

Parameter group change

Each SIPROTEC 4 device offers different parameter groups. Depending on the operating conditions, a different parameter group may be activated. With CFC logic parameter group change-over can be automated according to prevailing operating conditions.

In this example, motor current will be monitored. In case of a motor start a particular parameter group must be activated with higher thresholds for the overcurrent protection to avoid false trips due to the high starting currents of the motor. When the motor is started (motor start initiated via function key) the motor start parameter group is activated for 10 sec. When the currents of each phase are lower than 5% of rated current the new parameter group will be active for 10 sec pending a new motor start condition.

In the input-output matrix two annunciations in the group *Change group* are used for selection of the active parameter set. SetGroupBit0 and SetGroupBit1 define which of the four parameter sets is activated. The state of these annunciations can be derived from binary inputs. The combination of these annunciations provides the four required states, (00,01,10,11).

If only parameter group A and B are used, then it is sufficient to use only SetGroupBit0 (see picture 1). By clicking with the right mouse button on the parameter group Selection Group in the I/O matrix, and choosing Properties in the sub-menu, select Binary Input as the source for parameter selection as shown in picture 2. This allows the parameter group to be selected via binary input.

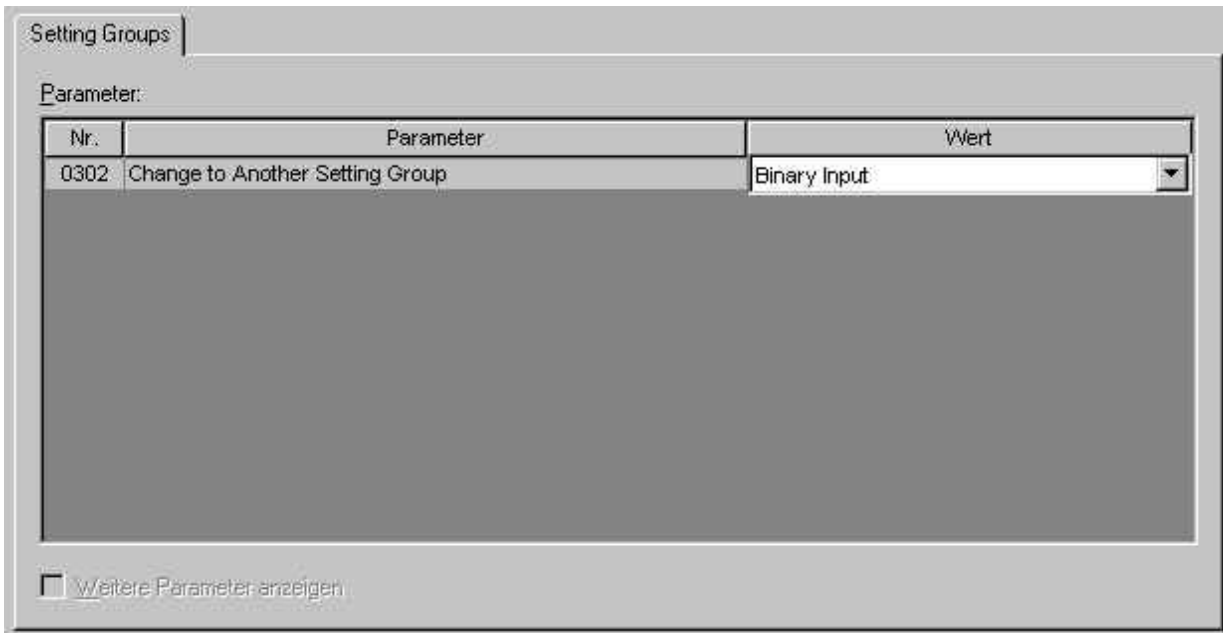
Two new information elements must be inserted in the I/O matrix (see picture 3).

Both are of the type IntSP (internal single point) the first being for routing of information between two CFC charts ($I > 5\%$), and the other is used for motor start (Start). Only information of type internal signal point can be assigned to the function keys. The Motor start annunciation is routed to the F1 button and with destination to the CFC chart. The „ $I > 5\%$ “ internal annunciation has source and destination CFC chart. The SetGroupBit0 is controlled via the CFC chart i.e. it has source CFC chart.

	SetGroupBit0 = 0	SetGroupBit0 = 1
SetGroupBit1 = 0	Group A	Group B
SetGroupBit1 = 1	Group C	Group D

Picture 1 : parameter change combinations

Two CFC charts must be used, the first one for the measurement layer used for monitoring if the phase currents are below 5% of the rated current. The Val inputs of the three LOWER_SETPOINT gates are all connected to all three phase currents (IL1,IL2,IL3). The Limit input is set to 5%. The outputs of all three gates are connected through the AND gate to the „ $I > 5\%$ “ internal annunciation. This annunciation is used again in the second CFC chart, now as an input signal.

