In [1]:
```
import pandas as pd
```

In [2]:
```
#import matplotlib as plt
```

In [3]:
```
import seaborn as sns
```

In [4]:
```
#ES_INDEX_DATE="2018-01-28"
ES_INDEX_DATE="2018-02-02"

DATA_FILE="../../rbcdata/%s/ldr" % ES_INDEX_DATE

#DATA_FILE="../../rbcdata/total/%s/ldr" % ES_INDEX_DATE
print DATA_FILE
```

```
../../rbcdata/2018-02-02/ldr
```

In [5]:
```
%pylab inline
pylab.rcParams['figure.figsize'] = (16, 7)
```

```
Populating the interactive namespace from numpy and matplotlib
```

In [6]:
```
data=pd.read_csv(DATA_FILE)
```

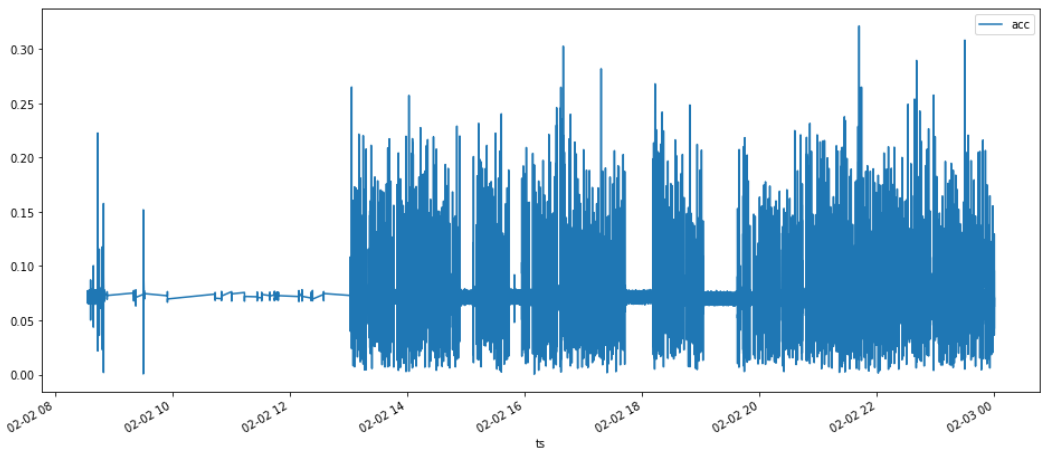
In [7]:
```
data["acc"]= np.sqrt(data['data.ax']**2 + data['data.az']**2)
```

In [8]:
```
section=75*60*60*48
```

In [9]:
```
x=data[["timestamp","acc"]].head(section)
x["ts"]=pd.to_datetime(x["timestamp"])
x=x.drop(columns=["timestamp"])
x=x.set_index("ts")
x=x.tz_localize('UTC').tz_convert('Asia/Kolkata')
```

In [10]:
```
x.plot()
```

Out[10]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f8d987bb7d0>
```

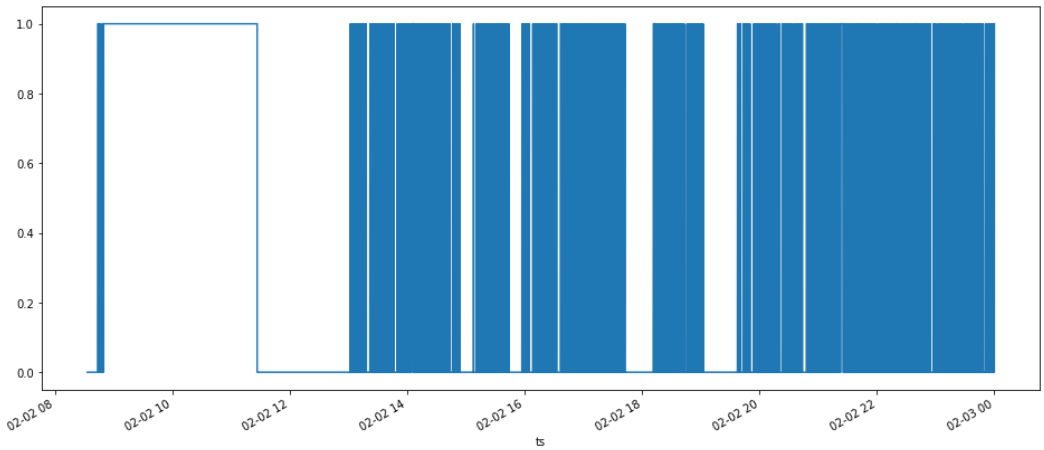


In [11]:
```
y=x.rolling(75*7).std()
#y.plot("ts","acc")
```

In [12]:
```
y["acc_thres"]=np.where(y['acc']>=0.005, 1,0)
```

In [13]:
```
y.acc_thres.plot()
```

Out[13]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f8da5d9ebd0>
```

