TULSA Water and Sewer Department

SCADA System Improvements

Wall Clock Data Add-On Instruction

FINAL

PRESENTED TO

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Revision History

After the Add-On Instruction has been modified or updated, this document should be revised to reflect the changes. The version is broken into two parts: major (**X**.0) and minor (1.**X**). A major version is reserved for adding or removing sections of this document. A minor version is reserved for modifications to existing sections.

Version	Date	Description
1.0	July 9, 2021	AOI created in Studio 5000 Version 21.11, Draft submitted to client
1.0	April 4, 2022	Final submitted to client.

1 INTRODUCTION

The Wall Clock Data Add-On Instruction (AOI) monitors and controls the PLC's internal date and time settings, which can be adjusted through the HMI.

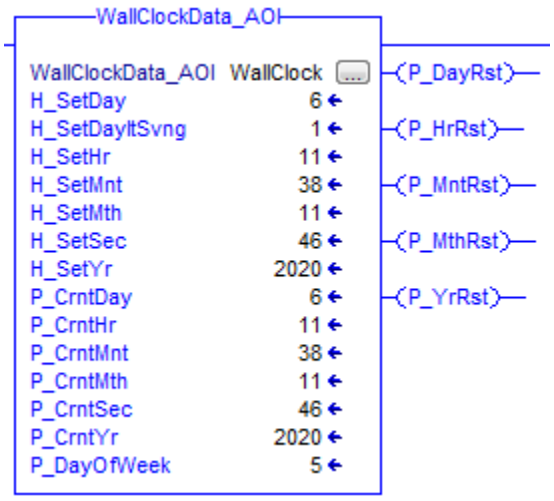

Figure 1-1 Wall Clock Data AOI as it appears in ladder logic

2 FEATURES

2.1 Configuration Tags

Configuration tags are inputs to the AOI that are set by the engineer during programming and equipment start-up. A "C_" prefix is used to indicate that the tag modifies the configuration of an equipment or instrument. The Wall Clock Data AOI does not contain any configuration tags.

2.2 Input Tags

Input tags are inputs to the AOI that are set by the I/O and indicate equipment status. The "I_" prefix is used to indicated that the tag is displaying an equipment or instrument status. The Wall Clock Data AOI does not contain any input tags.

2.3 Output Tags

Output tags are outputs from the AOI that are used to control equipment. The "O_" prefix is used to indicate that the tag controls a real-world output within the PLC. The Wall Clock Data AOI does not contain any output tags.

2.4 HMI Tags

HMI tags are inputs to the AOI that are set by the operator. The "H_" prefix is used to indicate that the tag modifies a PLC register from the operator interface.

Table 2-1 HMI Tags

Parameter	Data Type	Description	Default Value
H_SetDay	DINT	PLC clock day setting from HMI.	0

H_SetDayItSvng	INT	Apply daylight savings time to the PLC clock.	1
H_SetHr	DINT	PLC Clock hour setting from HMI.	0
H_SetMnt	DINT	PLC Clock Minute setting from HMI.	0
H_SetMth	DINT	PLC Clock Month setting from HMI.	0
H_SetSec	DINT	PLC Clock Second setting from HMI.	0
H_SetTm	BOOL	Moves the HMI clock settings into the PLC clock.	0
H_SetYr	DINT	PLC Clock year setting from HMI.	0

2.5 PLC Logic Tags

PLC Logic tags are attributes internal to the AOI. The “P_” prefix is used to indicate that the tag is modified or calculated within the PLC.

Table 2-2 PLC Logic Tags

Parameter	Data Type	Description
P_CrntDay	DINT	PLC clock current day.
P_CrntHr	DINT	PLC clock current hour.
P_CrntMnt	DINT	PLC clock current minute.
P_CrntMth	DINT	PLC clock current month.
P_CrntSec	DINT	PLC clock current second.
P_CrntYr	DINT	PLC clock current year.
P_DayRst	BOOL	Daily reset. Indicates that a new day has started.
P_DayOfWeek	DINT	0=Sunday, 1=Monday, 2=Tuesday, 3=Wednesday, 4=Thursday, 5=Friday, 6=Saturday
P_HrRst	BOOL	Hourly reset. Indicates that a new hour has started.
P_MntRst	BOOL	Minutely reset. Indicates that a new minute has started.
P_MthRst	BOOL	Monthly reset. Indicates that a new month has started.
P_YrRst	BOOL	Yearly reset. Indicates that a new year has started.