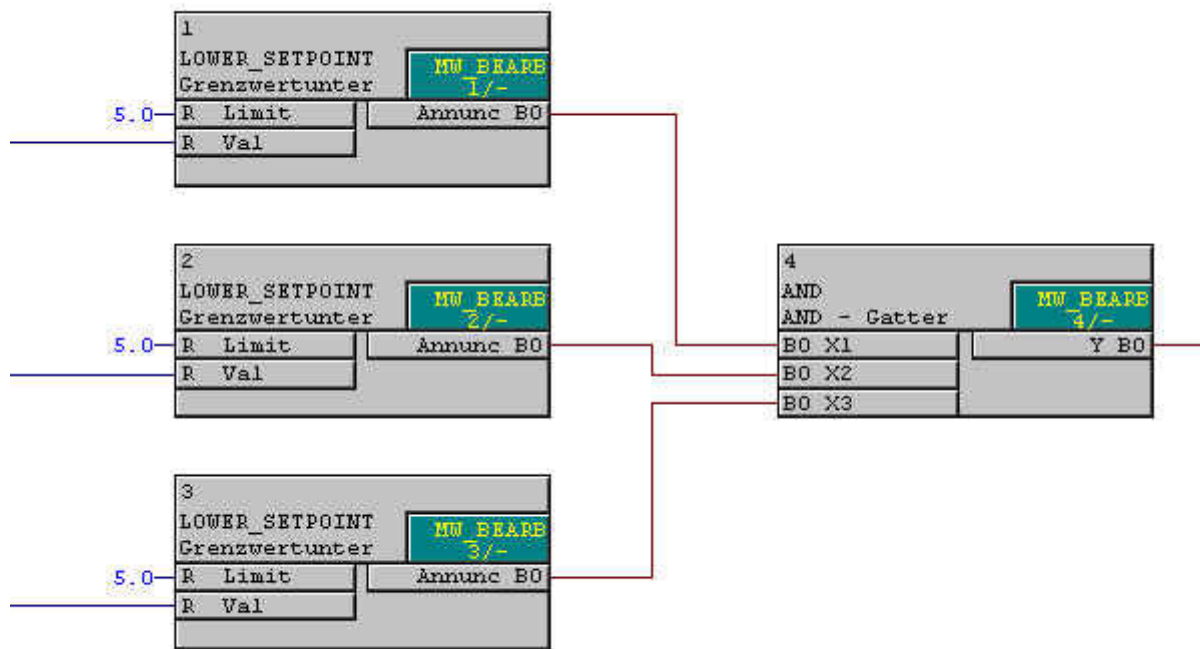


Picture 2: The parameter group change has to be set to „Binary Input“

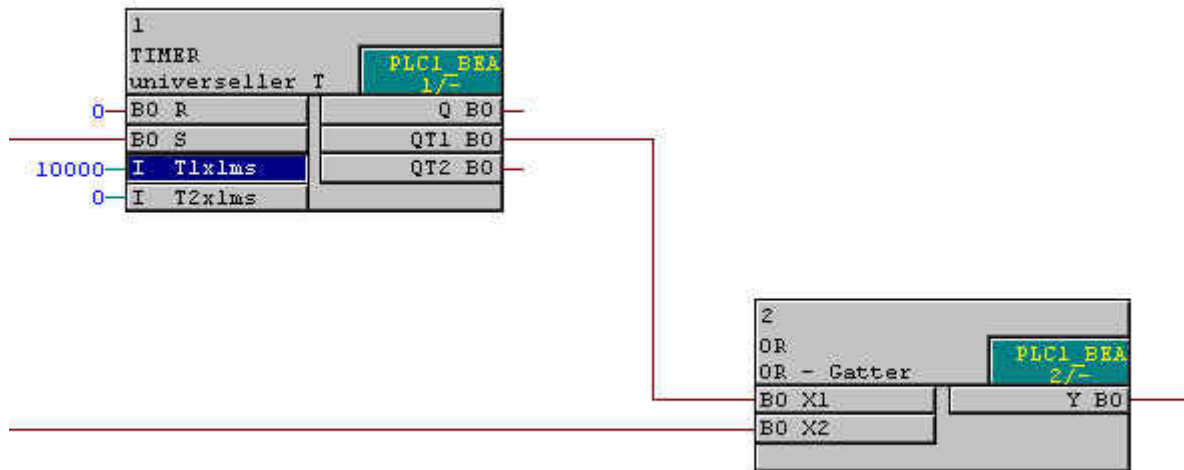
	Information			Source																	Destination														
	No.	Display text:	L	Type	BI																	F	C	BO	LE	Buffer			S	C	B	CM			
Device					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					O	S	T				
P.System Data 1					*	*																						*			*	*			
Osc. Fault Rec.																								*				*			*	*			
Change Group	00007	>Set Group Bit0		SP																					X						X				
	00008	>Set Group Bit1		SP																											X				
		Group A		IntSP																							oo				X				
		Group B		IntSP																							oo				X				
		Group C		IntSP																							oo				X				
		Group D		IntSP																							oo				X				
		Start		IntSP																				1			oo					X			
	>5%		IntSP																					X		oo					X				

Picture 3: New user defined annunciations in the input/output matrix

The second CFC chart consists of two elements (see picture 5). The function of the timer is to prolong the motor start signal to 10 s. The timer SET input is connected to the Start information from the function key, as already defined in the input-output matrix. The QT1 output of the timer is connected to the OR gate input. The other input of the OR gate is connected with the „>5%“ internal annunciation. The OR gate output is connected to SetGroup Bit 0. This annunciation will switch over between group A and B.



Picture 4: measurement values in the measurement layer



Picture 5: second CFC chart