

EPIC Housekeeping Data File

March 8, 2016

Version 1.1

The EPIC housekeeping data file is in ASCII, comma-separated-variable (CSV) format. Each file spans one day and contains 344 housekeeping channels of float and integer parameters and bi-state tell-tales at 96-second resolution. A list of these channels is given in Table 1. File names are of the form:

epic_hskp_yyyyddd.txt

where

yyyy is the four-digit year

ddd is the three-digit day-of-year

File contents:

Line 1: A header line giving the file name and creation date

Line 2: A line of the 344 column titles and, where applicable, the units of measure in parentheses; each is separated by a comma.

Lines 3-n: Approximately 900 entry lines of housekeeping data

- Each entry line contains a time field followed by 343 channels separated by commas.

Table 1 – List of housekeeping file channels

Column	Title	Type	Units	Description
1	Time	time	yyyy-dddThh:mm:ss.ss	Time
2	S Cmd HV NSt Lim	float	kV	STICS commanded HV Limit #1 (north start MCP)
3	S Cmd HV ESt Lim	float	kV	STICS commanded HV Limit #2 (equatorial start MCP)
4	S Cmd HV SSt Lim	float	kV	STICS commanded HV Limit #3 (south start MCP)
5	S Cmd HV NSp Lim	float	kV	STICS commanded HV Limit #4 (north stop MCP)
6	S Cmd HV ESp Lim	float	kV	STICS commanded HV Limit #5 (equatorial stop MCP)
7	S Cmd HV SSp Lim	float	kV	STICS commanded HV Limit #6 (south stop MCP)
8	S Cmd HV TOF Lim	float	kV	STICS commanded HV Limit #7 (time of flight PS)
9	S Cmd HV NSt Lev	float	kV	STICS commanded HV target level #1 (north start MCP)
10	S Cmd HV ESt Lev	float	kV	STICS commanded HV target level #2 (equatorial start MCP)
11	S Cmd HV SSt Lev	float	kV	STICS commanded HV target level #3 (south start MCP)
12	S Cmd HV NSp Lev	float	kV	STICS commanded HV target level #4 (north stop MCP)
13	S Cmd HV ESp Lev	float	kV	STICS commanded HV target level #5 (equatorial stop MCP)
14	S Cmd HV SSp Lev	float	kV	STICS commanded HV target level #6 (south stop MCP)
15	S Cmd HV TOF Lev	float	kV	STICS commanded HV target level #7 (time of flight PS)
16	S HV NSt V Value	float	V	STICS HVPS1 voltage monitor (north start MCP)
17	S HV ESt V Value	float	V	STICS HVPS2 voltage monitor (equatorial start MCP)
18	S HV SSt V Value	float	V	STICS HVPS3 voltage monitor (south start MCP)
19	S HV NSp V Value	float	V	STICS HVPS4 voltage monitor (north stop MCP)
20	S HV ESp V Value	float	V	STICS HVPS5 voltage monitor (equatorial stop MCP)
21	S HV SSp V Value	float	V	STICS HVPS6 voltage monitor (south stop MCP)
22	S HV TOF V Value	float	V	STICS HVPS7 voltage monitor (time-of-flight PS)
23	S MCP/TOF Inpt I	float	mA	STICS MCPPS & TOFPS Input Current
24	S Ground	float	mV	STICS Ground
25	S DPPS I	float	mA	STICS DPPS Current
26	S AE #1 Temp	float	C	STICS Analog Electronics Thermistor
27	S Sensor #2 Temp	float	C	STICS Sensor Thermistor #2
28	S Sensor #3 Temp	float	C	STICS Sensor Thermistor #3

