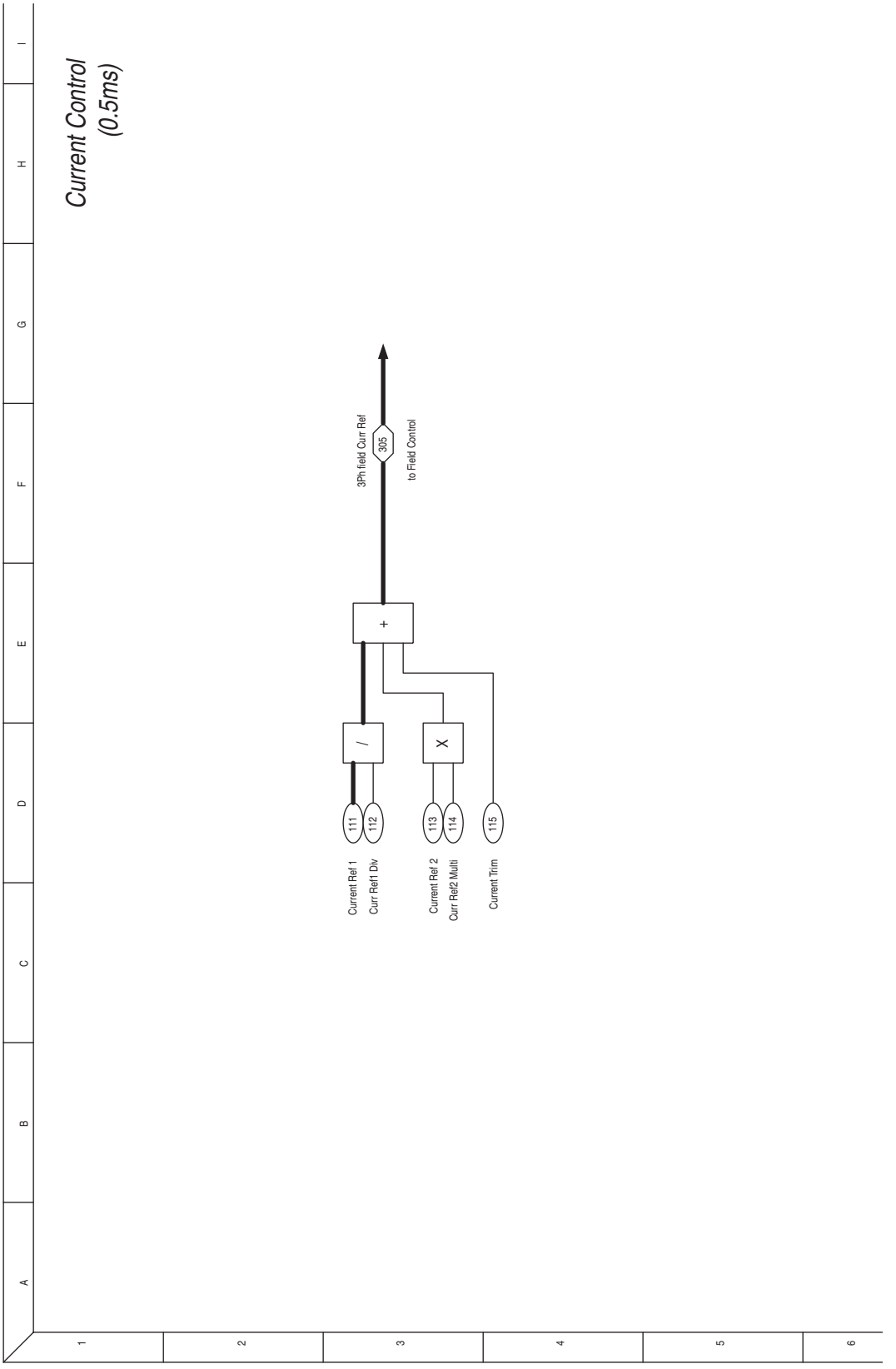
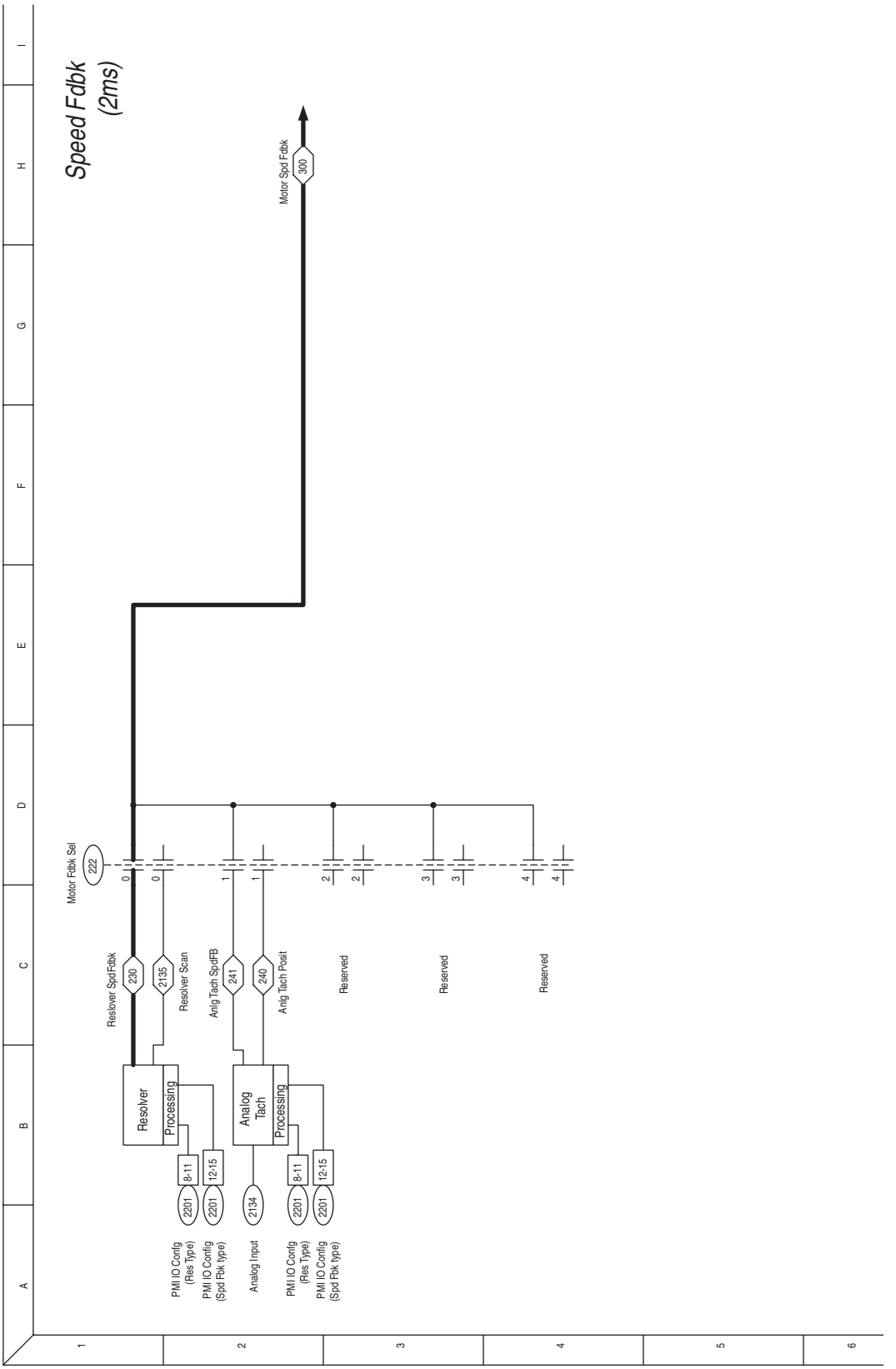