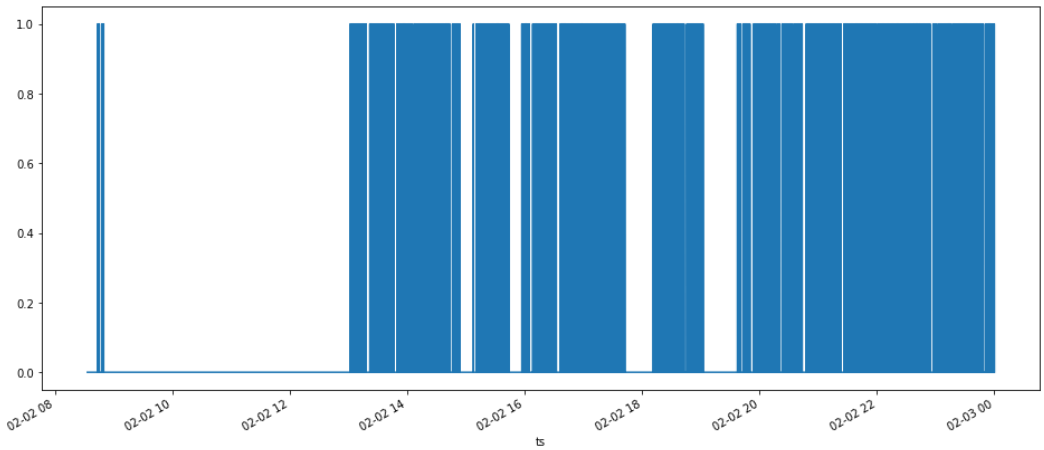


In [14]:
```
y["edges"]=y['acc_thres'] - y['acc_thres'].shift(1)
```

In [15]:
```
y["pedges"]=np.where(y["edges"]>0,1,0)
```

In [16]:
```
y.pedges.plot()
```

Out[16]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f8d8b95f490>
```

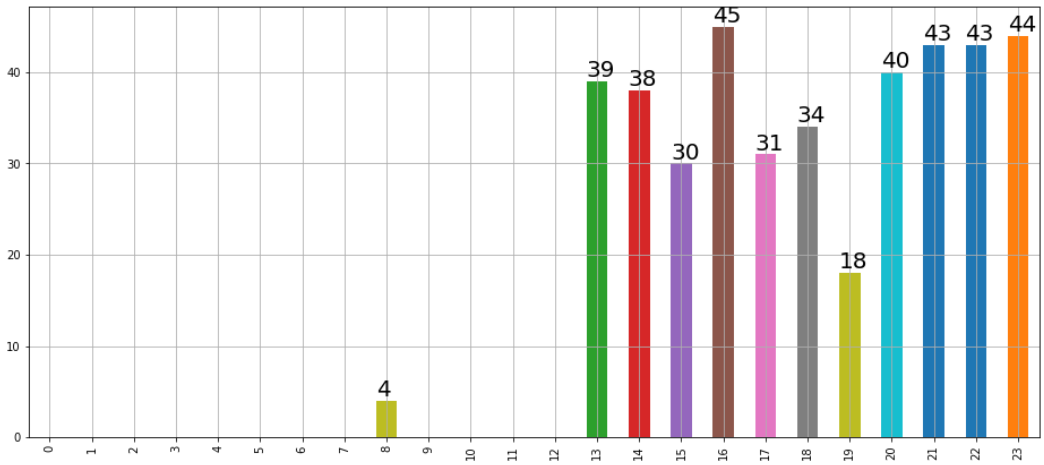


In [17]:
```
#y.loc['2018-02-01 16:00:00':'2018-02-01 16:59:59']
```

In [18]:
```
dformat= ES_INDEX_DATE + " %s:%s"
npcb=[]
for hr in range(0,24):
    start=dformat%(hr,"00:00")
    end=dformat%(hr,"59:59")
    z=y.loc[start:end]
    zz=z.pedges.sum()
    npcb.append(zz)
    print [hr,zz],

