



ALL TIME



Prescaler
TIM_Period (ARR)

Prescaler = 9

4. Period (ARR) = 3200

$$= 9$$

$$R) = 3200$$

A
an

All TIME
and TIME
value

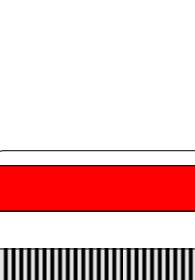
all TIM_Pe
and TIM_P
values x

M_Period
M_Pulse
ues x2

period
pulse
2







2000

38 kH



2000us

38 kHz

A barcode consisting of vertical black lines of varying widths on a white background, located at the bottom of the page.

us

tz



TIN

TIN

STA



Prescaler

TIM_Period (ARR)

TIM_Pulse (CCR)

START



Prescaler = 9

M_Period (ARR) = 3200

M_Pulse (CCRx) = 1600

RT



$$= 9$$

$$R) = 3200$$

$$x) = 1600$$

2000

2000us

US







value

Prescaler
TIM_Period (C)
TIM_Pulse (C)

values x

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



Prescaler x2

Prescaler = 9

TIM_ARR = 480

TIM_CRx = 240

Prescaler

TIM_Period (C

TIM_Pulse (C

2

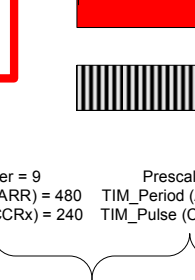


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





er = 9

ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



20000

38 kHz



er = 9

ARR) = 480

CRx) = 240

TIM_P

TIM_P

20000s

38 kHz



Prescaler = 9

TIM_Period (ARR) =

TIM_Pulse (CCRx) =



JS

Hz

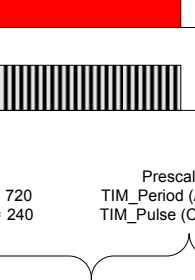


Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240





Prescal

720

TIM_Period (C

240

TIM_Pulse (C



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

Prescal

TIM_Period (A


TIM_Pulse (C



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



20000us

er = 9

ARR) = 480

CRx) = 240

Prescal

TIM_Period (.


TIM_Pulse (C

us

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

TIM_P

TIM_P

Prescaler = 9

TIM_Period (ARR) =

TIM_Pulse (CCRx) =

Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240



720
240

Prescal
TIM_Period (A
TIM_Pulse (C

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

YAW

TIM_Period (C)
TIM_Pulse (C)

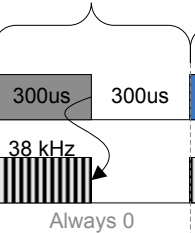
AW

300us

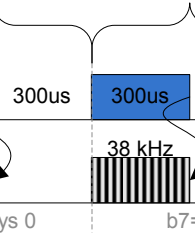
38 kHz

Alwa

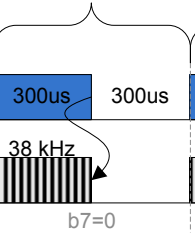
TIM_Period (ARR) = 480
TIM_Pulse (CCRx) = 240



ARR) = 480 TIM_Period ()
CRx) = 240 TIM_Pulse (C

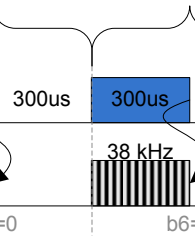


TIM_Period (ARR) = 480
TIM_Pulse (CCRx) = 240

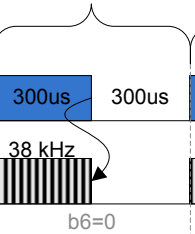


ARR) = 480
CRx) = 240

TIM_Period (C
TIM_Pulse (C

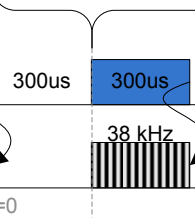


TIM_Period (ARR) = 480
TIM_Pulse (CCRx) = 240

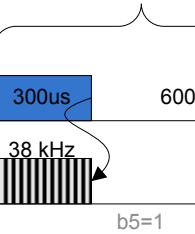


ARR) = 480
CRx) = 240

TIM_P
TIM_P



TIM_Period (ARR) =
TIM_Pulse (CCRx) =

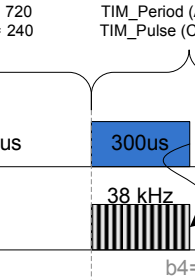


Period (ARR) = 720
Pulse (CCRx) = 240

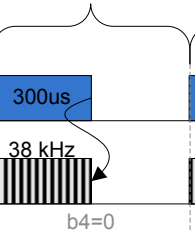
600us

The diagram shows a horizontal timeline. A bracket above the timeline spans from the start to a vertical dashed line, with the label '600us' centered below it. A blue rectangular pulse is shown on the right side of the timeline, starting at the vertical dashed line and extending to the right. A curved arrow on the left points to the start of the pulse.