29	S Sensor #4 Temp	float	C	STICS Sensor Thermistor #4
30	S LVPS +6 V	float	V	STICS LVPS +6 Voltage
31	S LVPS -6 V	float	V	STICS -6 Voltage
32	S LVPS +5.2 V	float	V	STICS +5.2 Voltage
33	S LVPS -5.2 V	float	V	STICS LVPS -5.2 Voltage
34	S LVPS +12 V	float	V	STICS LVPS +12 Voltage
35	S LVPS SSDBias V	float	V	STICS LVPS SSD Bias Voltage
36	S LVPS Input I	float	mA	STICS LVPS Input Current
37	S LVPS -12 V	float	V	STICS LVPS -12 Voltage
38	S N Enrgy Thresh	float	kV	STICS north energy threshold
39	S E Enrgy Thresh	float	kV	STICS equatorial energy threshold
40	S S Enrgy Thresh	float	kV	STICS south energy threshold
41	S Cmd TOF CalLev	float	kV	STICS commanded time of flight calibration level
42	S Cmd Eng CalLev	float	kV	STICS commanded energy calibration level
43	S +DPPS V Lev	float	kV	STICS +DPPS level
44	S -DPPS V Lev	float	kV	STICS -DPPS level
45	S +DPPS Disch ct	float		STICS +DPPS discharge count
46	S -DPPS Disch ct	float		STICS -DPPS discharge count
47	I Cmd HV NSp Lim	float	kV	ICS commanded HV Limit #3 (north stop MCP)
48	I Cmd HV NSt Lim	float	kV	ICS commanded HV Limit #1 (north start MCP)
49	I Cmd HV SSp Lim	float	kV	ICS commanded HV Limit #4 (south stop MCP)
50	I Cmd HV SSt Lim	float	kV	ICS commanded HV Limit #2 (south start MCP)
51	I Cmd HV TOF Lim	float	kV	ICS commanded HV Limit #5 (time of flight PS)
52	I Cmd HV NSp Lev	float	kV	ICS commanded HV target level #3 (north stop MCP)
53	I Cmd HV Nst Lev	float	kV	ICS commanded HV target level #1 (north start MCP)
54	I Cmd HV SSp Lev	float	kV	ICS commanded HV target level #4 (south stop MCP)
55	I Cmd HV SSt Lev	float	kV	ICS commanded HV target level #2 (south start MCP)
56	I Cmd HV TOF Lev	float	kV	ICS commanded HV target level #5 (time-of-flight PS)
57	I Energy Cal Lev	float	kV	ICS Energy Calibration Level
58	I HV NSp V Value	float	V	ICS HVPS3 voltage monitor (north stop MCP)
59	I HV Nst V Value	float	V	ICS HVPS1 voltage monitor (north start MCP)
60	I HV SSp V Value	float	V	ICS HVPS4 voltage monitor (south stop MCP)
61	I HV SSt V Value	float	V	ICS HVPS2 voltage monitor (south start MCP)
62	I HV TOF V Value	float	V	ICS HVPS5 voltage monitor (time of flight PS)
63	I MCP/TOF Inpt I	float	mA	ICS MCPPS & TOFPS Input Current
64	I Cmd TOF CalLev	float		ICS commanded time of flight calibration level
65	I Ground V	float	mV	ICS Ground
66	I Motor I	float	mA	ICS motor current
67	I AE #1 Temp	float	C	ICS Analog Electronics Thermistor #1
68	I Sensor #2 Temp	float	C	ICS sensor thermistor #2
69	I Sensor #3 Temp	float	C	ICS sensor thermistor #3
70	I Sensor #4 Temp	float	C	ICS sensor thermistor #4
71	I LVPS +6 V	float	V	ICS LVPS +6 Voltage
72	I LVPS -6 V	float	V	ICS LVPS -6 Voltage
73	I LVPS +5.2 V	float	V	ICS LVPS +5.2 Voltage
74	I LVPS -5.2 V	float	V	ICS LVPS -5.2 Voltage
75	I LVPS +12 V	float	V	ICS LVPS +12 Voltage
76	I LVPS SSDBias V	float	V	ICS LVPS SSD Bias Voltage
77	I LVPS Input I	float	mA	ICS LVPS Input Current
78	I LVPS -12 V	float	V	ICS LVPS -12 Voltage
79	I N Enrgy Thresh	float	kV	ICS north SSD energy threshold
80	I EDet1 Enrgy Th	float	kV	ICS electron detector #1 energy threshold
81	I S Enrgy Thresh	float	kV	ICS south SSD energy threshold
82	I EDet2 Enrgy Th	float	kV	ICS electron detector #2 energy threshold
83	D DPU Temp	float	**	EPIC-DPU Temp
84	S STICS Temp	float	**	EPIC-STICS Temp
85	I ICS Temp	float	**	EPIC-ICS Temp
86	E +5v Current	float	**	+5v Current
87	E +29v Current	float	**	+29v Current
88	S Cmd Val EvMode	integer		STICS commanded valid event mode
89	S Step Seq #	integer		STICS # of activated stepping sequence
90	D H/W Reg MREG2	integer		Copy of H/W Register MREG2
91	D H/W Reg C_COM	integer		Copy of H/W Register C_COM