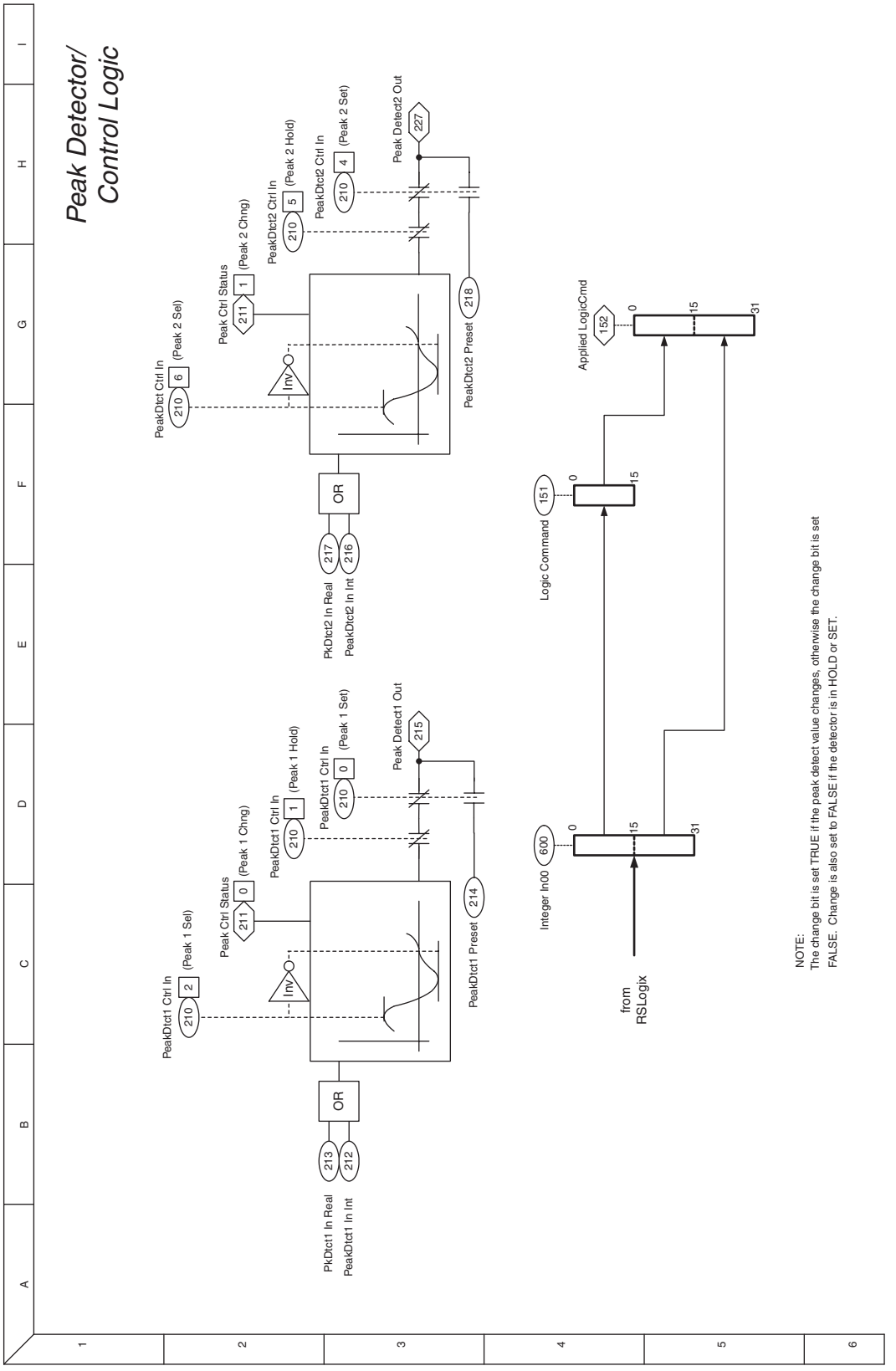
1756-DMF30 Specific Information