print "\n\nTOTAL--->",sum(npcb)
disection=y.pedges.loc[dformat%("00","00:00"):dformat%("23","59:59")]
print disection.sum()
```

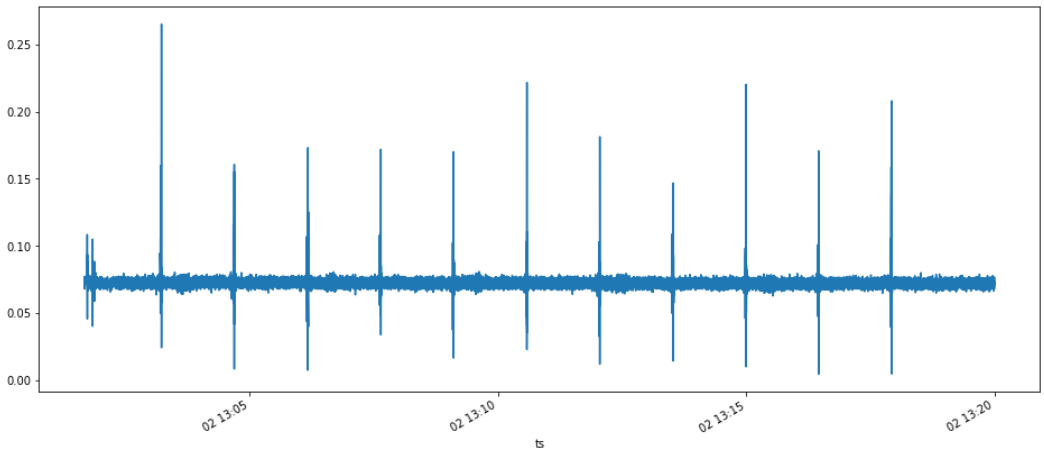
```
[0, 0] [1, 0] [2, 0] [3, 0] [4, 0] [5, 0] [6, 0] [7, 0] [8, 4] [9, 0] [10
, 0] [11, 0] [12, 0] [13, 39] [14, 38] [15, 30] [16, 45] [17, 31] [18, 34
] [19, 18] [20, 40] [21, 43] [22, 43] [23, 44]

TOTAL---> 409
409
```

In [19]:
```
ax=pd.Series(npcb).plot.bar(grid=True)
for i in ax.patches:
    # get_x pulls left or right; get_height pushes up or down
    if i.get_height():
      ax.text(i.get_x(), i.get_height()+0.5, i.get_height() ,fontsize=20
,color='black')
```



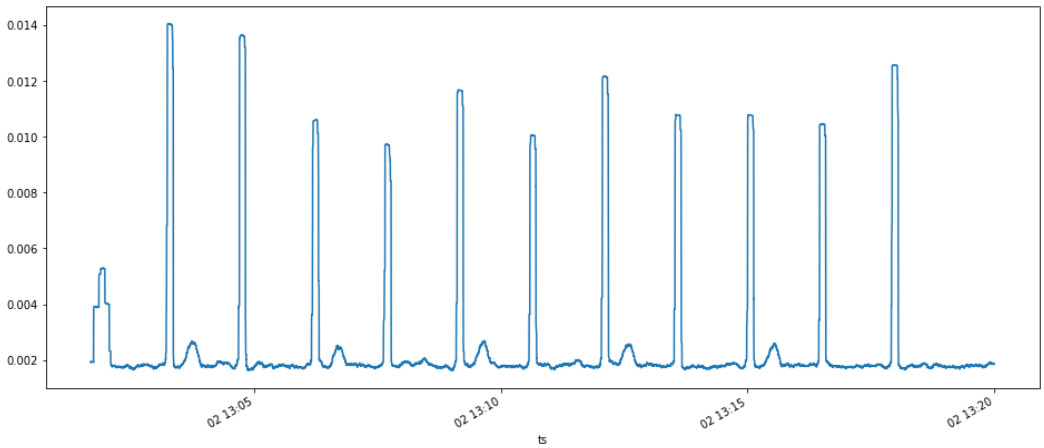
In [25]:
```
_hour=13
x.loc[dformat%(_hour,"00:00"):dformat%(_hour,"19:59")].acc.plot()
```

Out[25]: <matplotlib.axes._subplots.AxesSubplot at 0x7f8d57d1dc50>



In [27]:
```
y.acc.loc[dformat%(_hour,"00:00"):dformat%(_hour,"19:59")].plot()
```

Out[27]: <matplotlib.axes._subplots.AxesSubplot at 0x7f8d57cd5510>



In [29]:
```
y.pedges.loc[dformat%(_hour,"00:00"):dformat%(_hour,"19:59")].plot()
```

Out[29]: <matplotlib.axes._subplots.AxesSubplot at 0x7f8d56c6db90>