	Phase A Current TID RSS
43147	Amps	Hltidrss-b	Phase B Current TID RSS
43149	Amps	Hltidrss-c	Phase C Current TID RSS
43151	Amps	Hltidrss-d	Phase D Current TID RSS
43153	p.u.	Hlcf-a	Phase A Current Crest Factor
43155	p.u.	Hlcf-b	Phase B Current Crest Factor
43157	p.u.	Hlcf-c	Phase C Current Crest Factor
43159	p.u.	Hlcf-d	Phase D Current Crest Factor
43161	percent	Hlohd-a	Phase A Current Odd Harm Dist Fund Normalized
43163	percent	Hlohd-b	Phase B Current Odd Harm Dist Fund Normalized
43165	percent	Hlohd-c	Phase C Current Odd Harm Dist Fund Normalized
43167	percent	Hlohd-d	Phase D Current Odd Harm Dist Fund Normalized

Modbus Register	Units	Abbreviation	Register Description
43169	percent	Hlehd-a	Phase A Current Even Harm Dist Fund Normalized
43171	percent	Hlehd-b	Phase B Current Even Harm Dist Fund Normalized
43173	percent	Hlehd-c	Phase C Current Even Harm Dist Fund Normalized
43175	percent	Hlehd-d	Phase D Current Even Harm Dist Fund Normalized
43193	p.u.	Hltifx-a	Phase A Current TIF Product
43195	p.u.	Hltifx-b	Phase B Current TIF Product
43197	p.u.	Hltifx-c	Phase C Current TIF Product
43199	p.u.	Hltifx-d	Phase D Current TIF Product
43201	p.u.	XfmrDR-a	Phase A Xfmr Derating Factor
43203	p.u.	XfmrDR-b	Phase B Xfmr Derating Factor
43205	p.u.	XfmrDR-c	Phase C Xfmr Derating Factor
43207	p.u.	XfmrDR-d	Phase D Xfmr Derating Factor

Modbus Register	Units	Abbreviation	Register Description
43209	p.u.	Hlxfmrk-a	Phase A Xfmr K Factor
43211	p.u.	Hlxfmrk-b	Phase B Xfmr K Factor
43213	p.u.	Hlxfmrk-c	Phase C Xfmr K Factor
43215	p.u.	Hlxfmrk-d	Phase D Xfmr K Factor
43227	percent	Hltdd-a	Phase A Total Demand Current Distortion
43229	percent	Hltdd-b	Phase B Total Demand Current Distortion
43231	percent	Hltdd-c	Phase C Total Demand Current Distortion
43233	percent	Hltdd-d	Phase D Total Demand Current Distortion
44001	Watts	DMDwatt-tot	Total Demand Watts
45001	Watt-hours	WHr-a	Phase A Watt-Hours
45003	Watt-hours	WHr-b	Phase B Watt-Hours
45005	Watt-hours	WHr-c	Phase C Watt-Hours
45007	Watt-hours	WHr-d	Phase D Watt-Hours
45009	Watt-hours	WHr-tot	Total Watt-Hours
45011	VAR-hours	VARHr-a	Phase A VAR-Hours
45013	VAR-hours	VARHr-b	Phase B VAR-Hours
45015	VAR-hours	VARHr-c	Phase C VAR-Hours
45017	VAR-hours	VARHr-d	Phase D VAR-Hours
45019	VAR-hours	VARHr-tot	Total VAR-Hours

Modbus Register	Units	Abbreviation	Register Description
45021	VA-hours	VAHr-a	Phase A VA-Hours
45023	VA-hours	VAHr-b	Phase B VA-Hours
45025	VA-hours	VAHr-c	Phase C VA-Hours
45027	VA-hours	VAHr-d	Phase D VA-Hours
45029	VA-hours	VAHr-tot	Total VA-Hours
45031	Watt-hours	WHrpos-a	Phase A Positive Watt-Hours
45033	Watt-hours	WHrpos-b	Phase B Positive Watt-Hours
45035	Watt-hours	WHrpos-c	Phase C Positive Watt-Hours
45037	Watt-hours	WHrpos-d	Phase D Positive Watt-Hours
45039	Watt-hours	WHrpos-tot	Total Positive Watt-Hours
45041	VAR-hours	VARHrpos-a	Phase A Positive VAR-Hours
45043	VAR-hours	VARHrpos-b	Phase B Positive VAR-Hours
45045	VAR-hours	VARHrpos-c	Phase C Positive VAR-Hours
45047	VAR-hours	VARHrpos-d	Phase D Positive VAR-Hours
45049	VAR-hours	VARHrpos-tot	Total Positive VAR-Hours

Modbus Register	Units	Abbreviation	Register Description
45051	Watt-hours	WHrneg-a	Phase A Negative Watt-Hours
45053	Watt-hours	WHrneg-b	Phase B Negative Watt-Hours
45055	Watt-hours	WHrneg-c	Phase C Negative Watt-Hours
45057	Watt-hours	WHrneg-d	Phase D Negative Watt-Hours
45059	Watt-hours	WHrneg-tot	Total Negative Watt-Hours
45061	VAR-hours	VARHrneg-a	Phase A Negative VAR-Hours
45063	VAR-hours	VARHrneg-b	Phase B Negative VAR-Hours
45065	VAR-hours	VARHrneg-c	Phase C Negative VAR-Hours
45067	VAR-hours	VARHrneg-d	Phase D Negative VAR-Hours
45069	VAR-hours	VARHrneg-tot	Total Negative VAR-Hours
46001	p.u.	Pst-a	Phase A Flicker Pst
46003	p.u.	Pst-b	Phase B Flicker Pst
46005	p.u.	Pst-c	Phase C Flicker Pst
46007	p.u.	Plt-Slide-a	Phase A Flicker Plt slide
46009	p.u.	Plt-Slide-b	Phase A Flicker Plt slide
46011	p.u.	Plt-Slide-c	Phase A Flicker Plt slide
46101	p.u.	Plt-a	Phase A Flicker Plt
46103	p.u.	Plt-a	Phase A Flicker Plt
46105	p.u.	Plt-a	Phase A Flicker Plt

Modbus Register	Units	Abbreviation	Register Description
46201	p.u.	Pinst-a	Phase A Flicker Pinst
46203	p.u.	Pinst-b	Phase B Flicker Pinst
46205	p.u.	Pinst-c	Phase C Flicker Pinst
46207	p.u.	Pinstlpf-a	Phase A Flicker PinstLPF
46209	p.u.	Pinstlpf-b	Phase B Flicker PinstLPF
46211	p.u.	Pinstlpf-c	Phase C Flicker PinstLPF
46213	p.u.	Pinstrt-a	Phase A Flicker PinstDiv2root
46215	p.u.	Pinstrt-b	Phase B Flicker PinstDiv2root
46217	p.u.	Pinstrt-c	Phase C Flicker PinstDiv2root
46219	p.u.	Pinstrtlpf-a	Phase A Flicker PinstDiv2rootLPF
46221	p.u.	Pinstrtlpf-b	Phase B Flicker PinstDiv2rootLPF
46223	p.u.	Pinstrtlpf-c	Phase C Flicker PinstDiv2rootLPF

5 Hinweis

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