

Chapter 3:

AD: read from Flex-sensors

DA: control the pressure

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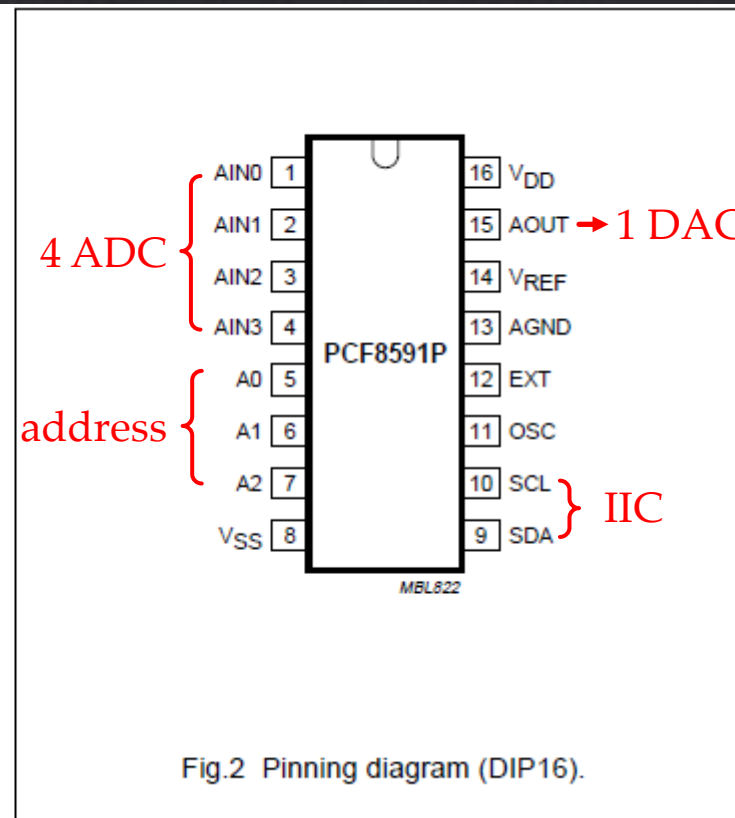
AD & DA