b5=1



TIM_Period (ARR) = 480
TIM_Pulse (CCRx) = 240



ARR) = 480

CRx) = 240

TIM_Period (A

TIM_Pulse (C

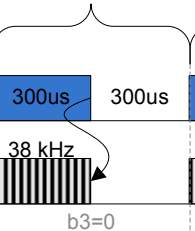
300us

38 kHz

=0

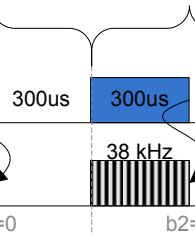
b3=

TIM_Period (ARR) = 480
TIM_Pulse (CCRx) = 240

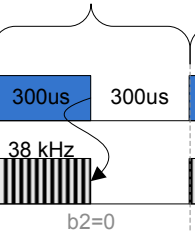


ARR) = 480
CRx) = 240

TIM_Period (C
TIM_Pulse (C

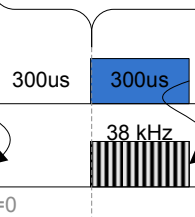


TIM_Period (ARR) = 480
TIM_Pulse (CCRx) = 240



ARR) = 480
CRx) = 240

TIM_P
TIM_P

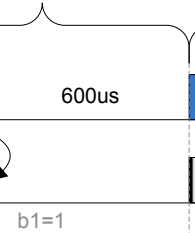


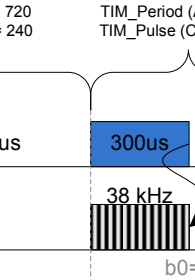
TIM_Period (ARR) =
TIM_Pulse (CCRx) =



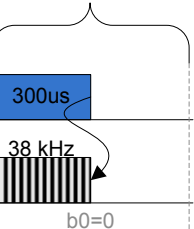
b1=1

period (ARR) = 720
pulse (CCR_x) = 240





TIM_Period (ARR) = 480
TIM_Pulse (CCRx) = 240



$$\text{ARR}) = 480$$

$$\text{CRx}) = 240$$





38 kHz



Always

Prescaler

TIM_Period (C)

TIM_Pulse (C)



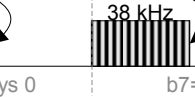


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





er = 9

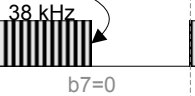
ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

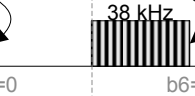


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





er = 9

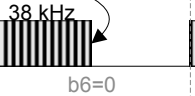
ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

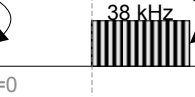


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





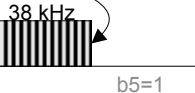
er = 9

ARR) = 480

CRx) = 240

TIM_F

TIM_P



Prescaler = 9

TIM_Period (ARR) =

TIM_Pulse (CCRx) =



b5=1

Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240



38 kHz

b4=

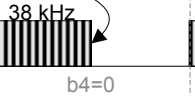
Prescal

720

TIM_Period (

= 240

TIM_Pulse (C

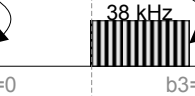


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





er = 9

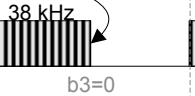
ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

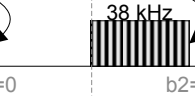


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCR_x) = 240





er = 9

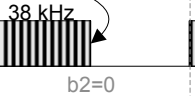
ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