This appendix contains information that applies specifically to the 1756-DMF30.

Control Block Diagrams




Speed Fdbk
(2ms)
Motor Spd Fdbk
300
Motor Fdbk Sel
222
Resolver SpdFdbk
230
Resolver Scan
2135
Anlg Tach SpdFB
241
Anlg Tach Posit
240
Reserved
Reserved
Reserved
Resolver
Processing
Analog
Tach
Processing
8-11
12-15
8-11
12-15
2201
2201
2134
2201
2201
PMI IO Config
(Res Type)
PMI IO Config
(Spd Fbk type)
Analog Input
PMI IO Config
(Res Type)
PMI IO Config
(Spd Fbk type)


Peak Detector/
Control Logic
PeakDtct1 Ctrl In
(Peak 1 Sel)
2
210
Peak Ctrl Status
211
0
(Peak 1 Chng)
Inv
PeakDtct1 Ctrl In
1
210
(Peak 1 Hold)
PeakDtct1 Ctrl In
0
210
(Peak 1 Set)
Peak Detect1 Out
215
PeakDtct1 Preset
214
OR
213
212
PkDtct1 In Real
PeakDtct1 In Int
PeakDtct Ctrl In
6
210
(Peak 2 Sel)
Peak Ctrl Status
211
1
(Peak 2 Chng)
Inv
PeakDtct2 Ctrl In
5
210
(Peak 2 Hold)
PeakDtct2 Ctrl In
4
210
(Peak 2 Set)
Peak Detect2 Out
227
PeakDtct2 Preset
218
OR
217
216
PkDtct2 In Real
PeakDtct2 In Int
Integer In00
600
0
15
31
Logic Command
151
0
15
Applied LogicCmd
152
0
15
31
from
RSLogix
NOTE:
The change bit is set TRUE if the peak detect value changes, otherwise the change bit is set
FALSE. Change is also set to FALSE if the detector is in HOLD or SET.

Parameters

To configure a Drive module to operate in a specific way, drive parameters may have to be set. Three types of parameters exist:

- **ENUM Parameters**
  These parameters allow a selection from 2 or more items
- **Bit Parameters**
  These parameters have individual bits associated with features or conditions. If the bit is 0, the feature is off or the condition is false. If the bit is 1, the feature is on or the condition is true.
- **Numeric Parameters**
  These parameters have a single numeric value (i.e. 0.1 Volts).

