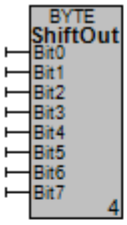
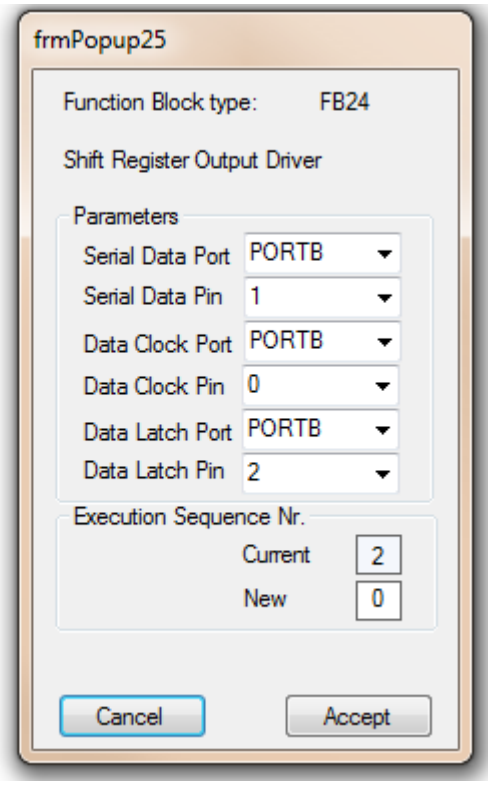
Function Block 24 — Serial Output Driver

Function Description

Output 8 bit-values to a hardware device using serial output data. 3 Port pin, which are user selectable, are used. This function block is mainly used for driving the 74LS595, an 8-Bit shift register with output registers. Inputs to the function block can be inverted by clicking on an input pin while holding down the SHIFT key. Do the same to remove the inversion.





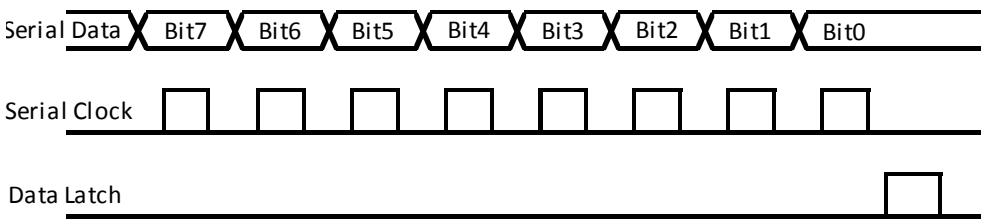
Popup Parameters

- The 3 output pins required by this function block is selected as indicated on the popup on the right
- Execution Sequence Nr.

Input/Output and Parameters

Type	Description	Data Type	Range
Input 1…8	Input bit value signals	Bit	0,1

Timing diagram showing how the 8 data bits are clocked out using 3 output pins.

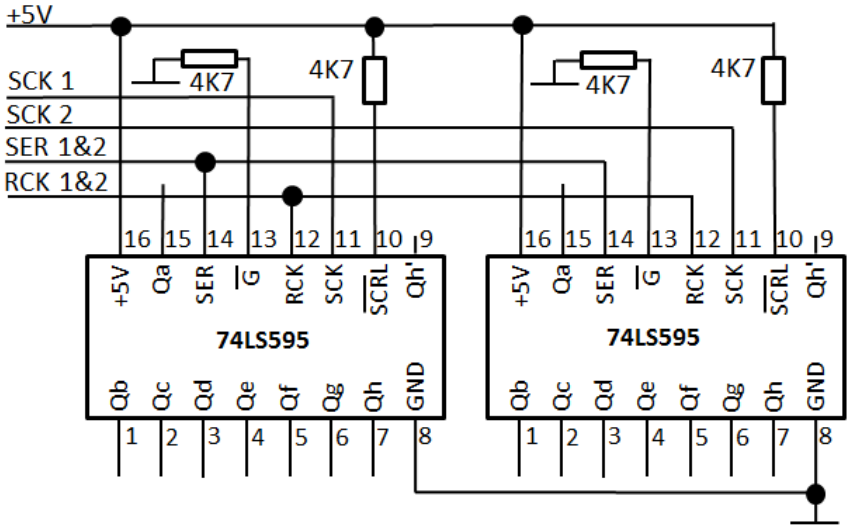


Description (for 74LS595 use)

With each Serial Clock pulse a Serial Data bit is transferred to the shift register. Once all 8 bits have been transferred the Data Latch output is pulse, at which time the 74LS595's shift register contents is transferred to its output latches. Bit0…Bit.7 of the function block's inputs are transferred to the Qa….Qh outputs of the 74LS595. The clock rate is 1MHz and the function block executes in 10.5uSec.

Application
When this function block is used to drive a 74LS595 the user must tie the chip's pin 13 (!G) to 0 Volt and pin 10 (!SCLR) to +5 Volt.

When driving multiple 74LS595s they can all share the same PIC port pins for Serial Data (SER) and Data Latch (RCK) signals with individual PIC port pins for each chip's Data Clock (SCK). In this way it is possible to drive six 74LS595 shift registers using 8 port lines to provide 48 outputs. Do not to make the connection lines to long to prevent cross-talk or interference between them. Best is to place an earthed (0 Volt) conductor between them. Below is a basic circuit showing how to drive two 74LS595 shift registers using 4 PIC ports to obtain 16 outputs.



This function block is ideal when using the 74LS595 to drive a 7-segment display. Use it together with FB107, which is a pattern-lookup function block.

The function block can be executed in Cycle or Time tasks.