92	I Mass PHA Range	integer			ICS frozen mass PHA range
93	I Enrgy PHA Rang	integer			ICS frozen energy PHA range
94	I Cmd Val EvMode	integer			ICS commanded valid event mode
95	I S Aper Positn	integer			ICS south aperature position sensor status
96	I N Aper Positn	integer			ICS north aperature position sensor status
97	D Cnt Val Ex Cmd	integer			DPU count of executed valid commands
98	D 2Lst Val BCCmd	integer			DPU 2nd to the last valid BC command identifier
99	D 1Lst Val BCCmd	integer			DPU next to the last valid BC command identifier
100	D Lst Val BC Cmd	integer			DPU last valid BC command identifier
101	D # InValid Cmds	integer			DPU number of invalid commands (invalidation during execution)
102	D Lst InV BC Cmd	integer			DPU BC command identifier of last invalid command
103	D ErCode Inv Cmd	integer			DPU error code for last invalid command
104	D Reset Cause	integer			DPU Reset Cause !0:normal DPU on, 1:Latch Up, 2:UVC, 3:Watchdog
105	D D_ PLDBAD	integer			DPU D_ PLDBAD
106	D Reset-Counter	integer			DPU Reset-Counter
107	Time to CurStrob	integer			Low Level LU_Test status, time til current strobing activated
108	D Prog Load Adrs	integer			D_PRGADR program load address
109	S Mem Err Class	integer			STICS classification memory parity errors
110	I Mem Err Class	integer			ICS classification memory parity error
111	S Ir MemErr Clas	integer			STICS irreparable classification memory parity errors
112	I Ir MemErr Clas	integer			ICS irreparable classification memory parity errors
113	E Sun Sensor	integer			Sun Sector
114	E Parametr Index	integer			Parameter Index
115	E SciencRec Cntr	integer			Science Record Counter
116	E SunPuls Offset	integer			Subsector Offset for Sunpulse
117	D D_SENCMD Answr	integer			D_SENCMD Answer
118	S Mem DblEr Clas	integer			STICS classification control memory double errors
119	I Mem DblEr Clas	integer			ICS classification control memory double errors
120	P-RAM Singl Errs	integer			P-RAM single errors, compressed with scheme 'A'
121	P-ROM Singl Errs	integer			P-ROM single errors, compressed with scheme 'A'
122	# AutoReconf Lft	integer			Number of automatic reconfigurations left
123	20D EDB Sync ID	integer			14 Hex EDB Sync Identifier
124	111D EDB Sync ID	integer			6F Hex EDB Sync Identifier
125	E EDB Cntr	integer			EDB Counter
126	E Spin Cntr	integer			Spin Counter
127	E MeasurSpinCntr	integer			Measured Spin Counter
128	E DPUsubcomIndex	integer			Subcom index for data in byte 7 of DPU Common Area 1
129	E Sensor Mode	integer			Sensor Mode - 0:dual, 1:STICS only, 2:ICS only
130	E Time Tag	integer			Time Tag, see manual
131	S DPPS Step #	integer			DPPS Step # of present spin
132	E Subcom Index	integer			Subcom Index
133	E Subcom HSKP	integer			Subcommutated housekeeping data
134	E BYTE4 & 07H	integer			BYTE4 & 07H
135	BC Ans LstBlkCmd	integer			BC answer, last block command code sent to DPU
136	Cur Prog Address	integer			Current program address
137	S +DPPS Tar Stat	tell-tale	on	off	STICS positive DPPS target status
138	S HV TOF TarStat	tell-tale	on	off	STICS HVPS7 (time of flight PS) target status
139	S HV SSp TarStat	tell-tale	on	off	STICS HVPS6 (south stop MCP) target status
140	S HV ESp TarStat	tell-tale	on	off	STICS HVPS5 (equatorial stop MCP) target status
141	S HV NSp TarStat	tell-tale	on	off	STICS HVPS4 (north stop MCP) target status
142	S HV SSt TarStat	tell-tale	on	off	STICS HVPS3 (south start MCP) target status
143	S HV EST TarStat	tell-tale	on	off	STICS HVPS2 (equatorial start MCP) target status
144	S HV NST TarStat	tell-tale	on	off	STICS HVPS1 (north start MCP) target status
145	S -DPPS Tar Stat	tell-tale	on	off	STICS negative DPPS target status
146	S LVPS OvrCur Fl	tell-tale	on	off	STICS LVPS over-current flag
147	S AE IF Echo Chk	tell-tale	enabled	disabled	STICS AE IF echo check status
148	S Test Logic	tell-tale	enabled	disabled	STICS Test Logic Enable
149	S S SSD PrAmpPwr	tell-tale	on	off	STICS South SSD Preamp Power
150	S E SSD PrAmpPwr	tell-tale	on	off	STICS Equatorial SSD Preamp Power
151	S N SSD PrAmpPwr	tell-tale	on	off	STICS North SSD Preamp Power
152	S South Time	tell-tale	disabled	enabled	STICS south time disable
153	S Equatorl Stop	tell-tale	disabled	enabled	STICS equatorial stop disable
154	S Equat Start B	tell-tale	disabled	enabled	STICS equatorial start B disable

