

# Function Block



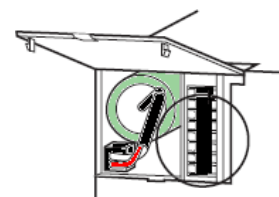
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0.15€ TTC/mn

Référence	NormalSecours
Révision	1.3
Auteur	JP Viskovic
Date	22/09/2011
+ Support	<a href="http://support-omron.fr/">http://support-omron.fr/</a>

## Function Block NormalSecours

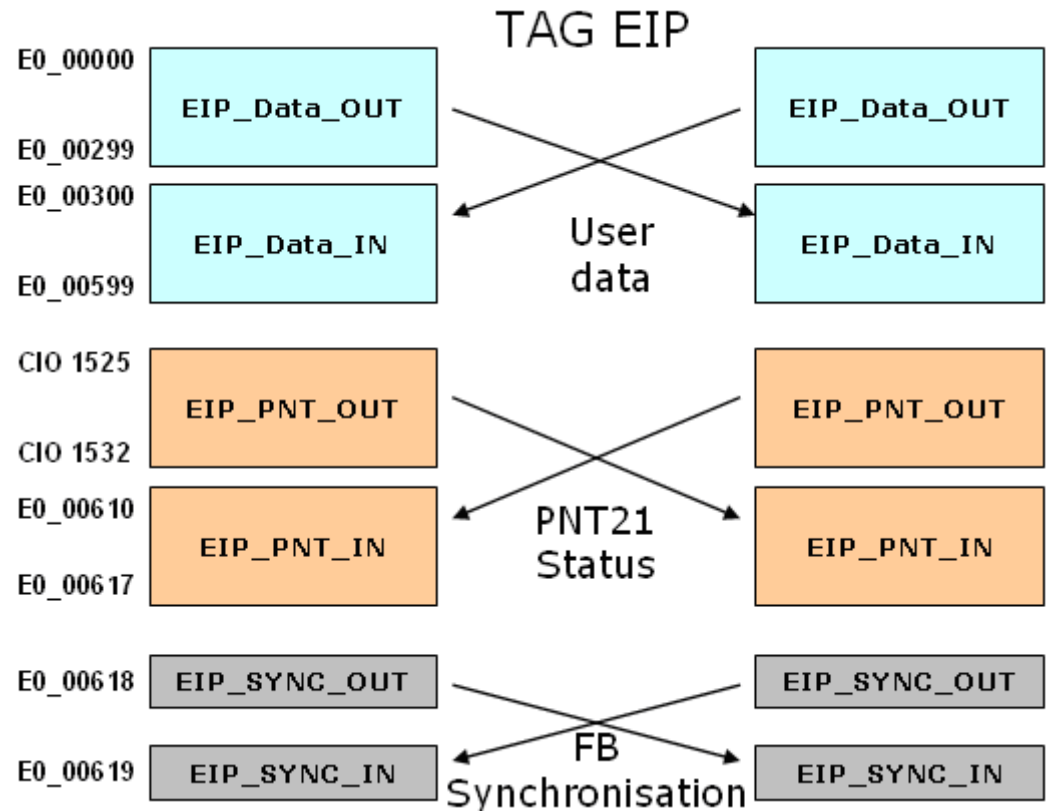
Function	Managing active and Standby mode of two PLCs	
Symbol		
File	<a href="#">NormalSecours.cxf</a>	
PLC	CPU : CJ2M-CPU3x, CJ2H-CPUxx-EIP Unit : CJ1W-PNT21	
Conditions of use	<p>Function block NormalSecours of the two PLC are exchanging Data through EthernetIP to synchronize commands and user data.</p> <p>The EthernetIP Data Link <a href="#">NormalSecours.nvf</a> has to be configured using Network Configurator (included in CX-One). Tag should also be downloaded in to the PLCs.</p> <p>The FB NormalSecours use memory area E0_00000 to E0_00619 (620 words). 300 words In and Out are allowed for the user program data.</p>	
Restrictions	<p><b>Ethernet/IP</b> unit (or built-in) must be set to <b>Unit No 0</b>.</p> <p><b>CJ1W-PNT21</b> Units must be set to <b>Unit No 1</b>.</p> <p>The Output Data Handling mode of CJ1W-PNT21 must be set to <b>User Bit Controlled</b> using CX-Configurator FDT:</p> <div data-bbox="459 1512 1117 1702" style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Valid Output Data Handling</p> <p><input type="radio"/> PLC Mode Dependent</p> <p><input checked="" type="radio"/> User Bit Controlled</p> </div>	
Principe	<p>The front switch SW6 is used to :</p> <ul style="list-style-type: none"> <li>- define which PNT21 will be active when CPU is started</li> <li>- force the PNT21 to switch to active mode.</li> </ul> <p>Active mode could also be forced with the <b>Force_Active</b> input of the function block (used by Scada or ladder program).</p> <p>If the active PNT21 failed, the Standby PLC will switch its PNT21 to active mode.</p>	