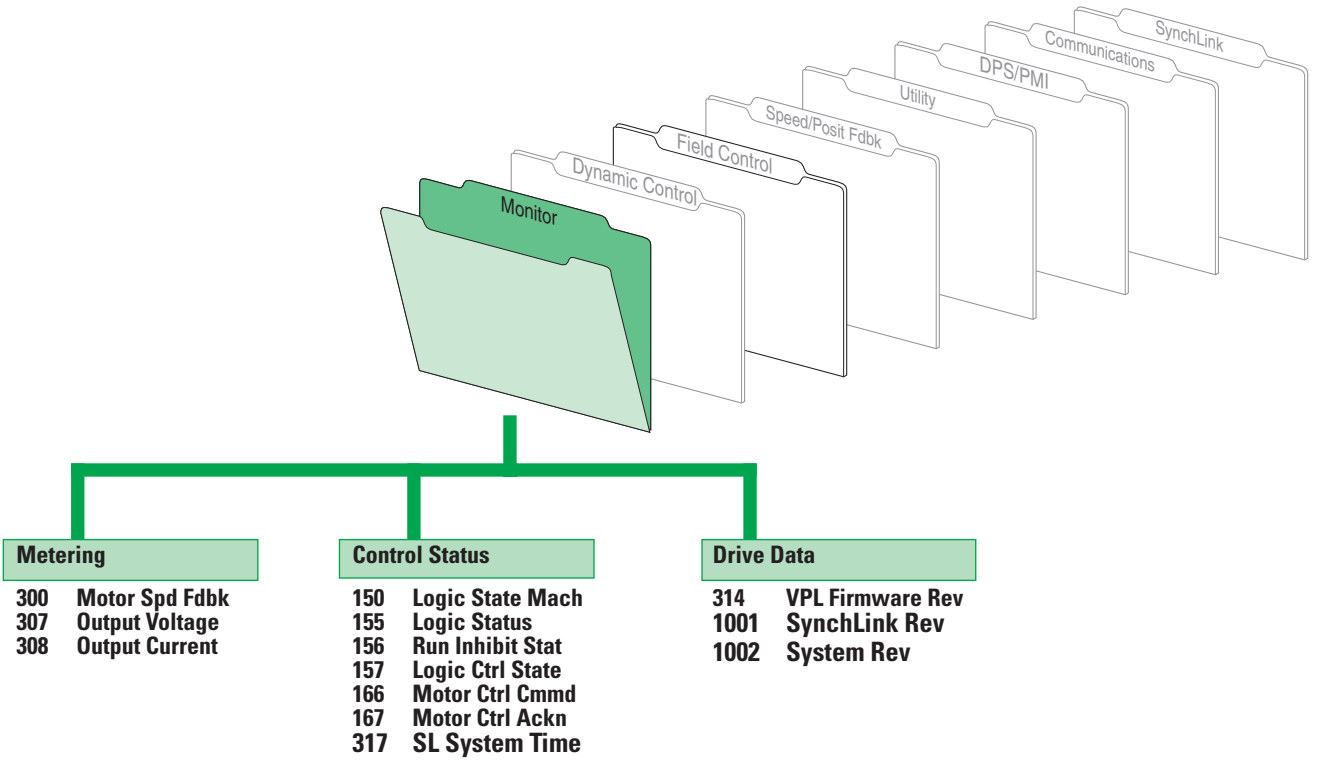
The example on the following page shows how each parameter type is presented in this manual.

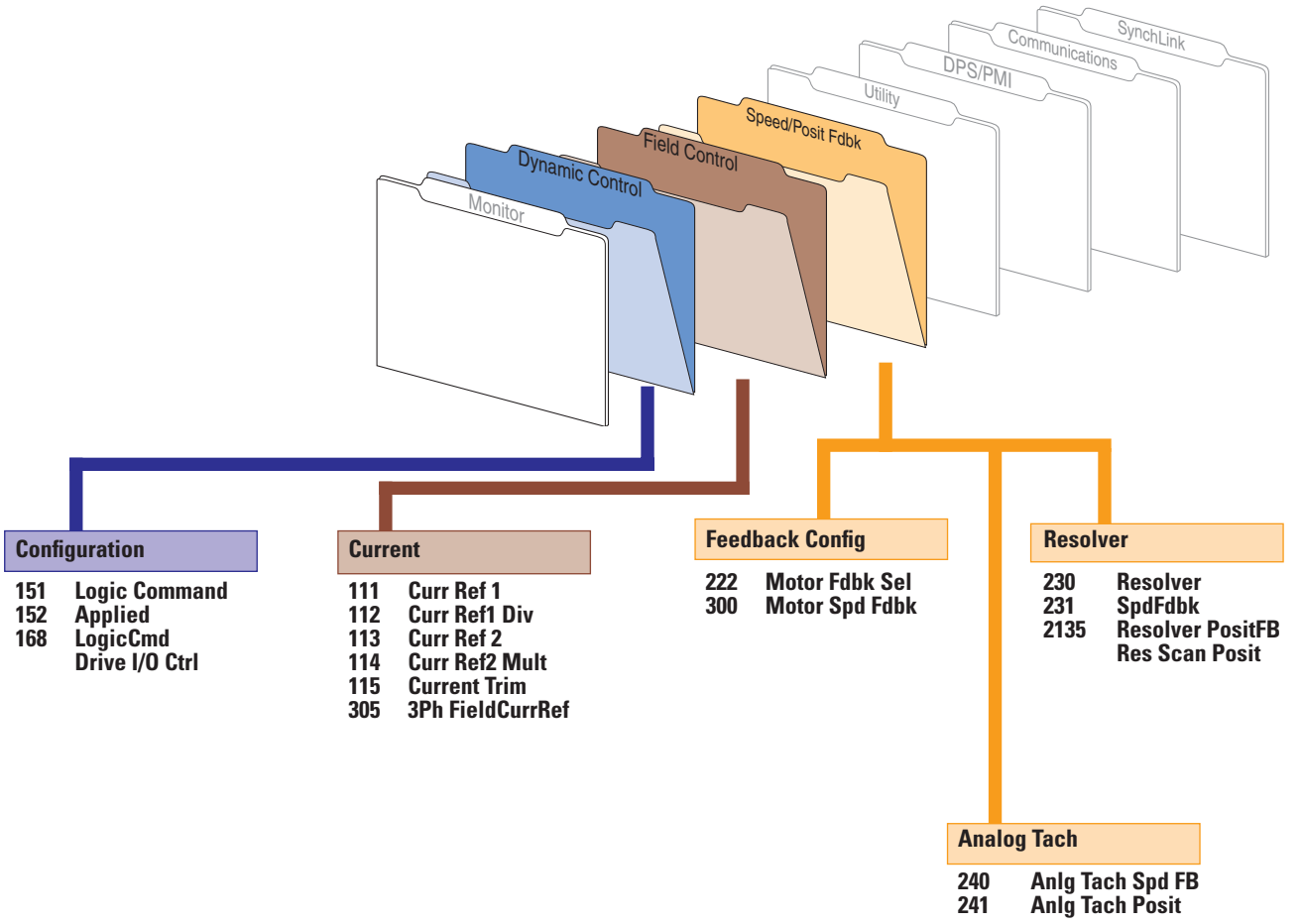
❶	❷	❸		
No.	**Name** **Description**	**Values**		
16	**Speed Ref Sel** Enter or write a value to select the source of the speed reference to the drive.	Default:	Val 1	Spd Ref 1
		Options:	Val 0 Val 1 Val 2	Zero Speed Spd Ref 1 Spd Ref 2
		File: Group:	Speed Control Reference	
80	**Speed Reg Ctrl** Enter or write a value to configure the speed regulator integrator.	Default:	0000 0000	
		Options:	Bit 0 Bit 1 Bit 2 Bit 3 Bit 4	Reserved Preset Sel Integ Hold Integ Reset
		File: Group:	Speed Control Regulator	
11	**Spd Ref1 Divide** Speed Ref 1 is divided by this number. Use this parameter to scale the value of Speed Ref 1.	Default: Min: Max: Type: File: Group:	1 -2200000000 2200000000 Non-Linkable Read-Write Floating Point Speed Control Reference	

