Application of Custom Modbus Mapping

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This white paper explores an important application of EIG's Shark® 270 meter and Nexus® meters' custom Modbus map.

Issue: A meter needs to be replaced but you need the same readings, in the same format, as the prior product, for SCADA or HMI systems support.

Solution: Use the Custom Modbus feature that allows users to assign the required parameters in their required order and format. The only change from the original format will be the starting register. This translates into less setup time for faster implementation.

Background: As the landscape of technology evolves, certain foundational elements remain unchanged. While we advance and innovate, there is a continuous need to support and enhance existing systems. This is where the Nexus® and Shark® metering systems become invaluable, in assisting organizations to either retrofit older systems or expand their data collection capabilities.

Description: One of the primary challenges in expanding your data footprint or retrofitting existing equipment lies in ensuring compatibility. Not all metering devices align with the configurations of older products, necessitating additional resources for integration. However, Nexus® and Shark® 270 meters address this issue with a feature known as "Custom Modbus mapping." This feature allows users to customize the order of parameters to match their SCADA or other data collection systems. Once configured, these settings can be replicated across all devices, ensuring uniformity within the system. The data collection systems then only need minor adjustments to the starting register value, while the register size, format, and data type will seamlessly align.

The CommunicatorPQA® energy management software's configuration screens for the Nexus® and Shark® meters are shown in figures 1 and 2.

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Custom Modbus Map

Item	Modbus Map Line	Modbus Map Point	Number of Registers	Start Register	Group	Channel	Format	Data Size	Unit	Primary / Secondary	Absolute Value	Byte Order
1	34	0	2	12289	One Second Phase to Neutral Volts	Volts AN	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
2	34	1	2	12291	One Second Phase to Neutral Volts	Volts BN	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
3	34	2	2	12293	One Second Phase to Neutral Volts	Volts CN	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
4	39	0	2	12295	One Second Phase to Phase Volts	Volts AB	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
5	39	1	2	12297	One Second Phase to Phase Volts	Volts BC	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
6	39	2	2	12299	One Second Phase to Phase Volts	Volts CA	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
7	36	0	2	12301	One Second Current(A, B, C)	I A	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
8	36	1	2	12303	One Second Current(A, B, C)	I B	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
9	36	2	2	12305	One Second Current(A, B, C)	I C	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
10	45	0	2	12307	One Second Watts Total	Watts Total	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
11	43	0	2	12309	One Second VAR Total	VAR Total	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
12	41	0	2	12311	One Second VA Total	VA Total	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
13	48	0	2	12313	One Second Power Factor Total	Total	4 Byte IEEE Float	4 Byte	1		No	MSR, MSB
14	46	0	2	12315	One Second Frequency	Frequency	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
15	537	0	2	12317	Scaled +/- Wh, Q 1 - 4 VAh and VARh	Quad(1+4) Watt Hour	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB
16	537	5	2	12319	Scaled +/- Wh, Q 1 - 4 VAh and VARh	Quad(2+3) Watt Hour	4 Byte IEEE Float	4 Byte	1	Primary	No	MSR, MSB

