Diagnostic windows in BIT1

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If input "slow"=0

Number(t)	Number of simulation particles versus time
E field(x)	Electric field profile
Pot(x)	Potential profile
Density n(x)	Density profile
LHS Potential(t)	Potential at the LHS wall versus time (averaged over ***nfft1*** time steps)
MID Potential(t)	Potential in the middle of the system versus time (averaged over ***nfft1*** time steps)

If input "slow"=1 (full diagnostics!)

In addition to the given above diagnostics there are the following diagnostics:

Instantaneous diagnostics

Vx (x)	Profile of the x component of velocity
T_simult (x)	Temperature (instantaneous one) profile
rho (x)	Charge density profile
Neutral density	Profile of neutral particle density (there is only one type of neutrals !). In this version of the code profile is fixed. **Switched on if "ecollisional" !=0, or "icollisional" !=0**
Neutral Temperature	Profile of neutral particle temperature (there is only one type of neutrals !). In this version of the code profile is fixed. **Switched on if "ecollisional" !=0, or "icollisional" !=0**
X-Vx	Coordinate (x) - velocity (Vx) phase space

Time histories

Wall Charge	Charge at the LHS wall versus time
LHS Flux(t)	Particle Flux at the LHS wall versus time (averaged over ***nfft1*** time steps)
RHS Flux(t)	Particle Flux at the RHS wall versus time (averaged over ***nfft1*** time steps)
LHS Energy Flux(t)	Energy Flux at the LHS wall versus time (averaged over ***nfft1*** time steps)
RHS Energy Flux(t)	Energy Flux at the RHS wall versus time

	(averaged over ***nfft1*** time steps)
LHS pot	Potential at the point **pot.pos1** versus time (averaged over ***nfft1*** time steps)
RHS pot	Potential at the point **pot.pos2** versus time (averaged over ***nfft1*** time steps)
Local LHS pot	Potential at the point **pot.pos1** versus time during the last ***nfft*** time steps (averaged over ***nfft1*** time steps)
Local RHS pot	Potential at the point **pot.pos2** versus time during last the ***nfft*** time steps (averaged over ***nfft1*** time steps)
Local Current(t)	Current to the LHS wall versus time during The last ***nfft*** time steps. **Switched on if "extc">0**
Mag of LHS pot V(f)	Spectrum of the potential oscillations at the point **pot.pos1**
Mag of RHS pot V(f)	Spectrum of the potential oscillations at the point **pot.pos2**
Mag of I(f)	Spectrum of the current oscillations
T(t)	Time history of the averaged (over the system) temperatures of each species **Switched on if "T_diag"=1**
T_01(t)	Time history of the average temperature difference between species 1 and 2 **Switched on if "T_diag"=1**
Vx(t)	Time history of the averaged (over the system) x-component of the velocity. **Switched on if "T_diag"=1**

Time averaged diagnostics (averaged over *nfft* time steps)

Time Ave. E field (x)	Time averaged electric field profile
Time Ave. Potential (x)	Time averaged potential profile
Time Ave. Density n(x)	Time averaged density profile
Time Ave. Vx(x)	Time averaged profile of the x component of the velocity
Time Ave. V_p(x)	Time averaged profile of the parallel to the magnetic field component of the velocity (given only if B>0)
Ave. Kinetic Energy	Time average of the sum of kinetic energies of all simulation particles
Field Energy	Time averaged field energy
T(x)	Temperature profile (time averaged)
T_par-T_perp(x)	Time averaged profile of the difference between the ***x*** and the ***yz*** temperature

components. **Switched on if "T_diag"=1**

Q_x_heat(x)	Time averaged profile of the x component of the heat flux
Q_x_total(x)	Time averaged profile of the x component of the total energy flux
Current(t)	Time averaged current to the LHS wall versus time. **Switched on if "extc">0**

Distributions

f(E)_L i , i=1, … , nsp	Energy distribution of the "i" species flux at the LHS wall (accumulated during the run)
f(E)_R i , i=1, … , nsp	Energy distribution of the "i" species flux at the RHS wall (accumulated during the run)
f(theta)	Angular distribution of particles crossing the LHS wall (accumulated during the run)
f(E)Mid i , i=1, … , nsp	Energy distribution of the "i" species inside the region "Xstart – Xfinish" (see input file)
f(Vx)Mid i , i=1, … , nsp	Velocity distribution f(Vx) of the "i" species inside the region "Xstart – Xfinish". Averaged over ***nfft*** time steps
f(V‖)Mid i , i=1, … , nsp	Velocity distribution f(V_par) of the "i" species inside the region "Xstart – Xfinish". Averaged over ***nfft*** time steps. **Switched on if "b">0**

Collision profiles

(they are given only if there are corresponding collisions switched on)

Ionization Profile (x)	Number of Ionization collisions versus x
Excitation Profile (x)	Number of Excitation collisions versus x
Charge X Profile (x)	Number of Charge-exchange collisions versus x

Phase diagnostics

Vy-Vx Phase	Vx versus Vy for all simulation particles. **Switched on if "b">0, or "ecollisional" !=0, or "ecollisional" !=0**

Diagnostic saved in a ASCII format (after “datstep” time steps)

Note, if in the input “datstep”=0, then code uses “datstep”=nfft (if nfft!=0). If “datstep”=nfft=0, then code uses datstep=1000.

If input “slow”=0

LHS Flux(t), RHS Flux(t), LHS Potential(t), MID Potential(t).

If input „Ef_flag“=1, then in addition thare are following diagnostics:

LHS Energy Flux(t), RHS Energy Flux(t), also
The histories of following parameters:

- the potential and temperature at the specified points (**pot.po1** 1. and 2.), and
- the electron-neutral excitation collision rate at the LHS (x<**Src_pos.**) and RHS (x> **Src_pos.**) parts of the system.

If input “slow”=1

In addition to the given above diagnostics there are the following diagnostics saved:

Time Ave. E field (x) , Time Ave. Potential (x), Time Ave. Density n(x), Time Ave. Vx(x), Time Ave. V_p(x) (**if b>0**), T(x), Q_x_total(x), Q_x_heat(x), f(E)_L, f(E)Mid, f(Vx)Mid, f(V||)Mid (**if b>0**).

If input „T_diag“=1, then in addition thare are following diagnostics:

T(t), T_01(t), Vx(t).