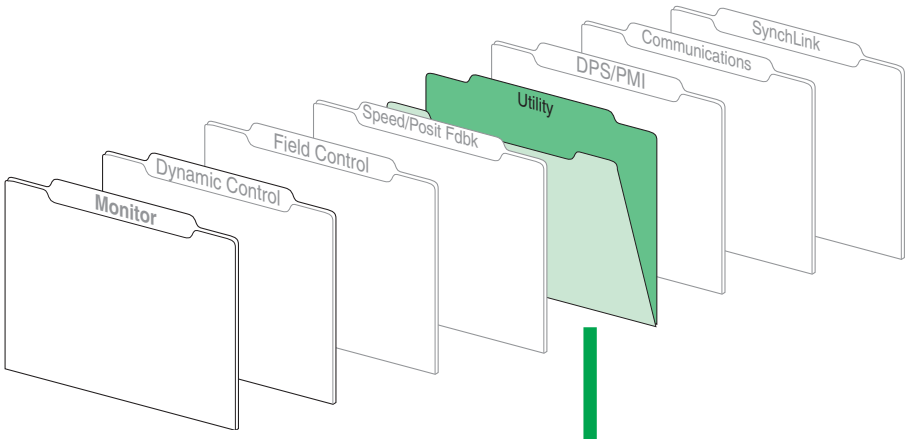
No.	Description		
❶	No. - Parameter Number. = Stop drive before changing this parameter.		
❷	Name - Parameter name as is appears in DriveExecutive software. Description - Brief description of parameter function.		
❸	Values - Defines the various operating characteristics of the parameter. Three types exist		
	ENUM	Default: Options: File: Group:	Lists the value assigned at the factory. Displays the selections available. Lists the major parameter file category. Lists the parameter group within the file.
	Bit	Default: Options: File: Group:	Lists the bit pattern assigned at the factory. Displays the selections available. Lists the major parameter file category. Lists the parameter group within the file.
	Numeric	Default: Min: Max: Type: File: Group	Lists the value assigned at the factory. Displays lowest possible setting. Displays highest possible setting. Indicates if parameter is linkable, read-write, read-only, and data type (i.e. integer, floating point, boolean). Lists the major parameter file category. Lists the parameter group within the file.

How Parameters Are Organized

DriveExecutive programming software displays parameters in “Linear List” or “File Group Parameter” format. Viewing the parameters in “File Group Parameter” format simplifies programming by grouping parameters that are used for similar functions. There are eight files. Each file is divided into multiple groups of parameters.




SynchLink
Communications
DPS/PMI
Utility
Speed/Posit Fdbk
Field Control
Dynamic Control
Monitor
Configuration
151 Logic Command
152 Applied
168 LogicCmd
Drive I/O Ctrl
Current
111 Curr Ref 1
112 Curr Ref1 Div
113 Curr Ref 2
114 Curr Ref2 Mult
115 Current Trim
305 3Ph FieldCurrRef
Feedback Config
222 Motor Fdbk Sel
300 Motor Spd Fdbk
Resolver
230 Resolver
231 SpdFdbk
2135 Resolver PositFB
Res Scan Posit
Analog Tach
240 Anlg Tach Spd FB
241 Anlg Tach Posit



Fault/Alm Config

369	SL CommLoss Cnfg
370	SL CommLoss Data
381	PMI Warning Cnfg
382	Lgx OutOfRunCnfg
383	Lgx Timeout Cnfg
384	Lgx Closed Cnfg
385	Lgx LinkChngCnfg
386	Lgx CommLossData
387	SL MultErr Cnfg