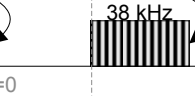


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





er = 9

ARR) = 480

CRx) = 240

TIM_P

TIM_P



Prescaler = 9

TIM_Period (ARR) =

TIM_Pulse (CCRx) =



b1=1

Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240



38 kHz

b0=

Prescal

720

TIM_Period (A

240

TIM_Pulse (C



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





$=0$

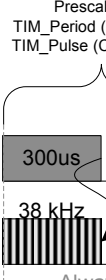
er = 9

ARR) = 480

CRx) = 240

PITCH

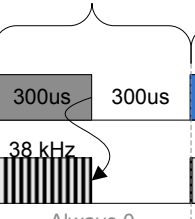
ITCH



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

Prescal

ARR) = 480

TIM_Period (

CRx) = 240

TIM_Pulse (C

300 μ s

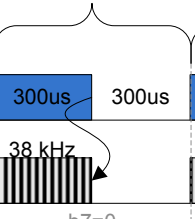
300 μ s

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

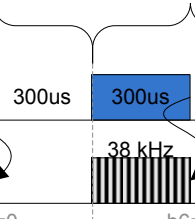
Prescal

ARR) = 480

TIM_Period (

CRx) = 240

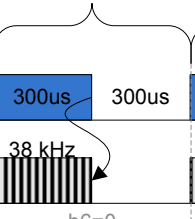
TIM_Pulse (C



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



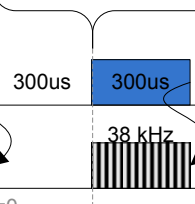
er = 9

ARR) = 480

CRx) = 240

TIM_P

TIM_P



Prescaler = 9

TIM_Period (ARR) =

TIM_Pulse (CCRx) =



h5-1

Prescaler = 9

Period (ARR) = 720

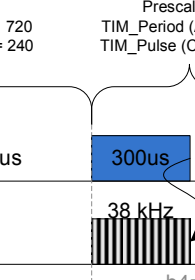
Pulse (CCRx) = 240



A timing diagram showing a periodic signal. A horizontal line represents the signal. A bracket above the line spans one full period of the signal. The text "600us" is centered below the bracket. A vertical dashed line marks the end of the period. A blue shaded area is visible on the right side of the diagram, and a curved arrow is on the left side.

600us

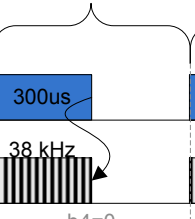
b5=1



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

Prescal

ARR) = 480

TIM_Period (

CRx) = 240

TIM_Pulse (C

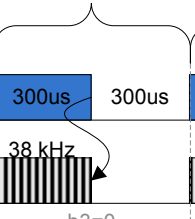
300us

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

Prescal

ARR) = 480

TIM_Period (

CRx) = 240

TIM_Pulse (C

300us

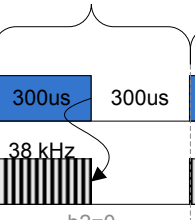
300us

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

TIM_P

TIM_P

300us

300us

38 kHz

Prescaler = 9

TIM_Period (ARR) =

TIM_Pulse (CCRx) =



b1=1

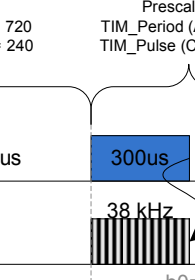
Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240



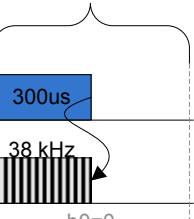
600us



Prescaler = 9

TIM_Period (ARR) = 480

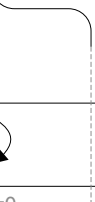
TIM_Pulse (CCRx) = 240



$$\text{er} = 9$$

$$\text{ARR}) = 480$$

$$\text{CRx}) = 240$$



FITCH



ICH

38 kHz

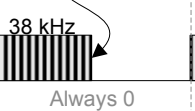


Alwa

Prescal

TIM_Period (

TIM_Pulse (C

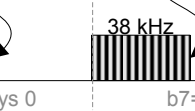


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





er = 9

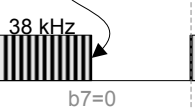
ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