155	S Equat Start A	tell-tale	disabled	enabled	STICS equatorial start A disable
156	S North Time	tell-tale	disabled	enabled	STICS north time disable
157	S Time Cal	tell-tale	enabled	disabled	STICS time calibrate enable
158	S Slow Rate Cal	tell-tale	enabled	disabled	STICS slow rate calibrate enable
159	S Multiple Stop	tell-tale	enabled	disabled	STICS multiple stop enable
160	S Multiple Start	tell-tale	enabled	disabled	STICS multiple start enable
161	S Det Mn BiasPwr	tell-tale	enabled	disabled	STICS detector main bias power enable
162	S Rat2 ComprCode	tell-tale	code C	code A	STICS Group rates 2 used compression codes
163	S Rat1 ComprCode	tell-tale	code C	code A	STICS Group rates 1 used compression codes
164	S South Bias	tell-tale	disabled	enabled	STICS south bias disable
165	S Equatoril Bias	tell-tale	disabled	enabled	STICS equatorial bias disable
166	S North Bias	tell-tale	disabled	enabled	STICS north bias disable
167	S Aperature Stat	tell-tale	on	off	STICS aperature status
168	I I/F Err Chk Md	tell-tale	enabled	disabled	ICS I/F error check mode
169	I Cal Readout Md	tell-tale	enabled	disabled	ICS calibration read out mode
170	I LVPS Ovr Cur	tell-tale	over cur	okay	ICS LVPS over current
171	I Enrgy CalPwr E	tell-tale	enabled	disabled	ICS energy calibrate power enable
172	I Tst Log Enable	tell-tale	enabled	disabled	ICS test logic enable
173	I S SSD PrAmpPwr	tell-tale	enabled	disabled	ICS south SSD preamp power enable
174	I ELDet PrAmpPwr	tell-tale	enabled	disabled	ICS electron detector preamp power enable
175	I N SSD PrAmpPwr	tell-tale	enabled	disabled	ICS north SSD preamp power enable
176	I Mas PHA RngFrz	tell-tale	enabled	disabled	ICS mass PHA range freeze enable
177	I EngyPHA RngFrz	tell-tale	enabled	disabled	ICS energy PHA range freeze enable
178	I S Stop Disable	tell-tale	disabled	enabled	ICS south stop disable
179	I S Strt Disable	tell-tale	disabled	enabled	ICS south start disable
180	I N Strt Disable	tell-tale	disabled	enabled	ICS north start disable
181	I N Stop Disable	tell-tale	disabled	enabled	ICS north stop disable
182	I PHA FIFO Mode	tell-tale	on	off	ICS PHA FIFO mode
183	I Positn SensPwr	tell-tale	enabled	disabled	ICS position sensor (power) enable
184	I Time Cal Pwr	tell-tale	enabled	disabled	ICS time calibration power enable
185	I Slow Rate Anal	tell-tale	enabled	disabled	ICS slow rate analysis enable
186	I Multiple Stop	tell-tale	enabled	disabled	ICS multiple stop enable
187	I Multiple Start	tell-tale	enabled	disabled	ICS multiple start enable
188	I Detect Bias Hi	tell-tale	enabled	disabled	ICS detector bias high enable
189	I AutoAper Contr	tell-tale	enabled	disabled	ICS automatic aperture control enable
190	I Sec Sum Schm F	tell-tale	Summing	single	ICS sector summation enable format scheme F
191	I HdSum Schm F	tell-tale	Summing	single	ICS head summation enable format scheme F
192	I Sec Sum Schm D	tell-tale	Summing	single	ICS sector summation enable format scheme D
193	I HdSum Schm D	tell-tale	Summing	single	ICS head summation enable format scheme D
194	I Sec Sum Schm C	tell-tale	Summing	single	ICS sector summation enable format scheme C
195	I HdSum Schm C	tell-tale	Summing	single	ICS head summation enable format scheme C
196	I Sth Motor Pwr	tell-tale	on	off	ICS south motor power
197	I Nth Motor Pwr	tell-tale	on	off	ICS north motor power
198	I Rat2 ComprCode	tell-tale	code C	code A	ICS Group rates 2 used compression codes
199	I Rat1 ComprCode	tell-tale	code C	code A	ICS Group rates 1 used compression codes
200	I HV TOF TarStat	tell-tale	on	off	ICS HVPS5 (time of flight) target status
201	I HV SSp TarStat	tell-tale	on	off	ICS HVPS4 (south stop) target status
202	I HV NSp TarStat	tell-tale	on	off	ICS HVPS3 (north stop) target status
203	I HV SSt TarStat	tell-tale	on	off	ICS HVPS2 (south start) target status
204	I HV NSt TarStat	tell-tale	on	off	ICS HVPS1 (north start) target status
205	I Reduc Motor Mv	tell-tale	enabled	disabled	ICS reduced motor movement enable
206	Watch Dog	tell-tale	enabled	disabled	Watch dog enable
207	D NVRAM Cont Err	tell-tale	ERROR	no error	DPU NVRAM content error
208	SnapshT CFG Load	tell-tale	CRC ERR	success	Snapshot CFG load success
209	Current CFG Load	tell-tale	CRC ERR	success	Current CFG load success
210	SnapshT CFG ICS	tell-tale	CRC ERR	reconfig	Snapshot CFG ICS reconfig
211	Current CFG ICG	tell-tale	CRC ERR	reconfig	Current CFG ICS reconfig
212	S Snapshot CFG	tell-tale	CRC ERR	reconfig	Snapshot CFG STICS reconfig
213	S CurrentCFG	tell-tale	CRC ERR	reconfig	Current CFG STICS reconfig
214	Test Table Stat	tell-tale	loaded	disabled	Test tables status
215	S LwLev LU_Test	tell-tale	on	off	Low Level LU_Test status, test STICS classification
216	I LwLev LU_Test	tell-tale	on	off	Low Level LU_Test status, test ICS classification
217	PMem LwLev LU_Ts	tell-tale	on	off	Low Level LU_Test status, test P memory