Diagnostics

167	Motor Ctrl Ackn
169	Drive I/O Status
316	SynchLink Status
320	Exception Event1
321	Exception Event2
323	Fault Status 1
324	Fault Status 2
326	Alarm Status 1
327	Alarm Status 2
1229	SL Error Status
1230	SL CRC Err
1231	Accum
1232	SL CRC Error
1233	SL BOF Err
1234	Accum
1235	SL BOF Error
2122	SL CRC Err Limit
2123	SL BOF Err Limit
2124	MC Faults
2125	MC Warnings
	Pwr
	DeviceStatus
	Interlock Code

Test Points

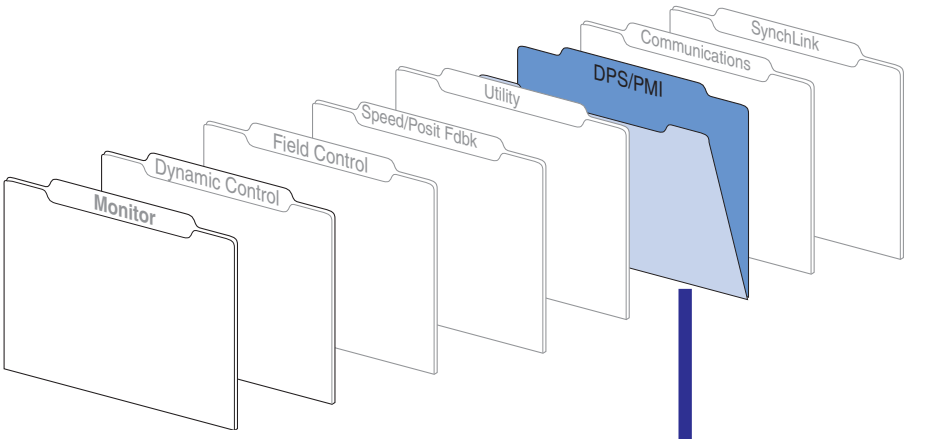
329	Fault TP Sel
330	Fault TP Data
1226	SL Comm TP Sel
1227	SL Comm TP Data

User Selections

396	User Data 1
397	User Data 2
398	User Data 3
399	User Data 4

Peak Detection

210	PeakDtct Ctrl In
211	Peak Ctrl Status
212	PeakDtct1 In Int
213	PkDtct1 In Real
214	PeakDtct1 Preset
215	PeakDetect1 Out
216	PeakDtct2 In Int
217	PkDtct2 In Real
218	PeakDtct2 Preset
227	PeakDetect2 Out



Comm Status

2000	DM Comm PortStat
2001	DM Good Msg Cnt
2002	DM CRC Error Cnt
2003	DM Frmt ErrorCnt
2004	PMIComm PortStat
2005	PMI Good Msg Cnt
2006	PMI CRC ErrorCnt
2007	PMIFrmt ErrorCnt
2008	DM Link Status
2009	DM Tx Msg Count
2010	DM Sync WarngCnt
2011	DM Bad Msg Cnt
2012	DM Sync Count
2013	PMI Gain Count
2014	DM Tx Time
2015	DM Tx Time Avail

Commands

2100	Drive Ctrl Word
2102	3Ph Test Angle
2103	3Ph Curr Ref
2104	Field Test Angle
2105	Field Curr Ref
2106	PMI D/A Output

Inputs & Outputs

2040	Rail Port 0 Ch 0
2041	Rail Port 0 Ch 1
2042	Rail Port 0 Ch 2
2043	Rail Port 0 Ch 3
2044	Rail Port 0 Flt
2045	RailPrt 0FltCnt
2046	Rail Port 1 Ch 0
2047	Rail Port 1 Ch 1
2048	Rail Port 1 Ch 2
2049	Rail Port 1 Ch 3
2050	Rail Port 1 Flt
2051	RailPrt 1FltCnt
2080	Meter Port1 Sel
2081	MeterP1 +10v Val
2082	MeterP1 -10v Val
2083	Meter Port2 Sel
2084	MeterP2 +10v Val
2085	MeterP2 -10v Val
2086	Meter Port3 Sel
2087	MeterP3 +10v Val
2088	MeterP3 -10v Val
2089	Meter Port4 Sel
2090	MeterP4 +10v Val
2091	MeterP4 -10v Val

Feedback

2122	MC Faults
2123	MC Warnings
2124	Pwr DeviceStatus
2125	Interlock Code
2126	AC Line Volt FB
2127	3Ph Feedback
2131	FML Feedback
2132	Field Amps Fdbk
2133	Field Volt Fdbk
2134	User Anlg Input
2135	Res Scan Posit
2136	Res Strobe Posit
2149	NV Faults