The EthernetIP Data Link has 3 differents area :

- EIP\_Data contening user Data to synchronize ladder programs.
- EIP\_PNT contening PNT21 flags and command bits.
- EIP\_SYNC contening 2 words to synchronize function block actions.

The EIP\_Data block is sized to feet the maximum of the CJ2M-CPU3x capability (640 words) but could be increased for CJ2H CPU.



PNT21 status area

Word	bit	Local	Distant	description
n	12	1525.12		Set Output Data Valid
n + 4	01	1529.01	E0_614.01	Controller Error Flag
n + 5	12	1530.12	E0_615.12	Valid Output Data
n + 7	01	1532.01		All IO Device have consumed Output Data

FB synchronization area

Local	description
E0_618.00	Request distant PNT21 to switch to Standby Mode
E0_619.00	The Distant PNT21 has requested to switch local PNT21 to Standby Mode

EIP21 status area bit/flag used

Word	bit	Unit n°0	description
n + 10	00	1510.00	Unit Error Occurred Flag
n + 11	00	1511.00	Unit Online Flag
	01	1511.01	Tag Data Link Operating

Tag can be copy/past from the sample Cxp program [NormalSecours.cxp](#)

Name	Data Type	Addr. / Value	Net. Var	Usage	Comment
EIP_Data_IN	WORD[300]	E0_300	INPUT	Work	User Data received
EIP_Data_OUT	WORD[300]	E0_0	OUTPUT	Work	User Data Transmitted
EIP_PNT_IN	UINT[8]	E0_610	INPUT	Work	Secondary PNT21 Control /
EIP_PNT_OUT	UINT[8]	1525	OUTPUT	Work	PNT21 Unit n°1 Control Are
EIP_SYNC_IN	WORD	E0_619	INPUT	Work	