218	PCir LwLev LU_Ts	tell-tale	on	off	Low Level LU_Test status, test P circuitry
219	Alarm Monitor St	tell-tale	enabled	disabled	Alarm Monitor Status
220	Sector Clock Src	tell-tale	internal	S/C pref	Sector Clock Source
221	Internal Sect Clk	tell-tale	active	inactive	Internal Sector Clock
222	S AE Temp Alm En	tell-tale	enabled	disabled	STICS analog elect. therm. Alarm chan 0 Enable status
223	S AE Temp Alm Al	tell-tale	on	off	STICS analog elect. therm. Alarm chan 0 Alarm status
224	S Temp 2 Alm En	tell-tale	enabled	disabled	STICS thermistor 2 Alarm chan 1 Enable status
225	S Temp 2 Alm Al	tell-tale	on	off	STICS thermistor 2 Alarm chan 1 Alarm status
226	S Temp 3 Alm En	tell-tale	enabled	disabled	STICS thermistor 3 Alarm chan 2 Enable status
227	S Temp 3 Alm Al	tell-tale	on	off	STICS thermistor 3 Alarm chan 2 Alarm status
228	S Temp 4 Alm En	tell-tale	enabled	disabled	STICS thermistor 4 Alarm chan 3 Enable status
229	S Temp 4 Alm Al	tell-tale	on	off	STICS thermistor 4 Alarm chan 3 Alarm status
230	I AE Temp Alm En	tell-tale	enabled	disabled	ICS analog elect. therm. Alarm chan 4 Enable status
231	I AE Temp Alm Al	tell-tale	on	off	ICS analog elect. therm. Alarm chan 4 Alarm status
232	I Temp 2 Alm En	tell-tale	enabled	disabled	ICS thermistor 2 Alarm chan 5 Enable status
233	I Temp 2 Alm Al	tell-tale	on	off	ICS thermistor 2 Alarm chan 5 Alarm status
234	I Temp 3 Alm En	tell-tale	enabled	disabled	ICS thermistor 3 Alarm chan 6 Enable status
235	I Temp 3 Alm Al	tell-tale	on	off	ICS thermistor 3 Alarm chan 6 Alarm status
236	I Temp 4 Alm En	tell-tale	enabled	disabled	ICS thermistor 4 Alarm chan 7 Enable status
237	I Temp 4 Alm Al	tell-tale	on	off	ICS thermistor 4 Alarm chan 7 Alarm status
238	S +6V Cur Alm E	tell-tale	enabled	disabled	STICS +6V current Alarm chan 8 Enable status
239	S +6v Cur Alm A	tell-tale	on	off	STICS +6V current Alarm chan 8 Alarm status
240	S NST V Alm Ena	tell-tale	enabled	disabled	STICS north start MCP volt Alarm chan 9 Enable status
241	S NST V Alm Alr	tell-tale	on	off	STICS north start MCP volt Alarm chan 9 Alarm status
242	S NSp V Alm Ena	tell-tale	enabled	disabled	STICS north stop MCP volt Alarm chan 10 Enable status
243	S NSp V Alm Alm	tell-tale	on	off	STICS north stop MCP volt Alarm chan 10 Alarm status
244	S EST V Alm Ena	tell-tale	enabled	disabled	STICS eq. start MCP volt Alarm chan 11 Enable status
245	S EST V Alm Alm	tell-tale	on	off	STICS eq. start MCP volt Alarm chan 11 Alarm status
246	S ESP V Alm Ena	tell-tale	enabled	disabled	STICS eq. stop MCP volt Alarm chan 12 Enable status
247	S ESP V Alm Alm	tell-tale	on	off	STICS eq. stop MCP volt Alarm chan 12 Alarm status
248	S SSt V Alm Ena	tell-tale	enabled	disabled	STICS south start MCP volt Alarm chan 13 Enable status
249	S SSt V Alm Alm	tell-tale	on	off	STICS south start MCP volt Alarm chan 13 Alarm status
