CAENels
Gear for Science

EPICS

BEST EPICS IOC

Contents

IOC RECORDS

$(P):TetrAMM0:Ch1

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	TetrAMM Input Channel 1
FTVL	DOUBLE
EGU	Amper
NELM	1024
SCAN	1 second

Long description:
Waveform from input channel of TetrAmm picoameter unit. Default sampling frequency is 1kHz (decimation from 100kHz).

$(P):TetrAMM0:Ch2

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	TetrAMM Input Channel 2
FTVL	DOUBLE
EGU	Amper
NELM	1024
SCAN	1 second

Long description:

Waveform from input channel of TetrAmm picoameter unit. Default sampling frequency is 1kHz (decimation from 100kHz).

$(P):TetrAMM0:Ch3

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	TetrAMM Input Channel 3
FTVL	DOUBLE
EGU	Amper
NELM	1024
SCAN	1 second

Long description:
Waveform from input channel of TetrAmm picoameter unit. Default sampling frequency is 1kHz (decimation from 100kHz).

$(P):TetrAMM0:Ch4

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	TetrAMM Input Channel 4
FTVL	DOUBLE
EGU	Amper
NELM	1024
SCAN	1 second

Long description:
Waveform from input channel of TetrAmm picoameter unit. Default sampling frequency is

1kHz (decimation from 100kHz).

$(P):BPM0:PosX

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	Position X
FTVL	DOUBLE
EGU	um
NELM	1024
SCAN	1 second

Long description:
Calculated beam position from currents and BPM scaling parameters. See BEST User's Manual for detailed explanation of beam position calculation

$(P):BPM0:PosY

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	Position Y
FTVL	DOUBLE
EGU	um
NELM	1024
SCAN	1 second

Long description:
Calculated beam position from currents and BPM scaling parameters. See BEST User's Manual for detailed explanation of beam position calculation

$(P):BPM0:Int

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	Intensity
FTVL	DOUBLE
EGU	Amper
NELM	1024
SCAN	1 second

Long description:
Calculated beam intensity (sum of all four currents). See BEST User's Manual for detailed explanation of beam position calculation

$(P):BPM0:ScaleX

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	BPM position X
EGU	um/1
SCAN	1 second

Long description:
BPM Scaling parameter (defined by its dimensions)

$(P):BPM0:ScaleY

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	BPM position X
EGU	um/1
SCAN	1 second

Long description:
BPM Scaling parameter (defined by its dimensions)

$(P):PID:Status

Record Type: mbbi

Fields:

Field	Value
DTYP	CAENels BEST Mbbi
DESC	PID status
ZRST	Stopped
ONST	Stopped by ROC
TWST	Paused
THST	Running
SCAN	1 second

Long description:
Status of PID controller on FPGA Card

$(P):PID:Enable

Record Type: bo

Fields:

Field	Value
DTYP	CAENels BEST Bo
DESC	PID Enable
ZNAM	OFF
ONAM	ON

Long description:
Control of PID controller on FPGA Card

$(P):PID:Config

Record Type: mbbo

Fields:

Field	Value
DTYP	CAENels BEST Mbbo
DESC	PID Configuration
ZRST	X
ONST	X & Y
TWST	X & I0
THST	Y
FRST	Y & I0
FVST	X & Y & I0
SXST	I0

Long description:
Selects which of the three feedbacks are active

$(P):PID:RoiX

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Region of Interest, X postion
EGU	um
SCAN	1 second

Long description:
The region in which user can place beam

$(P):PID:RoiY

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Region of Interest, Y postion
EGU	um
SCAN	1 second

Long description:
The region in which user can place beam

$(P):PID:RoiIntMin

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Region of Interest, min Intensity
EGU	Amper
SCAN	1 second

Long description:

The minimum intensity which can user set

$(P):PID:RoiIntMax

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Region of Interest, max Intensity
EGU	Amper
SCAN	1 second

Long description:

The maximum intensity which can user set

$(P):PID:Roc

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Region fo Convergence
EGU	%
SCAN	1 second

Long description:

Region of convergence, where feedback loop is still active

$(P):PID:SetpointX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Setpoint X
EGU	um

Long description:
Desired beam position

$(P):PID:SetpointY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Setpoint Y
EGU	um

Long description:
Desired beam position

$(P):PID:SetpointI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Setpoint I0
EGU	Amper

Long description:
Desired beam intensity

$(P):PreDAC0:OutMux

Record Type: mbbo

Fields:

Field	Value
DTYP	CAENels BEST Mbbo
DESC	Out mux (1=SW, 0=HW)
ONST	FPGA
ZRST	SW via PCIe

Long description:
Output multiplexer allows to switch control from HW PID to software. User can then manually control PreDAC output channels. A high level feedback can also be performed by having a program writing to PreDAC0:Out.