#### Input variables

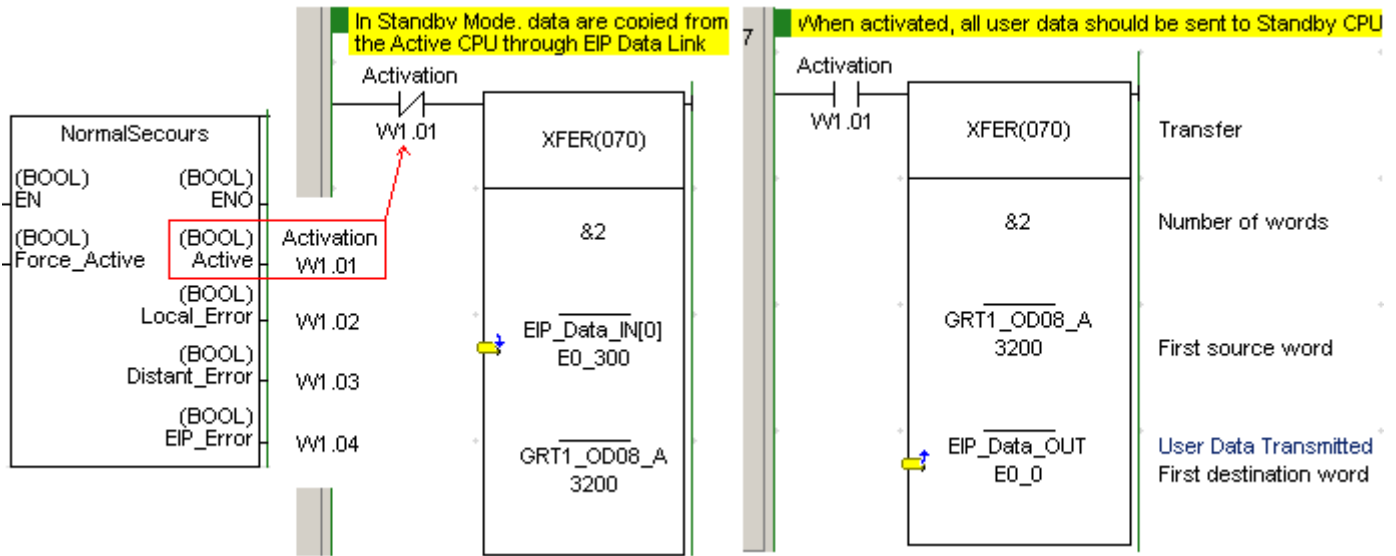
Name	type	Range	Description
Force_Active	Bool	OFF, ON	Force the PNT21 to active mode

#### Output variables

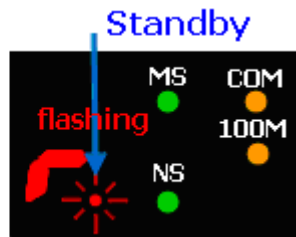
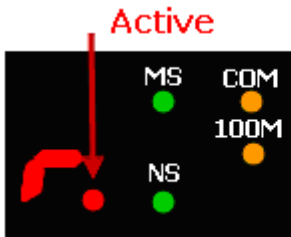
Name	type	Range	Description
ENO	Bool	OFF, ON	The two PLC are operational - no CPU non fatal error - no battery error flag - no EIP error flag - at least, one IOC is controlling IOD
Active	Bool	OFF, ON	Output Data valid (active PLC)
Local_Error	Bool	OFF, ON	Local PNT21 in error
Distant_Error	Bool	OFF, ON	Distant PNT21 in error
EIP_Error	Bool	OFF, ON	Data Link failed