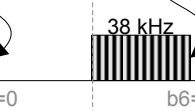


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





er = 9

ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

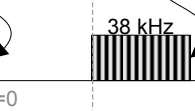


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





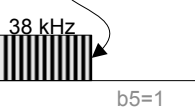
er = 9

ARR) = 480

CRx) = 240

TIM_F

TIM_P



Prescaler = 9
TIM_Period (ARR) =
TIM_Pulse (CCRx) =





b5=1

Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240



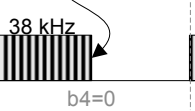
38 kHz

b4=

Prescal

720
= 240

TIM_Period (.
TIM_Pulse (C

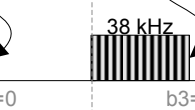


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





er = 9

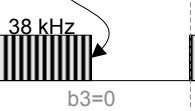
ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

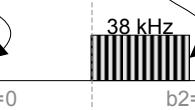


Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCR_x) = 240





er = 9

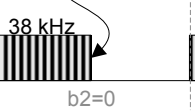
ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

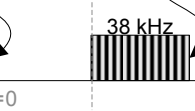


Prescaler = 9

TIM_Period (ARR) = 480

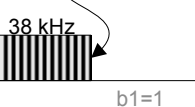
TIM_Pulse (CCR_x) = 240





er = 9
ARR) = 480
CRx) = 240

TIM_P
TIM_P



Prescaler = 9
TIM_Period (ARR) =
TIM_Pulse (CCRx) =





$b1=1$

Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240



38 kHz

b0=

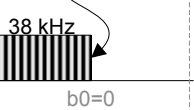
Prescal

720

TIM_Period (A

240

TIM_Pulse (C



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240





$=0$

er = 9

ARR) = 480

CRx) = 240

THROTTLE

BOTTLE

Prescaler
TIM_Period (C)
TIM_Pulse (C)

300us

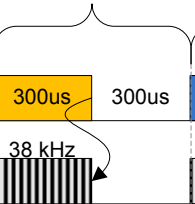
38 kHz



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

300 μ s

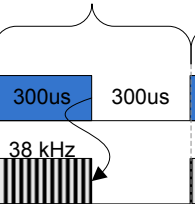
300 μ s

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

300 μ s

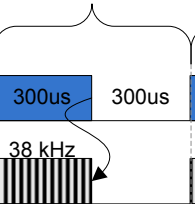
300 μ s

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

TIM_F

TIM_P

300 μ s

300 μ s

38 kHz

Prescaler = 9

TIM_Period (ARR) =

TIM_Pulse (CCRx) =



Prescaler = 9

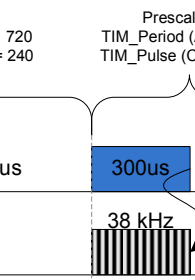
Period (ARR) = 720

Pulse (CCRx) = 240



A timing diagram showing a periodic signal. A horizontal line represents the signal, with a blue shaded area above it. A bracket above the line indicates a period of 600us. A dashed vertical line is shown on the right side of the diagram, and a curved arrow points from the bottom left towards it.

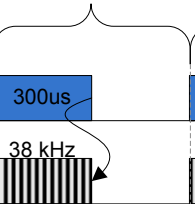
600us



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

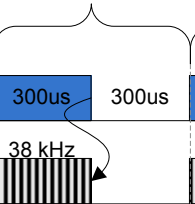
300us

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

Prescal

TIM_Period (

TIM_Pulse (C

300us

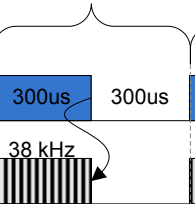
300us

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240

TIM_P

TIM_P

300us

300us

38 kHz

Prescaler = 9

TIM_Period (ARR) =

TIM_Pulse (CCRx) =



Prescaler = 9

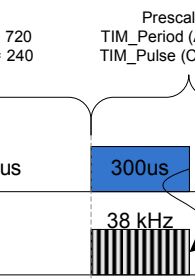
Period (ARR) = 720

Pulse (CCRx) = 240



A timing diagram showing a periodic signal. A horizontal line represents the signal, with a blue shaded area below it. A bracket above the line indicates a period of 600us. A dashed vertical line is shown on the right side of the diagram, and a curved arrow points from the bottom left towards it.

