GEH-6723P

Mark* VIeS Safety Control

Functional Safety Manual

Feb 2018



For public disclosure

5.3 YDOA

5.3.1 YDOA Compatibility

The YDOA I/O pack contains an internal processor board.

- The YDOAS1A contains a BPPB processor board. This processor has a limited component lifecycle, with support up to firmware V04.11.



Attention

From the ToolboxST application, do not upgrade YDOAS1A to firmware above V04.11. YDOAS1A is not supported in firmware V05.00 or later.

- The YDOAS1B contains a BPPC processor board that is supported by firmware V05.00 or later with ControlST***** Software Suite V06.01 or later.



Attention

YDOAS1A and YDOAS1B I/O pack versions cannot be mixed on the same T-type terminal board.

All three YDOA I/O packs in a TMR set must be the same hardware form.

YDOA is compatible with several types of discrete (relay) output terminal boards.

Terminal Board	Description	Module Redundancy
TRLYS1B	Relay output with coil sensing	Simplex or TMR
TRLYS1D	Relay output with solenoid integrity sensing	
TRLYS1F, S2F	Relay output with TMR contact voting	TMR
SRLYS1A, S2A	Form C contact relays	Simplex
SRSAS1A, S3A	Compact size with normally open relays For hardware availability, contact the nearest GE Sales or Service Office, or an authorized GE Sales Representative. Compatible with YDOAS1B firmware V05.00 or later Compatible with the YDOAS1A firmware V04.11	Simplex

5.3.2 YDOA Configuration

YDOA Module

Configuration	Description	Select Option ✓ or Enter Value
I/O pack redundancy		Simplex TMR
Hardware group		Distributed I/O Group
Terminal board	Terminal board type/form/barcode	
I/O pack configurations	Pack form/TB Connector/IONet	

5.3.3 Inputs

Parameter	Description	Select Option or Enter Value
ContactInput	Enables Relay#Fdbk	Unused, Used
SignalInvert	Inverts Relay#Fdbk signal and Relay#ContactFdbk signal (if available) **Do not rely on the SignalInvert property of digital inputs to invert the value. Implement this operation in the application code with the input connected to a NOT block.**	Normal, Invert
SeqOfEvents	Record RelayFdbk transitions in sequence of events Not available with TRLY#D.	Disable, Enable
DiagVoteEnab	Enable voting disagreement diagnostic	Disable, Enable
SignalFilter	Relay feedback digital filter in milliseconds, is only available with TRLYH#C (not available for safety use)	Zero, Ten, Twenty, Fifty, Hundred

5.3.4 Outputs

Parameter	Description	Select Option or Enter Value
RelayOutput	Enable relay output	Used, Unused
SignalInvert	Inversion makes relay closed if signal is false **Do not rely on the SignalInvert property of digital inputs to invert the value. Implement this operation in the application code with the input connected to a NOT block.**	Normal, Invert
SeqOfEvents	Record relay command transitions in sequence of events	Disable, Enable
FuseDiag	Enable fuse diagnostic (if available)	Enable, Disable
Output_State	Select the state of the relay condition based on I/O pack going offline with controller	PwrDownMode, HoldLastValue, Output_ Value
Output_Value	Pre-determined value for the outputs (only displayed if Output_State is set to Output_Value)	Off, On

5.3.5 Variables

Name	Description	Direction	Type
L3DIAG_PDOA_x L3DIAG_YDOA_x	I/O diagnostic indication, where x = R, S, or T	Input	BOOL
LINK_OK_PDOA_x LINK_OK_YDOA_x	I/O link okay indication, where x = R, S, or T	Input	BIT
ATTN_PDOA_x ATTN_YDOA_x	I/O Attention Indication, where x = R, S, or T	Input	BIT
IOPackTmpr_x	I/O pack temperature, where x = R, S, or T	Input	REAL
†Cap1_Ready_x	I/O pack capture buffer 1 ready for upload (currently not used), where x = R, S, or T	Input	BIT
†Cap2_Ready_x	I/O pack capture buffer 2 ready for upload (currently not used), where x = R, S, or T	Input	BIT
†CV_Permissive	CV (control valve) permissive for PGEN PLU function	Input	BIT
†IV_Permissive	IV (intercept valve) permissive for PGEN PLU function	Input	BIT
† Not applicable to YDOA			

Name	Description	Direction	Type
Relay#	Relay# output command	Output	BIT
Relay#Fdbk	Relay# Driver Status (set of 12 relays)	Input	BIT
Relay#ContactFdbk	Relay# Contact Status (set of 12 relays), available for TRLY#C, TRLY#E, SRSA, and SRLY only	Input	BIT
Fuse#Fdbk	Fuse voltage (if available)	Input	BIT
Solenoid#Status	Solenoid# Resistance Sense (set of 6 relays), True means resistance within the range, False means resistance out of the range, available for TRLY#D only	Input	BIT

TRLYS1B

Jumper	Select ✓
JP1	Excited DRY
JP2	Excited DRY
JP3	Excited DRY
JP4	Excited DRY
JP5	Excited DRY
JP6	Excited DRY