- ◇ AD: analog to digital
- ◇ DA: digital to analog

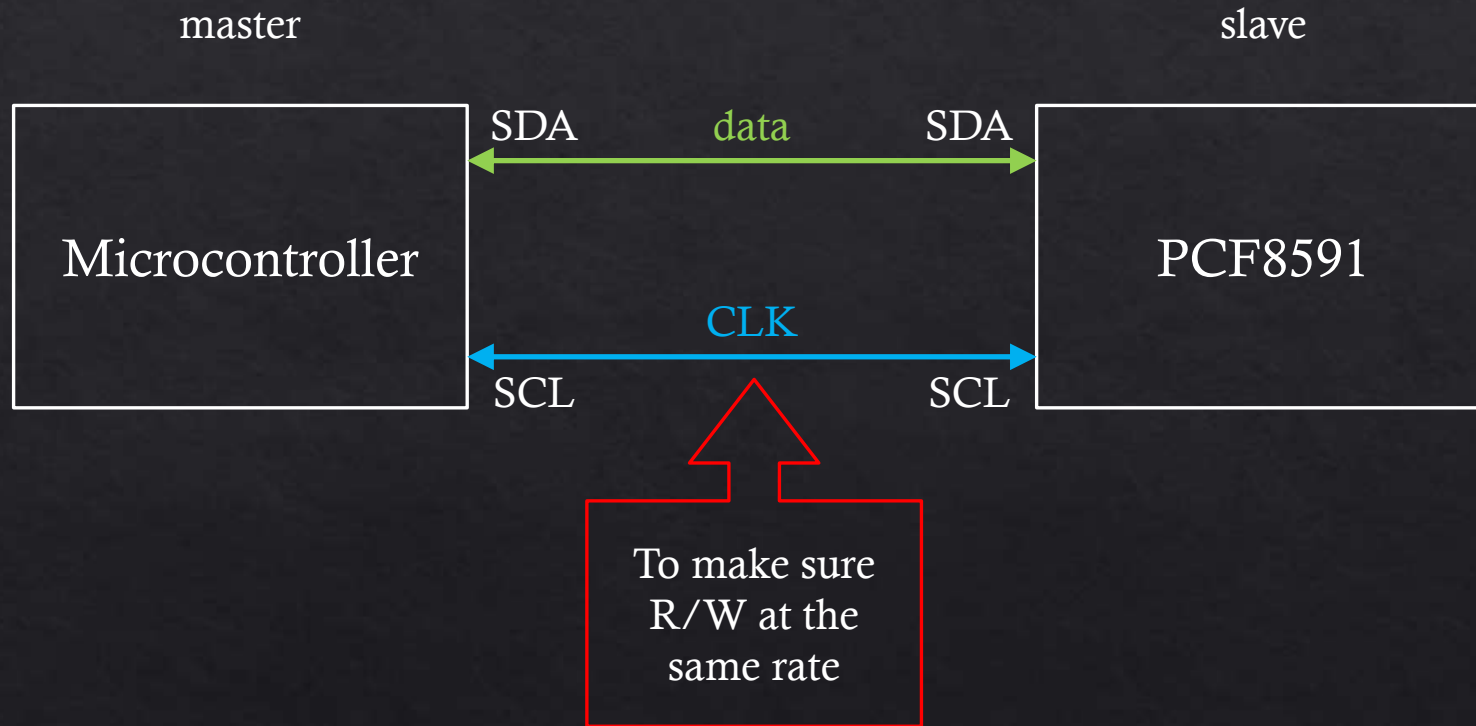
- ◇ Peripheral component: PCF8591

PCF8591– 8 bits AD / DA converter (voltage)

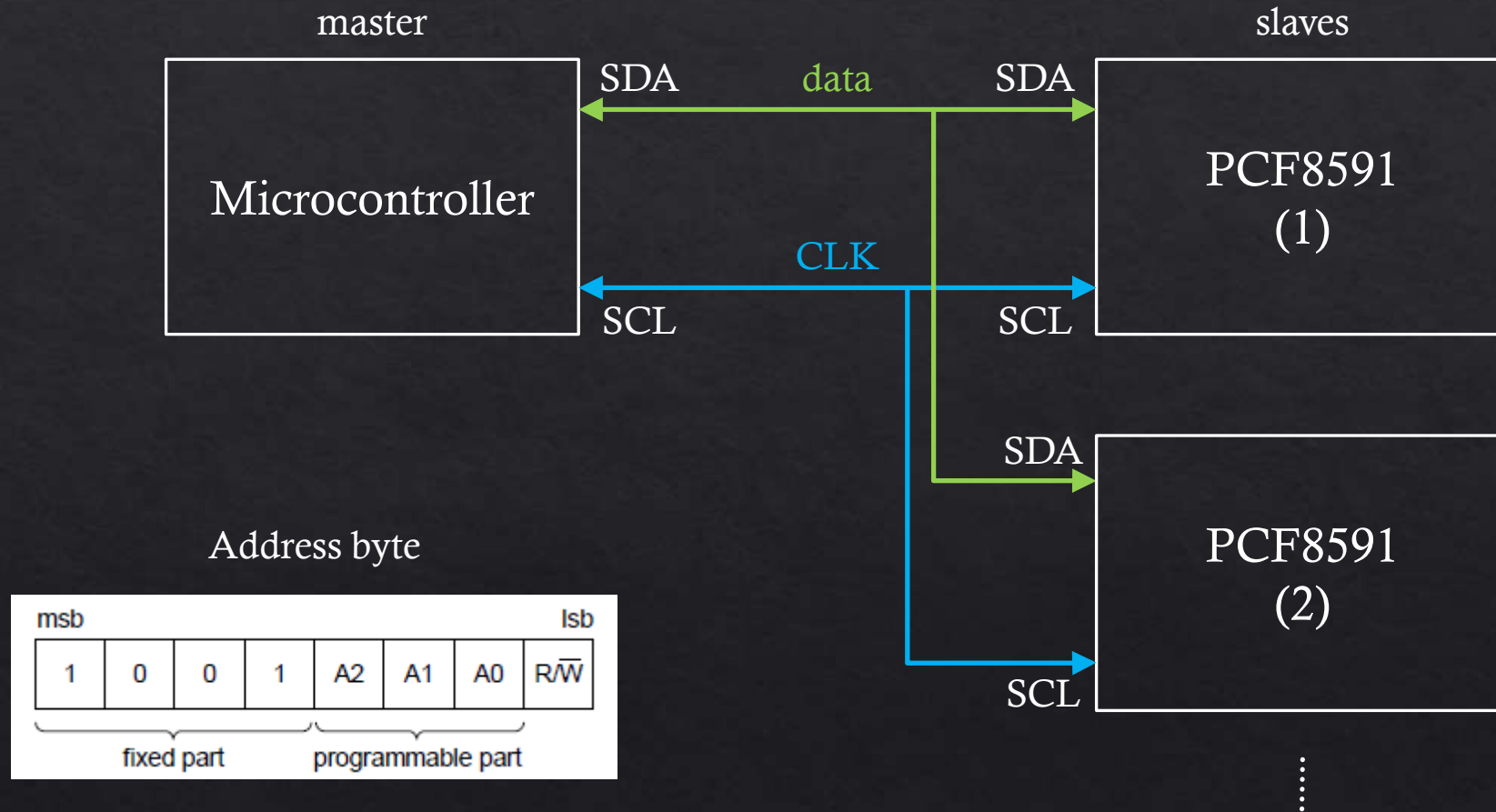
SYMBOL	PIN	DESCRIPTION
AIN0	1	analog inputs (A/D converter)
AIN1	2	
AIN2	3	
AIN3	4	
A0	5	hardware address
A1	6	
A2	7	
V _{SS}	8	
SDA	9	I ² C-bus data input/output
SCL	10	I ² C-bus clock input
OSC	11	oscillator input/output
EXT	12	external/internal switch for oscillator input
AGND	13	analog ground
V _{REF}	14	voltage reference input
AOUT	15	analog output (D/A converter)
V _{DD}	16	positive supply voltage