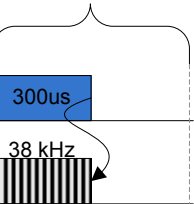
600us



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



er = 9

ARR) = 480

CRx) = 240



THROTTLE



BOTTLE

38 kHz



Channel

0: chan

1: chan

Presca

TIM_Period

TIM_Pulse (c

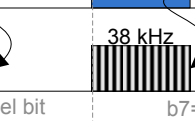


Channel bit
0: channel A
1: channel B

Prescaler = 9

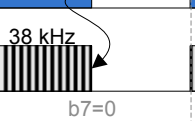
TIM_Period (ARR) = 480

TIM_Pulse (CCR_x) = 240



el bit
nel A
nel B

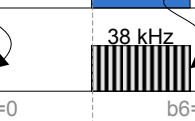
ler = 9 Presca
(ARR) = 480 TIM_Period
CCRx) = 240 TIM_Pulse (



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCR_x) = 240



Prescaler = 9

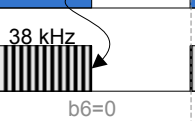
(ARR) = 480

(CCR_x) = 240

Prescaler

TIM_Period

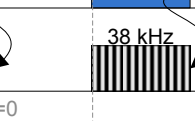
TIM_Pulse (C



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCR_x) = 240



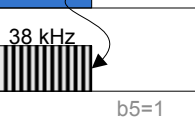
caler = 9

(ARR) = 480

CCR_x) = 240

TIM_

TIM_



Prescaler = 9
TIM_Period (ARR)
TIM_Pulse (CCRx)



b5=1

Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240

38 kHz

b4=

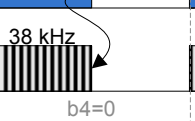
Presca

= 720

TIM_Period

= 240

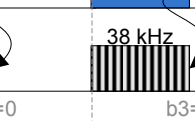
TIM_Pulse (0



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCR_x) = 240



ler = 9

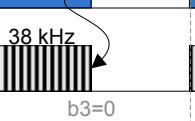
(ARR) = 480

CCRx) = 240

Presca

TIM_Period

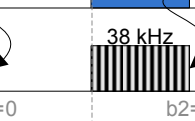
TIM_Pulse (



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCR_x) = 240



caler = 9

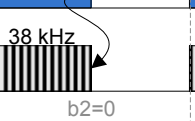
(ARR) = 480

CCRx) = 240

Presca

TIM_Period

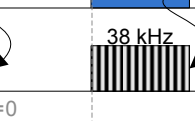
TIM_Pulse (



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



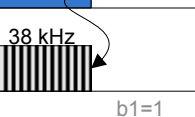
caler = 9

(ARR) = 480

CCRx) = 240

TIM_1

TIM_1



Prescaler = 9
TIM_Period (ARR)
TIM_Pulse (CCRx)



$b1=1$

Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240

38 kHz

b0=

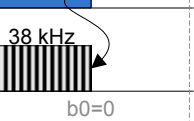
Presca

= 720

TIM_Period

= 240

TIM_Pulse (0



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCR_x) = 240



ler = 9

(ARR) = 480

(CCR_x) = 240

ADJUST
(YAW)

JUST
(YAW)

Presca
TIM_Period
TIM_Pulse (

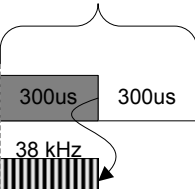
300 μ s

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



Prescaler = 9

$\text{TIM_Period} (\text{ARR}) = 480$

$\text{TIM_Pulse} (\text{CCR}x) = 240$

Prescaler

TIM_Period

$\text{TIM_Pulse} (x)$

300 μ s

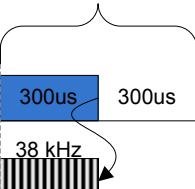
300 μ s

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



Prescaler = 9

$\text{TIM_Period} (\text{ARR}) = 480$

$\text{TIM_Pulse} (\text{CCR}x) = 240$

Prescaler

TIM_Period

$\text{TIM_Pulse} (x)$

300 μ s

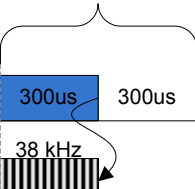
300 μ s

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



Prescaler = 9

(ARR) = 480

(CCRx) = 240

TIM_

TIM_

300 μ s

300 μ s

38 kHz

Prescaler = 9

TIM_Period (ARR)

TIM_Pulse (CCRx)

300 μ s

600

38 kHz



Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240



600us



$= 720$
 $= 240$

Prescaler
TIM_Period
TIM_Pulse (0

0us

300us

38 kHz



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



A diagram illustrating the relationship between a pulse width and its frequency. At the top, three parameters are listed: Prescaler = 9, TIM_Period (ARR) = 480, and TIM_Pulse (CCRx) = 240. A large curly bracket spans these three lines. Below the bracket, a blue rectangular pulse is shown with the label "300us" inside it. A curved arrow points from the right side of this pulse down to a series of vertical black bars representing a waveform. Above these bars is the label "38 kHz".