Figure 1: Nexus® Meters' Custom Modbus Configuration Screen

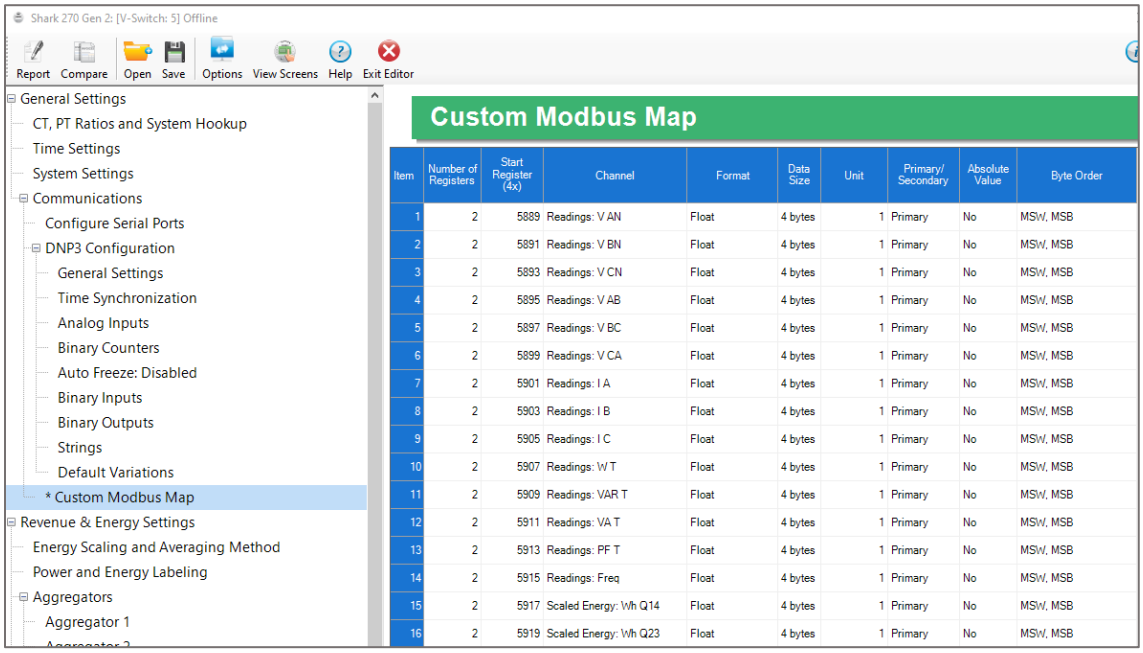

Figure 2: Shark® 270 Meter's Custom Modbus Configuration Screen

These interfaces are notable for their simplicity and flexibility, allowing users to easily adjust various settings to meet specific requirements. Additionally, Figure 3 shows the setup wizard for the Shark® 270 meter, which guides users through the configuration.

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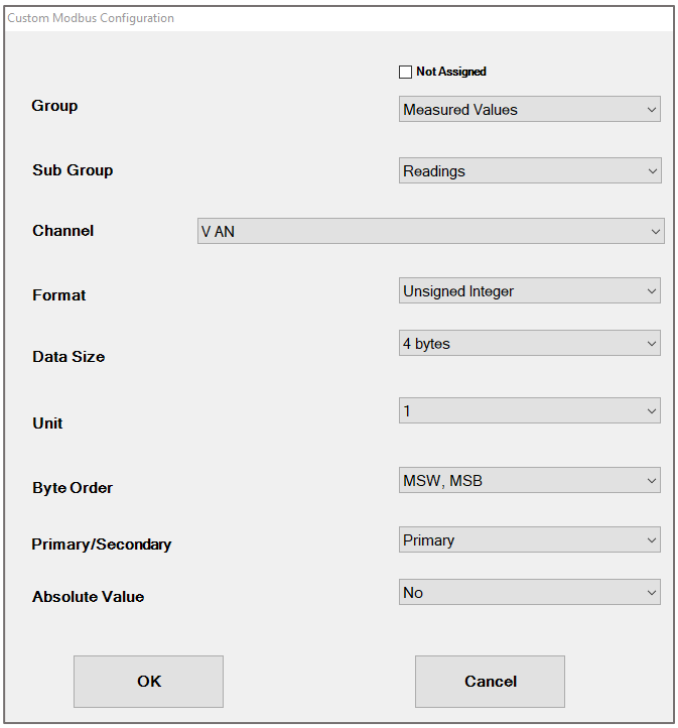

Figure 3. Shark® 270 Meter's Setup Wizard

Conclusion: This white paper highlights the ease and efficiency of using the custom Modbus map feature to align data values across different devices. By utilizing settings such as Data Group, Channel, Format, Data Size, Unit, and others from simple drop-down menus, users can ensure that the channel definitions match those of existing meters. Furthermore, the ability to maintain consistent settings across various products simplifies the data collection process and can result in significant resource savings. This streamlined approach not only enhances compatibility and reduces setup time but also promotes consistency in data management practices.

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