250	S SSp V Alm Ena	tell-tale	enabled	disabled	STICS south stop MCP volt Alarm chan 14 Enable status
251	S SSp V Alm Alm	tell-tale	on	off	STICS south stop MCP volt Alarm chan 14 Alarm status
252	S TOF V Alm Ena	tell-tale	enabled	disabled	STICS TOF PS voltage Alarm chan 15 Enable status
253	S TOF V Alm Alm	tell-tale	on	off	STICS TOF PS voltage Alarm chan 15 Alarm status
254	I +6V I Alm Alm	tell-tale	enabled	disabled	ICS +6V current Alarm chan 16 Enable status
255	I +6V I Alm Alm	tell-tale	on	off	ICS +6V current Alarm chan 16 Alarm status
256	I NST V Alm Ena	tell-tale	enabled	disabled	ICS north start MCP volt Alarm chan 17 Enable status
257	I NST V Alm Alm	tell-tale	on	off	ICS north start MCP volt Alarm chan 17 Alarm status
258	I NSp V Alm Ena	tell-tale	enabled	disabled	ICS north stop MCP volt Alarm chan 18 Enable status
259	I NSp V Alm Alm	tell-tale	on	off	ICS north stop MCP volt Alarm chan 18 Alarm status
260	I SSt V Alm Ena	tell-tale	enabled	disabled	ICS south start MCP volt Alarm chan 19 Enable status
261	I SSt V Alm Alm	tell-tale	on	off	ICS south start MCP volt Alarm chan 19 Alarm status
262	I SSp V Alm Ena	tell-tale	enabled	disabled	ICS south stop MCP volt Alarm chan 20 Enable status
263	I SSp V Alm Alm	tell-tale	on	off	ICS south stop MCP volt Alarm chan 20 Alarm status
264	I TOF V Alm Ena	tell-tale	enabled	disabled	ICS TOF PS voltage Alarm chan 21 Enable status
265	I TOF V Alm Alm	tell-tale	on	off	ICS TOF PS voltage Alarm chan 21 Alarm status
266	S LVPS I Alm En	tell-tale	enabled	disabled	STICS LVPS current Alarm chan 22 Enable status
267	S LVPS I Alm Al	tell-tale	on	off	STICS LVPS current Alarm chan 22 Alarm status
268	S MCPPS I Alm E	tell-tale	enabled	disabled	STICS MCPPS current Alarm chan 23 Enable status
269	S MCPPS I Alm A	tell-tale	on	off	STICS MCPPS current Alarm chan 23 Alarm status
270	S DPPS I Alm En	tell-tale	enabled	disabled	STICS DPPS current Alarm chan 24 Enable status
271	S DPPS I Alm Al	tell-tale	on	off	STICS DPPS current Alarm chan 24 Alarm status
272	I LVPS I Alm En	tell-tale	enabled	disabled	ICS LVPS current Alarm chan 25 Enable status
273	I LVPS I Alm Al	tell-tale	on	off	ICS LVPS current Alarm chan 25 Alarm status
274	I MCPPS I Alm E	tell-tale	enabled	disabled	ICS MCPPS current Alarm chan 26 Enable status
275	I MCPPS I Alm A	tell-tale	on	off	ICS MCPPS current Alarm chan 26 Alarm status
276	I Motor I Alm E	tell-tale	enabled	disabled	ICS motor current Alarm chan 27 Enable status
277	I Motor I Alm A	tell-tale	on	off	ICS motor current Alarm chan 27 Alarm status
278	Alarm Ch 28 Enab	tell-tale	enabled	disabled	Alarm chan 28 Enable status
279	Alarm Ch 28 Alm	tell-tale	on	off	Alarm chan 28 Alarm status
280	Alarm Ch 29 Enab	tell-tale	enabled	disabled	Alarm chan 29 Enable status

