Switch Binary Electrical (SBE)

Dokumentasjon av funksjonsblokk

Brukt i PLS program for Sande reiseanlegg

Switch_Binary_Electrical

SBE	
XGH	Y
XH	YH
XL	YL
XOH	YF
XOL	YFI
XF	BCH
XE	BCL
LSH	BA
LSL	BO
FSH	BS
FSL	BB
FDH	BU
FDL	BXH
FB	BXL
FU	
LA	
LM	
LO	
RX	
PTD	
PTFD	
PTTO	
PTTC	
PSUM	
PSUS	
PSLO	
PBXE	
PBXF	
PBLF	
PBRE	

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ENDRINGSHISTORIKK

Versjon	Endringsgrunnlag	Utarbeida av	Dato
A	Første versjon	Peter Søreide Skaar Vegard Aven Ullebø Roar Bøyum	18.04.2024

REFERANSAR

IEC PAS 63131:2017

OMGREP OG FORKORTINGAR

Latching	Utgangssignal holdt/låst
Supression	Deaktiver
Blocking	Blokkere
Paramteter	Inngangs argument
OS	Operator station
Safeguard	Mekanisme for å tvinge endring av tilstand

SIGNATUR

18.04.2024

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B024EF-03

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1 BRUK

SBE funksjonsblokka blir brukt for binærkontroll av straumningselement for elektrisitet, varme eller væske. Det kontrollerte elementet er av typen motor, pumpe, varmeelement, vifte etc.

2 STANDARD

Blokka er skreven av bachelorgruppe B024EF-03 og er utarbeida etter IEC PAS 63131:2017 funksjonstemplatet.

3 INPUTS

Terminal Clode	Signal type	Terminal name	Supplentermary description
XGH	Binary input	Position high feedback	Signal from MCC, running status high (XGH = 1 is motor running)
XH	Binary input	External set high	XH = 1 (positive edge) set Y to 1 in auto mode.
XL	Binary input	External set low	XL = 1 (positive edge) set Y to 0 in auto mode. XL is dominant over XH.
XOH	Binary input	External outside set high	XOH = 1 set Y to 1 in outside mode
XOL	Binary input	External outside set low	XOL = 1 set Y to 0 in outside mode
XF	Binary input	External Fault	Loop failure, e.g. I/O card broken.
XE	Binary input	Externally enabled (MCC)	XE = 1 is required for a start. The effect on Y when XE goes low while running will be defined by parameter.
LSH	Binary input	Lock safeguarding high	Safeguarding – LSH = 1. Overrule operator possibility to operate Start/Stop and Auto/Manual. Locks template in manual mode and Y to 1 regardless of failure state. Input is subject to blocking.

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			When signal goes low, the template remains in manual mode and Y = 1.
LSL	Binary input	Lock safeguarding low	Safeguarding – LSL = 1 Overrule operator possibility to operate Start/Stop and Auto/Manual. Locks template to manual mode and Y to 0 regardless of failure state. Input is subject to blocking. When signal goes low, the template remains in manual mode and Y = 0.
FSH	Binary input	Force safeguarding high	Safeguarding – FSH = 1 Overrule operator possibility to operate Start/Stop. Sets Y to1 regardless of failure state. When signal is reset, the template will react to actual terminal statuses again. Signal is subject to blocking. If in Manual mode, the output (Y) remains 1 after signal returns to normal.
FSL	Binary input	Force safeguarding low	Safeguarding FSH = 0 Overrule operator possibility to operate Start/Stop. Sets to 0 regardless of failure state. When signal is reset, the template will react to actual terminal statuses again. Signal is subject to blocking. If in manual mode, the output (Y) remains 0 after signal returns to normal.
FDH	Binary input	Force disable transition high.	Permissive to start when FDH = 0 and prevents equipment from being started when FDH = 1. Signal is subject to blocking.
FDL	Binary input	Force disable transition low.	Permissive to stop when FDL = 0 and prevents equipment from being stopped when FDL = 1. Signal is subject to blocking.
FB	Binary input	Force blocking	FB = 1. Safeguarding action LSH, LSL, FSH, FSL and FDH and FDL will be blocked.
FU	Binary input	Force suppression	FU = 1. Alarm annunciation is suppressed, YF = 0. and statuses XF, XE and XGH are neglected.