Regulator Config

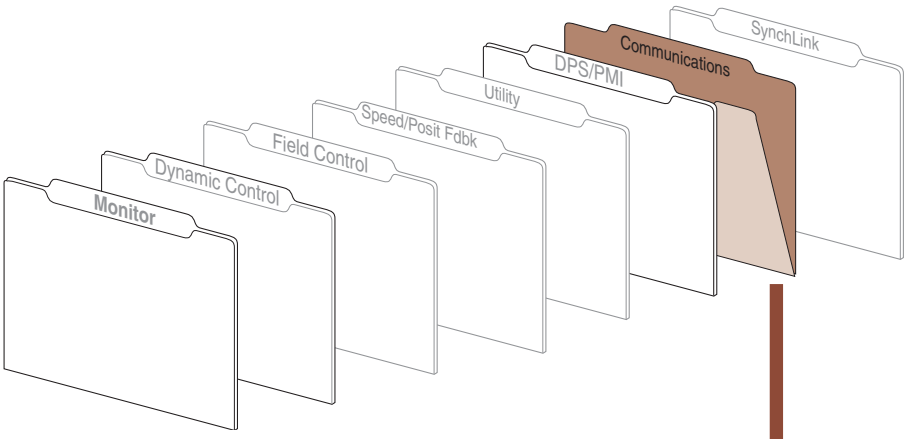
2150	CML Crossovr Frq
2151	3Ph Resistance
2152	3Ph TimeConstant
2154	FML Crossovr Frq
2155	Field Resistance
2156	Fld TimeConstant
2157	SCR Diag Gain
2158	SCR Decay Rate
2159	SCR Deadband
2160	SCR Trip Point
2161	Resolver Gain
2162	Resolver Balance

Motor Data

2180	Motor NP RPM
2181	Anlg Tach RPM
2182	3Ph Hot Fld Curr
2184	PMI Curr Lim
2185	Hot Field Curr
2186	Min Field Curr
2187	Field Loss Amps
2188	Field Off Delay

Drive Config

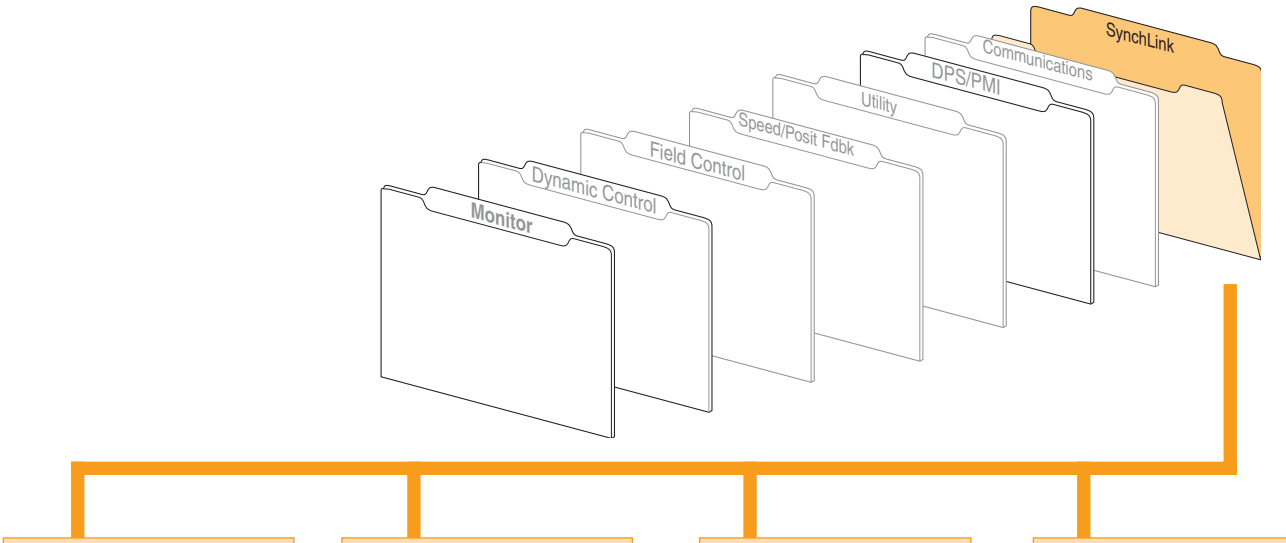
2200	PMI Drive Config
2201	PMI I/O Config
2202	AC
2203	LineVolt(RMS)
2204	Out Volt Rating
2205	Out Curr Rating
2206	Curr Xfmr Ratio
2207	Field AC In Volt
2208	Fld OutCurrRatng
2209	Anlg Tach Volts
2213	Ph Xfmr In Volt
2214	Pwr Config Code
	PMI OS Version



Commands	
664	Lgx Comm Format

Logix Inputs	
600	Integer In00
601	Real In00
602	Integer In01
603	Real In01
604	Integer In02
605	Real In02
606	Integer In03
607	Real In03
608	Integer In04
609	Real In04
610	Integer In05
611	Real In05
612	Integer In06
613	Real In06
614	Integer In07
615	Real In07
616	Integer In08
617	Real In08
618	Integer In09
619	Real In09
620	Integer In10
621	Real In10
622	Integer In11
623	Real In11
624	Integer In12
625	Real In12
626	Integer In13
627	Real In13
628	Integer In14
629	Real In14
630	Integer In15
631	Real In15

Logix Outputs	
632	Integer Out00
633	Real Out00
634	Integer Out01
635	Real Out01
636	Integer Out02
637	Real Out02
638	Integer Out03
639	Real Out03
640	Integer Out04
641	Real Out04
642	Integer Out05
643	Real Out05
644	Integer Out06
645	Real Out06
646	Integer Out07
647	Real Out07
648	Integer Out08
649	Real Out08
650	Integer Out09
651	Real Out09
652	Integer Out10
653	Real Out10
654	Integer Out11
655	Real Out11
656	Integer Out12
657	Real Out12
658	Integer Out13
659	Real Out13
660	Integer Out14
661	Real Out14
662	Integer Out15
663	Real Out15