281	Alarm Ch 29 Alrm	tell-tale	on	off	Alarm chan 29 Alarm status
282	Alarm Ch 30 Enab	tell-tale	enabled	disabled	Alarm chan 30 Enable status
283	Alarm Ch 30 Alrm	tell-tale	on	off	Alarm chan 30 Alarm status
284	Alarm Ch 31 Enab	tell-tale	enabled	disabled	Alarm chan 31 Enable status
285	Alarm Ch 31 Alrm	tell-tale	on	off	Alarm chan 31 Alarm status
286	ICS LVPS	tell-tale	on	off	ICS LVPS
287	STICS LVPS	tell-tale	on	off	STICS LVPS
288	EPIC Instr Pwr	tell-tale	on	off	EPIC Instrument Power
289	D Invalid Cmd	tell-tale	Invalid	valid	Invalid CMD
290	D Cmd Error	tell-tale	cmd err	no error	CMD ERR
291	D Cmd Val	tell-tale	success	unsucces	CMD VAL
292	HV Enable	tell-tale	enabled	disabled	HV ENABLE
293	I MCPPS Steping	tell-tale	stepping	no step	ICS MCPPS STEP
294	S MCPPS Steping	tell-tale	stepping	no step	STICS MCPPS STEP
295	HSKP Sync	tell-tale	sync	unsync	HK sync
296	I Aperatur Motor	tell-tale	moving	still	ICS Aperature motor moving
297	S Memory Image	tell-tale	enabled	disabled	Memory image, STICS memory readout
298	S Actuator Pwr	tell-tale	on	off	STICS Actuator power
299	I Cmd Status	tell-tale	rejected	no error	ICS CMD STAT
300	S Cmd Status	tell-tale	rejected	no error	STICS CMD STAT
301	S -DPPS Enable	tell-tale	enabled	disabled	STICS negative DPPS enable
302	S TOF PS Disable	tell-tale	disabled	enabled	STICS time-of-flight PS disable HVPS7
303	S SSp MCP Enable	tell-tale	enabled	disabled	STICS south stop MCP enable HVPS6
304	S ESsp MCP Enable	tell-tale	enabled	disabled	STICS equatorial stop MCP enable HVPS5
305	S NSp MCP Enable	tell-tale	enabled	disabled	STICS north stop MCP enable HVPS4
306	S SSt MCP Enable	tell-tale	enabled	disabled	STICS south start MCP enable HVPS3
307	S EST MCP Enable	tell-tale	enabled	disabled	STICS equatorial start MCP enable HVPS2
308	S NSt MCP Enable	tell-tale	enabled	disabled	STICS north start MCP enable HVPS1
309	I TOF Enable	tell-tale	enabled	disabled	ICS time-of-flight enable HVPS5
310	I SSt Enable	tell-tale	enabled	disabled	ICS south start MCP enable HVPS4
311	I SSp Enable	tell-tale	enabled	disabled	ICS south stop MCP enable HVPS3
312	I NSt Enable	tell-tale	enabled	disabled	ICS north start MCP enable HVPS2
313	I NSP Enable	tell-tale	enabled	disabled	ICS north stop MCP enable HVPS1
314	I Class H/W Stat	tell-tale	running	disabled	ICS classification H/W Status
315	S Class H/W Stat	tell-tale	running	disabled	STICS classification H/W Status
316	S +DPPS Enable	tell-tale	enabled	disabled	STICS positive DPPS enable
317	I Table Calculat	tell-tale	active	inactive	ICS table calculation active
318	S Table Calculat	tell-tale	active	inactive	STICS table calculation active
319	S AE Ovr Current	tell-tale	over cur	no ovr c	STICS A/E over current
320	I AE Ovr Current	tell-tale	over cur	no ovr c	ICS A/E over current
321	EPIC DPU Power	tell-tale	on	off	EPIC DPU power
322	EPIC Bake Heatrs	tell-tale	on	off	EPIC bake heaters
323	S Supl Heaters	tell-tale	on	off	STICS supl heaters
324	I Supl Heaters	tell-tale	on	off	ICS supl heaters
325	I MCP Power	tell-tale	on	off	ICS MCP power
326	S MCP Power	tell-tale	on	off	STICS MCP power
327	S DPPS Power	tell-tale	on	off	STICS DPPS power
328	Instrument Power	tell-tale	on	off	Instrument power
329	S HVPS SSp	tell-tale	on	off	STICS HVPS 6
330	S HVPS Esp	tell-tale	on	off	STICS HVPS 5
331	S HVPS NSp	tell-tale	on	off	STICS HVPS 4
332	S HVPS SSt	tell-tale	on	off	STICS HVPS 3
333	S HVPS Est	tell-tale	on	off	STICS HVPS 2
334	S HVPS NSt	tell-tale	on	off	STICS HVPS 1
335	I Analog Power	tell-tale	on	off	ICS analog power
336	S Analog Power	tell-tale	on	off	STICS analog power
337	S HVPS TOF	tell-tale	on	off	STICS HVPS 7
338	S +DPPS	tell-tale	on	off	STICS +DPPS
339	S -DPPS	tell-tale	on	off	STICS -DPPS
340	I HVPS TOF	tell-tale	on	off	ICS HVPS 5
341	I HVPS SSP	tell-tale	on	off	ICS HVPS 4
342	I HVPS NSp	tell-tale	on	off	ICS HVPS 3
343	I HVPS SSt	tell-tale	on	off	ICS HVPS 2

