VISIon Industry
PLC Retrofit

PLC Retrofit v1.2

1 Overview

This manual contains the PLC structure and related information to install and configure the PLC into AGSuite Device.

What is the “PLC Retrofit”?

It is a PLC, available in different HW versions and SW releases, designed and configured to speed up data collection through AGSuite Device, with special focus on mechanical industrial machinery retrofit where contacts and electric signals needs to be converted into a digital signal.

HW Versions:

PLC is available in four different HW versions. HW version as to be selected according to power supply, signals type and signal voltage level (ref. HW Versions).

SW Versions:

SW Version can be a standard version or custom version (released under customer specification) according to final application:

- Standard versions: exposes a pre-defined set of functions (ref. SW Versions);
- Custom version: manages special function not available into standard version or handle analog signals on specific sensors;

NOTE:
Current documentation refers only to standard SW version.

2 HW Versions

Following table resumes available HW versions and related main features:

ID	Model	PN	Power supply	Input	Output
1	LOGO! 12/24RCE	6ED1052-1MD08-0BA1	12 to 24Vdc	8x Digital (4x usable as analog)	4x relè
2	LOGO! 230RCE	6ED1052-1FB08-0BA1	115 to 230Vac	8x Digital	4x relè
3	LOGO!24CE	6ED1052-1CC08-0BA1	24Vdc	8x Digital (4x usable as analog)	4x transistor
4	LOGO!24RCE	6ED1052-1HB08-0BA1	12 to 24Vdc	8x Digital	4x relè

NOTE:
For more information on HW refer to Siemens LOGO! documentation.

3 SW Version

Following chapter resume available SW version and related feature.

3.1 DIGITAL v1.1

3.1.1 Applicable HW

Apply to ID 1, 2, 3 and 4 (ref. HW Versions).

3.1.2 Features

Feature	Description	Note
Default IP Address	192.168.8.100	
Protocol interface	MODBUS / TCP on IP port 502	
Digital INPUT	8x digital INPUT with separated real time status, counter, anti-bounce and hysteresis setting.	
Digital OUTPUT	4x digital OUTPUT with separated 3-state setting (ON-OFF-BLINK) and real time status	

Main capabilities:

- 32bit counters for each INPUT;
- On/Off/Blink output with tunable On/Off time 0 to 9999s;
- Filtered INPUT with programmable hysteresis 0,01s to 99s / anti-bouncer;
- Real time INPUT value;

3.1.3 MODBUS registers map

3.1.3.1 INPUT Status

MODBUS Address	Register Name	Type	R/W	Default value	Persistent	Unit	Description
0	I1 Input Status	bit	R	\	\	\	Realtime status. 0: LOW / 1: HI (LOW = open when connected to external contact)
1	I2 Input Status	bit	R	\	\	\	Realtime status. 0: LOW / 1: HI (LOW = open when connected to external contact)
2	I3 Input Status	bit	R	\	\	\	Realtime status. 0: LOW / 1: HI (LOW = open when connected to external contact)
3	I4 Input Status	bit	R	\	\	\	Realtime status. 0: LOW / 1: HI (LOW = open when connected to external contact)
4	I5 Input Status	bit	R	\	\	\	Realtime status. 0: LOW / 1: HI (LOW = open when connected to external contact)
5	I6 Input Status	bit	R	\	\	\	Realtime status. 0: LOW / 1: HI (LOW = open when connected to external contact)
6	I7 Input Status	bit	R	\	\	\	Realtime status. 0: LOW / 1: HI (LOW = open when connected to external contact)
7	I8 Input Status	bit	R	\	\	\	Realtime status. 0: LOW / 1: HI (LOW = open when connected to external contact)

NOTE:
For more efficient MODBUS communication, all INPUTS can be retrieved with a single read command to register address 0, 8 bytes length.

3.1.3.2 COIL Status

MODBUS Address	Register Name	Type	R/W	Default value	Persistent	Unit	Description
8192	Q1 Output Status	bit	R	\	\	\	Realtime status. 0: Open / 1: Close
8193	Q2 Output Status	bit	R	\	\	\	Realtime status. 0: Open / 1: Close
8194	Q3 Output Status	bit	R	\	\	\	Realtime status. 0: Open / 1: Close
8195	Q4 Output Status	bit	R	\	\	\	Realtime status. 0: Open / 1: Close