IIC – communicate between master & slave chips

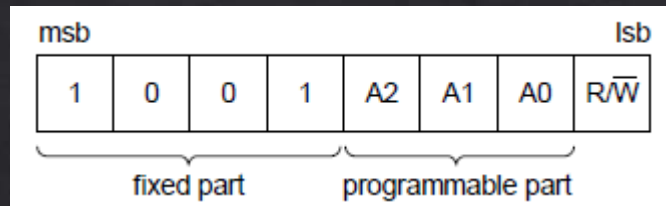


IIC – communicate between master & slave chips

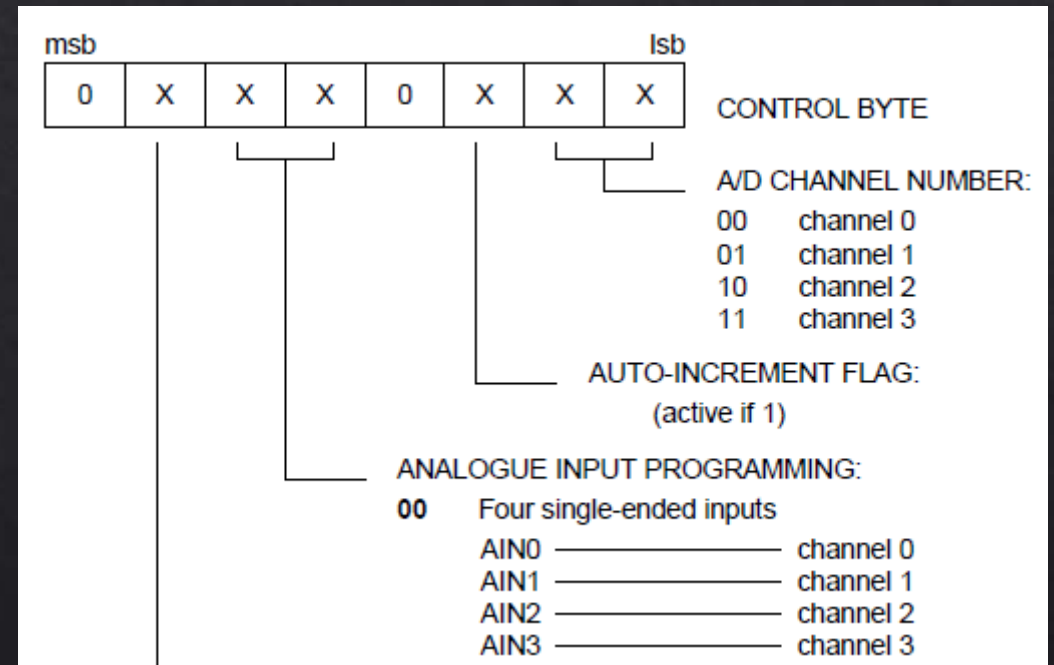


IIC – PCF8591 control

Address byte



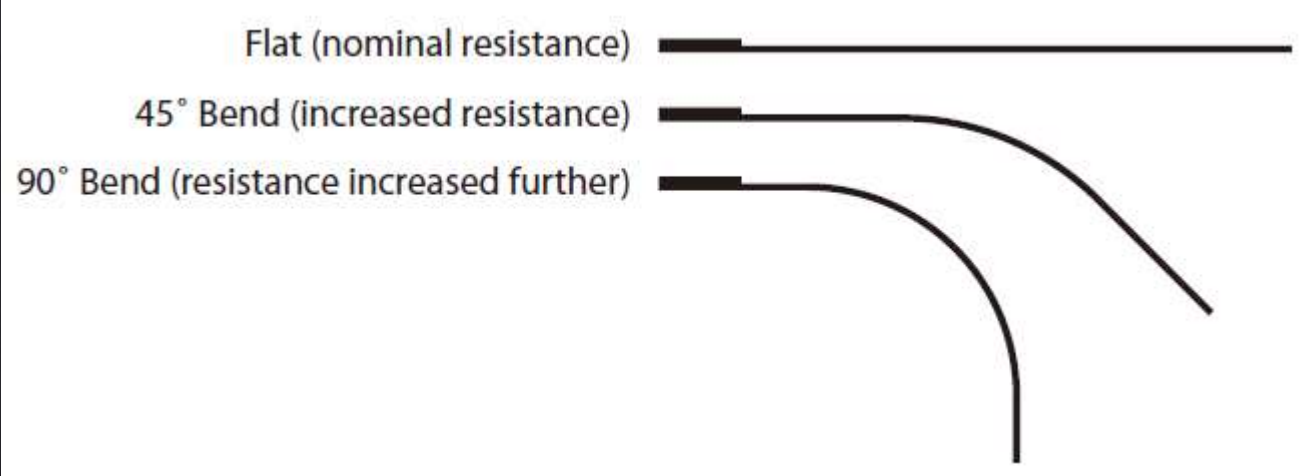
Control byte



E.g.: address: 0x90, control: 0x40
address: 0x93, control: 0x43

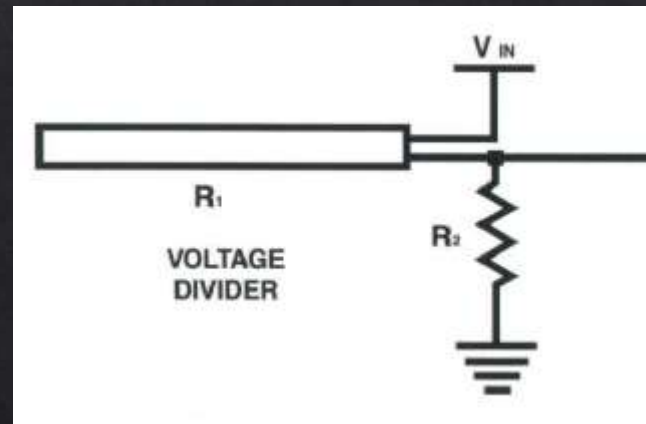
Flex sensor

◇ How it works



Flex sensor

◇ Measurement



Resistance -> voltage

Thanks

2016.5.6