### User data synchronisation

PLC program should synchronize user data through the Ethernet IP data link



### Operating status



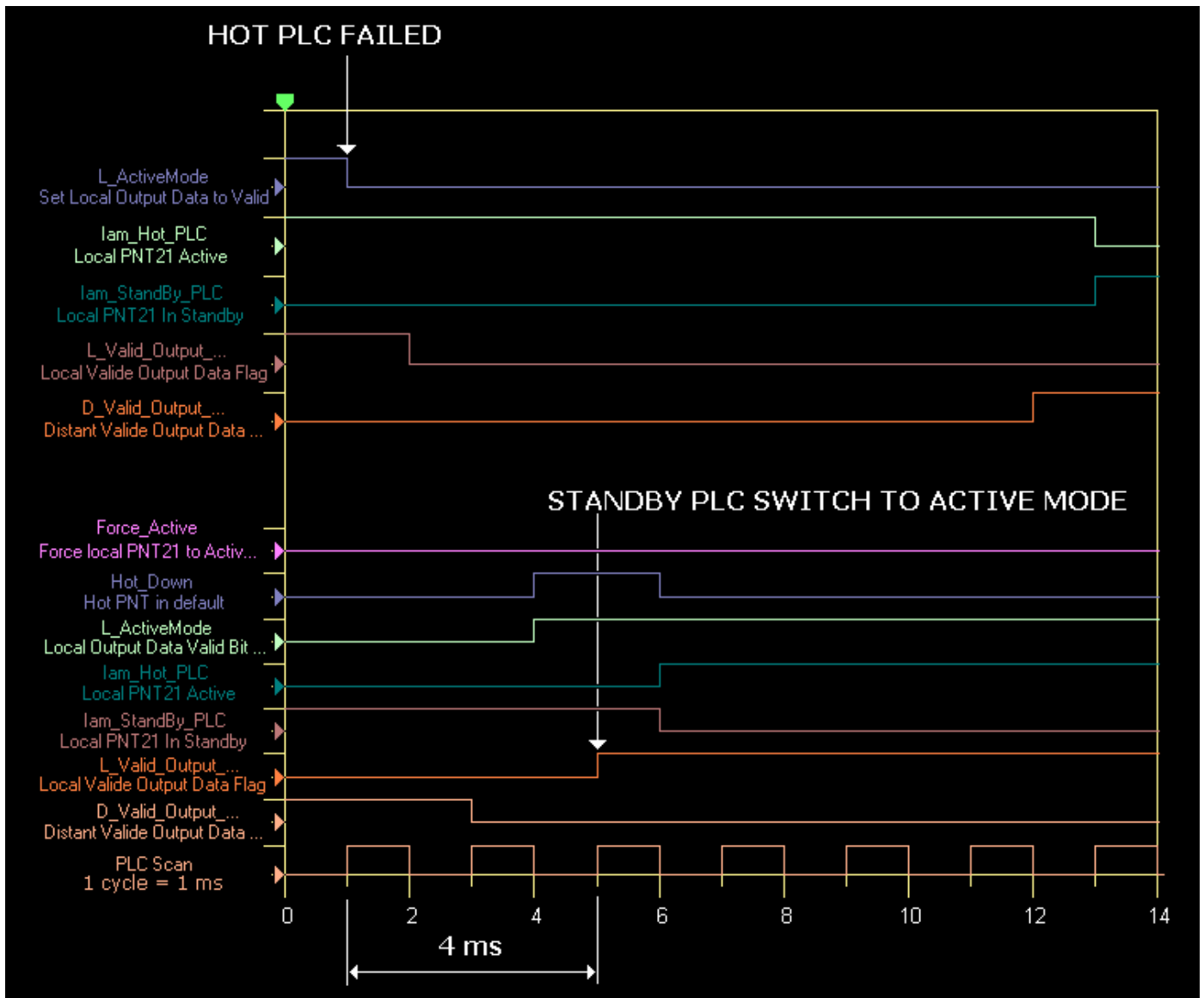
MS	Module Status
NS	Network Status
COMM	Communication Status
100	IO Data Exchange Status

Indicator status				Network/Unit status	Comments
MS	NS	100M	7-segment		
OFF	OFF	OFF	--	Booting and initializing with the PLC	Bootup and initialization with the PLC in progress. Restart the PROFINET IO Controller unit if this status continues for an extended period of time. Replace the CPU Unit and/or PROFINET IO Controller Unit if the problem is not corrected by restarting.
ON (green)	OFF	OFF	r dot flashing	Valid configuration detected	The PROFINET IO Configuration downloaded from the configuration tool is evaluated during startup of the unit.
ON (green)	Flashing (green)	OFF	r dot flashing	PROFINET IO core software started	The PROFINET IO Controller has started its core communication software and is ready to start communication with PROFINET IO Devices.
ON (green)	Flashing (green)	OFF	r dot ON	Relations to PROFINET IO Devices are set up	Before PROFINET IO Communication is fully running a relation between each IO Device and the IO Controller is established.
ON (green)	Flashing (green)	ON (yellow)	r dot ON	Data Exchange with at least one IO Device	At least one IO Device is exchanging IO Data with the IO Controller
ON (green)	ON (green)	ON (yellow)	r dot ON	Data Exchange with at all configured IO Devices	All configured IO Devices are detected by the IO Controller and to all IO Data Exchange is established.

### Timing charts

Scan time of CJ2M have been fixed to 1ms.  
 The Packet Interval (RPI) is set to 20ms

#### 1- The Active PLC failed (PNT21 disconnected)



2- The PNT21 on Standby PLC is forced to active mode