$(P):PreDAC0:OutMux_RBV

Record Type: mbbi

Fields:

Field	Value
DTYP	CAENels BEST Mbbi
DESC	Out mux (1=SW, 0=HW)
ONST	FPGA
ZRST	SW via PCIe
SCAN	1 second

Long description:
Get Output multiplexer configuration.

$(P):PreDAC0:Out

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	PreDAC Out Channels (manual)
FTVL	DOUBLE
NELM	4

Long description:
When OutMux is set to SW mode, this values are written to PreDAC

$(P):Login:UserPass

Record Type: stringout

Fields:

Field	Value
DTYP	CAENels BEST Stringout
DESC	User and Password, separated by colon

Long description:
Putting appropriate username and password switches control from Local GUI or Webpage control and allows controlling system parameters from EPICS CA.

$(P):Login:Level

Record Type: mbbi

Fields:

Field	Value
DTYP	CAENels BEST Mbbi
DESC	Current access level
ZRST	Cruise
ONST	User
TWST	Admin
SCAN	1 second

Long description:
Current user level

$(P):PreDAC0:Ch1_RBV

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	PreDAC0 Output Channel 1
FTVL	DOUBLE
EGU	Volt
NELM	1024
SCAN	1 second

Long description:
Waveform sent to PreDAC from the PID (in HW mode).

$(P):PreDAC0:Ch2_RBV

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	PreDAC0 Output Channel 2
FTVL	DOUBLE
EGU	Volt
NELM	1024
SCAN	1 second

Long description:
Waveform sent to PreDAC from the PID (in HW mode).

$(P):PreDAC0:Ch3_RBV

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	PreDAC0 Output Channel 3
FTVL	DOUBLE
EGU	Volt
NELM	1024
SCAN	1 second

Long description:
Waveform sent to PreDAC from the PID (in HW mode).

$(P):PreDAC0:Ch4_RBV

Record Type: waveform

Fields:

Field	Value
DTYP	CAENels BEST Waveform
DESC	PreDAC0 Output Channel 4
FTVL	DOUBLE
EGU	Volt
NELM	1024
SCAN	1 second

Long description:
Waveform sent to PreDAC from the PID (in HW mode).

$(P):PID:KpX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Kp X
PINI	YES

Long description:

Set desired Kp parameter for PID X

$(P):PID:KiX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Ki X
PINI	YES

Long description:

Set desired Ki parameter for PID X

$(P):PID:KdX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Kd X
PINI	YES

Long description:
Set desired Kd parameter for PID X

$(P):PID:eminX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID emin X
PINI	YES

Long description:
Set desired emin parameter for PID X

$(P):PID:ImaxX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Imax X
PINI	YES

Long description:
Set desired Imax parameter for PID X

$(P):PID:OminX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Omin X
PINI	YES

Long description:

Set desired Omin parameter for PID X

$(P):PID:OmaxX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Omax X
PINI	YES

Long description:

Set desired Omax parameter for PID X

$(P):PID:OgainX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Ogain X
PINI	YES

Long description:
Set desired Ogain parameter for PID X

$(P):PID:OffsetX

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Offset X
PINI	YES

Long description:
Set desired Offset parameter for PID X

$(P):PID:KpY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Kp Y
PINI	YES

Long description:
Set desired Kp parameter for PID Y

$(P):PID:KiY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Ki Y
PINI	YES

Long description:

Set desired Ki parameter for PID Y

$(P):PID:KdY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Kd Y
PINI	YES

Long description:

Set desired Kd parameter for PID Y

$(P):PID:eminY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID emin Y
PINI	YES

Long description:
Set desired emin parameter for PID Y

$(P):PID:ImaxY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Imax Y
PINI	YES

Long description:
Set desired Imax parameter for PID Y

$(P):PID:OminY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Omin Y
PINI	YES

Long description:
Set desired Omin parameter for PID Y

$(P):PID:OmaxY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Omax Y
PINI	YES

Long description:
Set desired Omax parameter for PID Y

$(P):PID:OgainY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Ogain Y
PINI	YES

Long description:
Set desired Ogain parameter for PID Y

$(P):PID:OffsetY

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Offset Y
PINI	YES

Long description:
Set desired Offset parameter for PID Y

$(P):PID:KpI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Kp I0
PINI	YES

Long description:
Set desired Kp parameter for PID I0

$(P):PID:KiI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Ki I0
PINI	YES

Long description:
Set desired Ki parameter for PID I0

$(P):PID:KdI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Kd I0
PINI	YES

Long description:
Set desired Kd parameter for PID I0

$(P):PID:eminI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID emin I0
PINI	YES