344	I HVPS NSt	tell-tale	on	off	ICS HVPS1
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List of common abbreviations and acronyms used in column titles:

Leading "E"	This channel is associated with the EPIC instrument
Leading "D"	This channel is associated with the EPIC Data Processing Unit (DPU) subsystem
Leading "I"	This channel is associated with the EPIC ICS subsystem
Leading "S"	This channel is associated with the EPIC STICS subsystem
AE	analog electronics
Al, Alrm	alarm
Aper	ICS aperture
Cal	calibration
Ch	channel
Chk	check
Cmd	command
Cur	current
Disch	Discharge
DPPS	STICS deflection-plate power supply
E, Enrgy	energy
EDB	engineering data block
Ena	enable
Err	error
ESp	energy stop
ESt	energy start
H/W	hardware
HV	high voltage
HVPS	high voltage power supply
kV	kilovolts
Lim	limit
LVPS	low voltage power supply
mA	milliamps
MCP	micro channel plate
Mem	memory
mV	millivolts
NSp	north stop
NSt	north start
Ovr	over
PHA	pulse height analysis
Positn	position
PS	power supply
Pwr	power
SSp	south stop

SSt	south start
Subcom	subcommutation
Supl	supply
Temp	temperature
Thresh	threshold
TOF	time of flight
V	volts
Val	value