Interrupt

Interrupt purpose

The interrupt is meant for unscheduled interruptions of the program sequence. This can be a safety door opening or any other unexpected condition in the application. It should not be used for regular program sequences. The interrupt will stop the program sequence and will take care the program continues at a predefined macro. If done correctly you should place a return at the end of this macro to continue where you left the regular sequence. If this is not possible, please be aware that the macro pointer stack needs to be emptied. This unpush macro command is available in firmware versions 2.0 and higher.

Interrupt inputs

The interrupt can be executed by the 4 digital inputs, the timers or the I2T. The interrupts are listed by execution trigger. Each interrupt has only one trigger source. The list of interrupts and the moment they are triggered is shown in the table below.

Interrupt 1 vector	=	Digital input 0 = On
Interrupt 2 vector	=	Digital input 1 = On
Interrupt 3 vector	=	Digital input 2 = On
Interrupt 4 vector	=	Digital input 3 = On
Interrupt 5 vector	=	Timer 1 overflow reached
Interrupt 6 vector	=	Timer 2 overflow reached
Interrupt 7 vector	=	Timer 3 reached 0
Interrupt 8 vector	=	Timer 4 reached 0
Interrupt 9 vector	=	I2T power exceeded
Interrupt 10 vector	=	Reserved

Practical implementation

The practical implementation of an interrupt can be done at any time in the program but it is preferred to set the interrupt vector at start-up of the controller.

#	Line	Command	Parameter	Comment
0		MacroNumber	1	interrupt demo
1	1-1	SetVariable	Var=Interrupt_vector-Interrupt_1_vector(0x012C07),Constant,Const=3	Select input 0 as trigger. Set the interrupt to call macro 3.
1	1-2	SetVariable	Var=Interrupt_enable-Interrupt_1_enabled(0x012C08),Constant,Const=1	enable interrupt nr 1
1	1-3	Macro	Jump,MacroNumber=2	
0		MacroNumber	2	Repeat loop for demo purposes
1	2-1	Wait	Time,Timeout=3000	
1	2-2	Macro	Repeat,RepeatCount=0	
0		MacroNumber	3	The macro to do after interrupt 1
3	3-1	SetOutput	Digital_output_0,On	
1	3-2	Wait	Time,Timeout=1000	
3	3-3	SetOutput	Digital_output_0,Off	
1	3-4	Macro	Return	

The interrupt vector is defined in macro 1: when the input 0 goes on, the program interrupts its sequence and calls macro 3. At the end of macro 1 the sequence jumps to macro 2.

Macro 2 will keep repeating itself. First wait for 3000 msec and then a repeat command.

Macro 3 is the macro that is called when the interrupt vector 1 is triggered. In this macro the first digital output is switched on (output_0, On), then it waits for 1000 msec and switches the output off again. After this the macro will return to the location where it was called from.

Once an interrupt is called, the interrupt vector is disabled again. You need to enable it again if you want to use it again.