Long description:
Set desired emin parameter for PID I0

$(P):PID:ImaxI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Imax I0
PINI	YES

Long description:
Set desired Imax parameter for PID I0

$(P):PID:OminI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Omin I0
PINI	YES

Long description:
Set desired Omin parameter for PID I0

$(P):PID:OmaxI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Omax I0
PINI	YES

Long description:
Set desired Omax parameter for PID I0

$(P):PID:OgainI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Ogain I0
PINI	YES

Long description:
Set desired Ogain parameter for PID I0

$(P):PID:OffsetI0

Record Type: ao

Fields:

Field	Value
DTYP	CAENels BEST Ao
DESC	PID Offset I0
PINI	YES

Long description:
Set desired Offset parameter for PID I0

$(P):PID:KpX_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Kp X Readback
SCAN	1 second

Long description:
Get Kp parameter from PID X configuration register

$(P):PID:KiX_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Ki X Readback
SCAN	1 second

Long description:
Get Ki parameter from PID X configuration register

$(P):PID:KdX_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Kd X Readback
SCAN	1 second

Long description:
Get Kd parameter from PID X configuration register

$(P):PID:eminX_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID emin X Readback
SCAN	1 second

Long description:
Get emin parameter from PID X configuration register

$(P):PID:ImaxX_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Imax X Readback
SCAN	1 second

Long description:
Get Imax parameter from PID X configuration register

$(P):PID:OminX_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Omin X Readback
SCAN	1 second

Long description:
Get Omin parameter from PID X configuration register

$(P):PID:OmaxX_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Omax X Readback
SCAN	1 second

Long description:
Get Omax parameter from PID X configuration register

$(P):PID:OgainX_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Ogain X Readback
SCAN	1 second

Long description:
Get Ogain parameter from PID X configuration register

$(P):PID:OffsetX_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Offset X Readback
SCAN	1 second

Long description:
Get Offset parameter from PID X configuration register

$(P):PID:KpY_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Kp Y Readback
SCAN	1 second

Long description:
Get Kp parameter from PID Y configuration register

$(P):PID:KiY_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Ki Y Readback
SCAN	1 second

Long description:
Get Ki parameter from PID Y configuration register

$(P):PID:KdY_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Kd Y Readback
SCAN	1 second

Long description:
Get Kd parameter from PID Y configuration register

$(P):PID:eminY_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID emin Y Readback
SCAN	1 second

Long description:
Get emin parameter from PID Y configuration register

$(P):PID:ImaxY_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Imax Y Readback
SCAN	1 second

Long description:
Get Imax parameter from PID Y configuration register

$(P):PID:OminY_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Omin Y Readback
SCAN	1 second

Long description:
Get Omin parameter from PID Y configuration register

$(P):PID:OmaxY_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Omax Y Readback
SCAN	1 second

Long description:
Get Omax parameter from PID Y configuration register

$(P):PID:OgainY_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Ogain Y Readback
SCAN	1 second

Long description:
Get Ogain parameter from PID Y configuration register

$(P):PID:OffsetY_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Offset Y Readback
SCAN	1 second

Long description:
Get Offset parameter from PID Y configuration register

$(P):PID:KpI0_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Kp I0 Readback
SCAN	1 second

Long description:
Get Kp parameter from PID I0 configuration register

$(P):PID:KiI0_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Ki I0 Readback
SCAN	1 second

Long description:
Get Ki parameter from PID I0 configuration register

$(P):PID:KdI0_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Kd I0 Readback
SCAN	1 second

Long description:
Get Kd parameter from PID I0 configuration register

$(P):PID:eminI0_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID emin I0 Readback
SCAN	1 second

Long description:
Get emin parameter from PID I0 configuration register

$(P):PID:ImaxI0_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Imax I0 Readback
SCAN	1 second

Long description:
Get Imax parameter from PID I0 configuration register

$(P):PID:OminI0_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Omin I0 Readback
SCAN	1 second

Long description:
Get Omin parameter from PID I0 configuration register

$(P):PID:OmaxI0_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Omax I0 Readback
SCAN	1 second

Long description:
Get Omax parameter from PID I0 configuration register

$(P):PID:OgainI0_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Ogain I0 Readback
SCAN	1 second

Long description:
Get Ogain parameter from PID I0 configuration register

$(P):PID:OffsetI0_RBV

Record Type: ai

Fields:

Field	Value
DTYP	CAENels BEST Ai
DESC	PID Offset I0 Readback
SCAN	1 second

Long description:
Get Offset parameter from PID I0 configuration register