![renasys logo]

Switch Binary Electrical (SBE)
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LA	Binary input	Lock auto	Locks the template in auto mode. When LA is reset, the template remains in auto mode.
LM	Binary input	Lock manual	Locks the template in manual mode. When LM is reset, the template remains in manual mode.
LO	Binary input	Lock outside	Locks the template in outside mode. When LO goes low the template will be set to manual mode.

3.1 INPUT PARAMETERS

Terminal Clode	Signal type	Terminal name	Supplentermary description	Default
PTD	Analouge	Feedback time	Maximum allowed time from start/stop command is given (Y set to 1) to flow element running/stop feedback (XGH) is set/reset.	2 s
PTFD	Analouge	Time before action when loss of feedback.	Time from XGH is lost until actions are performed. Dependent of parameter that select if there shall be action on loss of XGH.	2 s
PTTO	Analouge	Pulse time high	Pulse length for YH	2 s
PTTC	Analouge	Pulse time low	Pulse length for YL	2 s
PSUM	Enumeration	Template start up settings	Manual and run Manual and stop As previous state	Manual and stop
PSUS	Enumeration	Operational mode options	Possible to switch between outside, manual and automatic mode Possible to switch between manual and automatic mode Possible to switch between manual and outside mode Locked in manual mode Locked in outside mode	Possible to switch between manual and automatic mode
PSLO	Enumeration	Outside mode type	Outside: Output controlled by SAS Local: Output controlled locally	Local
PBXE	Binary	Action on external fault	Value: 0 Stop motor – 1 keep running	0

Switch Binary Electrical (SBE)
Dokumentasjon av funksjonsblokk

PBXF	Binary	Action on loss of XE while running.	Value: 0 Stop motor – 1 keep running	0
PBLF	Binary	Action on loss of run feedback (XGH)	Value: 0 Stop motor – 1 keep running	0
PBRE	Binary	Restart controller options	Value: 0 Manual mode and stopped Value: 1 Auto mode and follow XH/XL – stopped if both is '0'.	0

4 OUTPUTS

Terminal Clode	Signal type	Terminal name	Supplentermary description
Y	Binary output	Normal function output	If the template is set not to latch, Y = X If the template is set to latch, Y is set when X goes high, and reset when RX goes high. Subjected to blocking and suppression. It shall be possible to generate a warning or action alarm on this output. In these cases the letter W (warning) or A (action) shall be used as the terminal name on the SCD diagram.
YF	Binary output	Function failed	YF = 1 if XF = 1 or if an internal error has been detected in the template. Subjected to suppression
BB	Binary output	Staus blocked	True if the template is in blocked mode (FB = 1 or Blocking set from OS)
BU	Binary output	Staus suppressed	True if template is in suppress mode (FU = 1 or Suppression sett from OS).
BX	Binary output	Status funtion input	BX = X

5   LOGIKK

SBE blokka beskriver korleis ein kontrollarar ein enhet, for eksempel ein motor, pumpe, varmeelement, vifte etc. Det er ein utgang Y, som gir ein opne/lukke (høg/lav) kommando til enheten. Blokka har fleire funksjonar, der den tar output og samanliknar med tilbakemelding og gir korrekt BCL/BCH status. Den genererer også ein feil status på YF om ein har ein ekstern feil inn.
Funksjonsblokka inkluderer alarm suppression, blocking, safeguarding og transition funksjonalitet.

Funksjonsblokka brukar fleire isntansar av desse andre funksjonsblokkene:
1.fbTimer
2.TP frå util bibliotek.

6   TESTING OG RESULTAT

Funksjonsblokka er testa i eit simuleringsmiljø i forbindelse med bacheloroppgåve skreven av gruppe B024EF-03.

7   VEDLIKEHALD OG HJELP

Ingen vedlikehald er nødvendig dersom programvaren forblir uendra og feil ikkje blir oppdaga.

Du kan nå oss ved eventuelle spørsmål om blokkas funksjonalitet

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