3.1.3.3 HOLDING Registers

MODBUS Address	Register Name	Type	R/W	Default value	Persistent	Unit	Description
2	I1 Counter	uint32	R	0	Y	\	Counter on rising edge
6	I2 Counter	uint32	R	0	Y	\	Counter on rising edge
10	I3 Counter	uint32	R	0	Y	\	Counter on rising edge
14	I4 Counter	uint32	R	0	Y	\	Counter on rising edge
18	I5 Counter	uint32	R	0	Y	\	Counter on rising edge
22	I6 Counter	uint32	R	0	Y	\	Counter on rising edge
26	I7 Counter	uint32	R	0	Y	\	Counter on rising edge
30	I8 Counter	uint32	R	0	Y	\	Counter on rising edge
32	Output1	uint16	R/W	0	Y	\	0: Open / 1: Close / 2: Blink
33	Output2	uint16	R/W	0	Y	\	0: Open / 1: Close / 2: Blink
34	Output3	uint16	R/W	0	Y	\	0: Open / 1: Close / 2: Blink
35	Output4	uint16	R/W	0	Y	\	0: Open / 1: Close / 2: Blink
45	T Close	uint16	R/W	1	Y	s	For blinking Outputs, close time Accepted values: 0 to 9999"
46	T Open	uint16	R/W	1	Y	s	For blinking Outputs, open time

MODBUS Address	Register Name	Type	R/W	Default value	Persistent	Unit	Description
							Accepted values: 0 to 9999"
47	Counter Reset	uint16	W	0	\	\	"One bit for each counter (1: Reset). Bit0: CNT1, … bit7: CNT8 Bit8 … bit15: reserved for future use"
64	Version	uint16	R	0x0101			SW Version register. See "ANNEX A"
65	Features	uint16	R	0x1840			SW Feature register. See "ANNEX A"
72	Filtered Inputs Status	uint16	R	\	\	\	"One bit for each input filtered status. 0: Low / 1: High Bit0: INP1, … bit7: INP8 Bit8 … bit15: reserved for future use"
80	Thigh Input1 filter	uint16	R/W	1	Y	s/100	"Persistence time of the Input in the high state to be considered high Accepted values: 0 to 9999"
81	Tlow Input1 filter	uint16	R/W	1	Y	s/100	"Persistence time of the Input in the low state to be considered low Accepted values: 0 to 9999"
82	Thigh Input2 filter	uint16	R/W	1	Y	s/100	"Persistence time of the Input in the high state to be considered high Accepted values: 0 to 9999"
83	Tlow Input2 filter	uint16	R/W	1	Y	s/100	"Persistence time of the Input in the low state to be considered low Accepted values: 0 to 9999"
84	Thigh Input3 filter	uint16	R/W	1	Y	s/100	"Persistence time of the Input in the high state to be considered high Accepted values: 0 to 9999"
85	Tlow Input3 filter	uint16	R/W	1	Y	s/100	"Persistence time of the Input in the low state to be considered low Accepted values: 0 to 9999"
86	Thigh Input4 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the high state to be considered high Accepted values: 0 to 9999
87	Tlow Input4 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the low state to be considered low Accepted values: 0 to 9999
88	Thigh Input5 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the high state to be considered high Accepted values: 0 to 9999
89	Tlow Input5 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the low state to be considered low Accepted values: 0 to 9999
90	Thigh Input6 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the high state to be considered high Accepted values: 0 to 9999
91	Tlow Input6 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the low state to be considered low Accepted values: 0 to 9999
92	Thigh Input7 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the high state to be considered high Accepted values: 0 to 9999
93	Tlow Input7 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the low state to be considered low Accepted values: 0 to 9999
94	Thigh Input8 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the high state to be considered high Accepted values: 0 to 9999
95	Tlow Input8 filter	uint16	R/W	1	Y	s/100	Persistence time of the Input in the low state to be considered low Accepted values: 0 to 9999

4 ANNEX A: Version and Feature registers

Version register:

Bit15	bit14	bit13	bit12	bit11	bit10	bit9	bit8	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
Release version MAJOR								Release version MINOR							

Version register example:

bit15 … bit0
00000001 00000010 = 0x12 = v1.2

Feature register:

Bit15	bit14	bit13	bit12	bit11	bit10	bit9	bit8	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
Target PLC model				Number of digital INPUTS				Number of digital OUTPUTS				ANALOG INPUTS map			
1: LOGO! 12/24RCE 2: LOGO! 230RCE 3: LOGO!24CE 4: LOGO!24RCE												bit0: 0 for 0-10V : 1 for 0-20mA bit1: 0 for 0-10V : 1 for 0-20mA bit2: 0 for 0-10V : 1 for 0-20mA bit3: 0 for 0-10V : 1 for 0-20mA			

Feature register example:

bit15 … bit0
0001 1000 0100 0000 = 0x0x1840

Target PLC model: 1= LOGO! 12/24RCE;
Number of digital INPUTS: 8;
Number of digital OUTPUTS: 4;
ANALOG INPUTS map: NA (PLC has 8 input already used as digital)