

the input value reaches the modulated high/low threshold. The eight attack scenarios are only used to generate HAI/HAIEnd 23.05; and are not used for previous version.

Target

HAI

HAIEnd

Scenario

Attack

Description

Controller

Function

Appeared

23.05

Point

Targets the algorithm, one of the artificial I/O functions.

Modulate internal point(1001.09.R1) from 40(normal initial

AE01

P1-PC

1001.09

1001.09-OUT

value) to 12. When the process changed from manual mode

to auto mode, the modulated initialization value is sent to

PCV01.

Targets the algorithm, one of the arithmetic functions; It

scales by converting the input value into a one-to-one linear

AE02

P1-PC

1001.21

DM-PCV01-D

function. By modulating internal point(1001.21.S5) from 100(normal initial value) to 90, the maximum of PCV01 control command is modulated to 90 and decreases linearly.

Targets the algorithm, one of the artificial I/O functions.

Modulate internal point(1002.14.R1) from 30(normal initial

AE03

P1-LC

1002.14

1002.14-OUT

value) to 0. When the process changed from manual mode to auto mode, the modulated initialization value is sent to LCV01.

Targets the algorithm, one of an arithmetic functions; By

AE04

P1-LC

1002.31

1002.31-OUT

modulating internal point(1002.31.S5) from 97(normal initial value) to 87, the maximum of LCV01 control command is modulated to 87 and decreases linearly.

Targets the algorithm, one of an arithmetic functions; By

AE05

P1-TC

1003.05

1003.05-OUT

modulating internal point(1003.05.S5) from 100(normal initial value) to 90, the maximum of PV(1003.26) is modulated to 90 and decreases linearly.

Targets the algorithm, one of an arithmetic functions; By modulating internal point(1003.08.T6) from 3190(normal

AE06

P1-TC

1003.08

DM-FT02Z

initial value) to 3000, the maximum of DM-FT02Z(flow rate of boiler hot water) is modulated to 3000 and decreases linearly.

Targets the algorithm, one of an arithmetic functions; By

AE07

P1-CC

1020.15

1020.15-OUT

modulating internal point(1020.15.S4) from 0(normal initial value) to 15, the minimum of PP04 control command is modulated to 15 and increases linearly.

Targets the algorithm, one of a monitor functions; By

AE08

P1-HC

1004.21

1004.21-OUT

decreasing internal point(1004.21.R1) from 33(normal initial value) to 10 and increasing it to 40, the Low threshold of heater is modulated.

TOTAL

8

29