300us

38 kHz

Prescaler = 9

(ARR) = 480

(CCRx) = 240

Prescaler

TIM_Period

TIM_Pulse (0

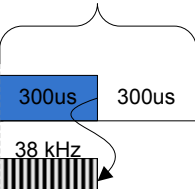
300us

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



Prescaler = 9

(ARR) = 480

(CCRx) = 240

Prescaler

TIM_Period

TIM_Pulse (0

300 μ s

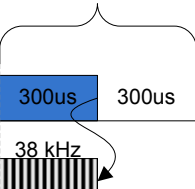
300 μ s

38 kHz

Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



caler = 9

(ARR) = 480

(CCRx) = 240

TIM_1

TIM_1

300us

300us

38 kHz

Prescaler = 9
TIM_Period (ARR)
TIM_Pulse (CCRx)

300 μ s

600

38 kHz



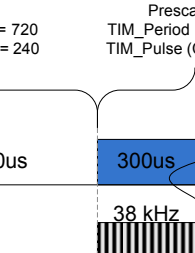
Prescaler = 9

Period (ARR) = 720

Pulse (CCRx) = 240



600us



Prescaler = 9

TIM_Period (ARR) = 480

TIM_Pulse (CCRx) = 240



A diagram illustrating the relationship between a pulse width and a frequency. At the top, three parameters are listed: Prescaler = 9, TIM_Period (ARR) = 480, and TIM_Pulse (CCRx) = 240. A large curly bracket spans these three lines. Below the bracket, a blue rectangular block represents a pulse width, labeled "300us". Below this, a series of vertical black bars of equal width and height represent a frequency, labeled "38 kHz". A curved arrow points from the right side of the blue pulse width block to the first black bar of the frequency series.

300us

38 kHz

ler = 9

(ARR) = 480

(CCR_x) = 240



ADJUST
(YAW)

JUST
(YAW)

300us

38 kHz

Alwa

300us

300us

38 kHz



Always 0



300us

300us

38 kHz

ays 0

b7



300us

300us

38 kHz

b7=0

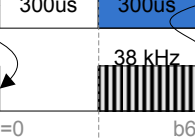
300us

300us

38 kHz

=0

b6



300us

300us

38 kHz

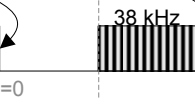
b6=0

300us

300us

38 kHz

=0



300us

600

38 kHz

b5=1

600us



b5=1

0us

300us

38 kHz

b4

STOP

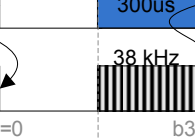
300us

38 kHz

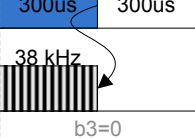
b4=0

STOP

TIM_



Prescaler =
TIM_Period (ARR)



Prescaler = 9
Period (ARR) = 32240

300us

300us

38 kHz

=0

b2

9

= 32240

300us

300us

38 kHz

b2=0

300 μ s

300 μ s

38 kHz

=0

300 μ s

600

38 kHz



b1=1

600us



$b_1 = 1$

0us

300us

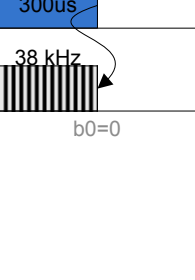
38 kHz

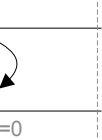
b0

300 μ s

38 kHz

b0=0





30

38



300 μ s

38 kHz



00us

kHz



40000us

STOP

000us

STOP

TIM
TIM

$$\text{Prescaler} = \frac{\text{TIM_Period (ARR)}}{\text{TIM_Pulse (CCR)}}$$

Prescaler = 9

Period (ARR) = 32240

Pulse (CCRx) = 240

9

= 32240

) = 240
