Digital I/O, Timing

Set and Sense Logic Levels

Set/Sense logic levels on digital pins SQ1, SQ2, OD1, SEN*, IN2

set_state : set a digital pin to HIGH (5V) /LOW (0V)

parameter	description
**kwargs	
	SQR1, SQR2, OD1 = False(LOW) or True(HIGH)

Set SQ1 output to 5V, OD1 to 0V

```
import eyes17.eyes
p = eyes17.eyes.open()
p.set_state(SQR1=True, OD1=False)
```

get_states : get logic levels on digital input pins

`p.get_states()`

Returns	description
dict	
	{'IN2': T/F, 'SQR1': T/F, 'OD1': T/F, 'SEN': T/F, 'SQR1_OUT': T/F}

Measure state of IN2

```
import eyes17.eyes
p = eyes17.eyes.open()
states = p.get_states()
print(f" IN2 is {'HIGH' if states['IN2'] else 'LOW'}")
```

Output for the above

```
In [ ]:
   …: p = eyes17.eyes.open()
   …: states = p.get_states()
   …: print(f" IN2 is  'HIGH'    states['IN2']      'LOW' ")
 IN2 is HIGH


In [ ]: states
Out[ ]:
{'IN2': True,
 'SQR1': False,
 'OD1': False,
 'SEN': True,
 'SQR1_OUT': False,
 'OD1_OUT': False,
 'CCS': False}


In [ ]:
```

get_state : get logic level on any digital input pin

`p.get_state(channel)`

Parameter	description
channel	'IN2' , 'OD1', or 'SEN'
Returns	
bool	True/False

Example

```
In [ ]: p.get_state('SEN')
Out[ ]: True
```

Measure Frequencies and time periods

get_freq :

Frequency measurement on IN2/SEN Measures time taken for 4 rising edges of input signal.

parameter	description
channel	The input to measure frequency from 'SEN' / 'IN2'
return	freq in Hz. 0 if timed out

```
p.get_freq('IN2')
```

Undocumented yet.

,MeasureInterval,	**,timing measurements for digital signals on IN2 or SEN,**
,MeasureMultipleDigitalEdges,	,timing measurements for digital signals on IN2 or SEN,
,SinglePinEdges,	,timing measurements for digital signals on IN2 or SEN,
,DoublePinEdges,	,timing measurements for digital signals on IN2 or SEN,
,stepper_move,	,Stepper motor movement,
,stepper_forward,	,Stepper motor movement,
,stepper_reverse,	,Stepper motor movement,
,set_multiplexer,	,Set CS1-4 to control analog multiplexers . Only on SEElab3,
,duty_cycle,	,measure duty cycle on IN2,
,r2rtime,	,Timing measurements on IN2/SEN. Rising Edge to Rising edge,

,MeasureInterval,	**,timing measurements for digital signals on IN2 or SEN,**
,f2ftime,	,Timing measurements on IN2/SEN. Falling Edge to Falling edge,
,r2ftime,	,Timing measurements on IN2/SEN. ,
,f2rtime,	,Timing measurements on IN2/SEN. ,
,multi_r2rtime,	,Timing measurements on IN2/SEN. Multiple rising edges. ,
,set2rtime,	,”Enable an output such as OD1/SQ1, and then measure time to a rising edge on IN2/SEN”,
,set2ftime,	,”Enable an output such as OD1/SQ1, and then measure time to a falling edge”,
,clr2rtime,	,”Turn off an output such as OD1/SQ1, and then measure time to a rising edge on IN2/SEN”,
,clr2ftime,	,”Turn off an output such as OD1/SQ1, and then measure time to a falling edge”,