SynchLink Config

1000	SL Node Cnfg
1010	SL Rx Comm Frmt
1011	SL Rx DirectSel0
1012	SL Rx DirectSel1
1013	SL Rx DirectSel2
1014	SL Rx DirectSel3
1020	SL TxComm Format
1021	SL Tx DirectSel0
1022	SL Tx DirectSel1
1023	SL Tx DirectSel2
1024	SL Tx DirectSel3

Multiplier

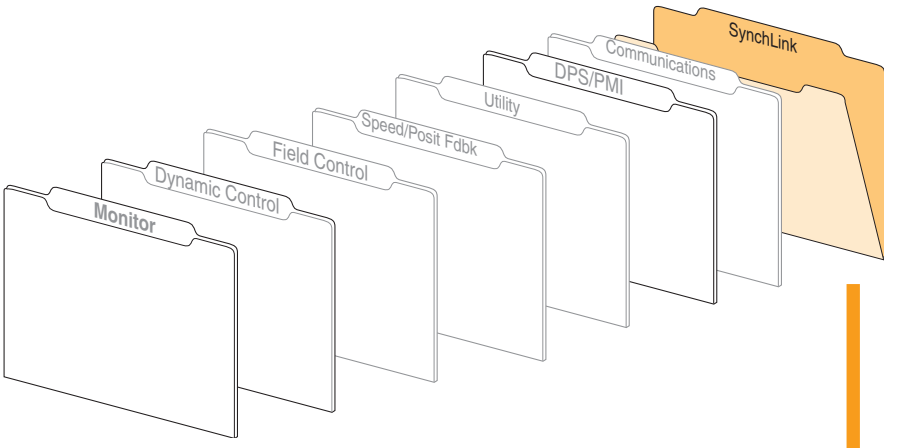
1030	SL Mult A In
1031	SL Mult B In
1032	SL Mult Base
1033	SL Mult Out
1034	SL Mult State
1035	Real to Int In
1036	Real to Int Out

Event Data

1040	SL Rcv Events
1041	SL Rx P0 Regis
1042	SL Rx P1 Regis
1043	SL Rx D0 Latch
1044	SL Rx D1 Latch
1045	SL Rx D2 Latch
1046	SL Rx D3 Latch
1047	SL Rx Opt0 Regis
1048	SL Rx Opt1 Regis

Direct Data

1054	SL Dir Int Rx0
1055	SL Dir Real Rx0
1056	SL Dir Int Rx1
1057	SL Dir Real Rx1
1058	SL Dir Int Rx2
1059	SL Dir Real Rx2
1060	SL Dir Int Rx3
1061	SL Dir Real Rx3
1140	Tx Dir Data Type
1141	SL Dir Int Tx0
1142	SL Dir Real Tx0
1143	SL Dir Int Tx1
1144	SL Dir Real Tx1
1145	SL Dir Int Tx2
1146	SL Dir Real Tx2
1147	SL Dir Int Tx3
1148	SL Dir Real Tx3



Buffered Data In

1073	SL Buf Int Rx00
1074	SL Buf Real Rx00
1075	SL Buf Int Rx01
1076	SL Buf Real Rx01
1077	SL Buf Int Rx02
1078	SL Buf Real Rx02
1079	SL Buf Int Rx03
1080	SL Buf Real Rx03
1081	SL Buf Int Rx04
1082	SL Buf Real Rx04
1083	SL Buf Int Rx05
1084	SL Buf Real Rx05
1085	SL Buf Int Rx06
1086	SL Buf Real Rx06
1087	SL Buf Int Rx07
1088	SL Buf Real Rx07
1089	SL Buf Int Rx08
1090	SL Buf Real Rx08
1091	SL Buf Int Rx09
1092	SL Buf Real Rx09
1093	SL Buf Int Rx10
1094	SL Buf Real Rx10
1095	SL Buf Int Rx11
1096	SL Buf Real Rx11
1097	SL Buf Int Rx12
1098	SL Buf Real Rx12
1099	SL Buf Int Rx13
1100	SL Buf Real Rx13
1101	SL Buf Int Rx14
1102	SL Buf Real Rx14
1103	SL Buf Int Rx15
1104	SL Buf Real Rx15
1105	SL Buf Int Rx16
1106	SL Buf Real Rx16
1107	SL Buf Int Rx17
1108	SL Buf Real Rx17
1109	SL Buf Int Rx18
1110	SL Buf Real Rx18
1111	SL Buf Int Rx19
1112	SL Buf Real Rx19
1113	SL Buf Int Rx20
1114	SL Buf Real Rx20
1115	SL Buf Int Rx21
1116	SL Buf Real Rx21
1117	SL Buf Int Rx22
1118	SL Buf Real Rx22
1119	SL Buf Int Rx23
1120	SL Buf Real Rx23
1121	SL Buf Int Rx24
1122	SL Buf Real Rx24
1123	SL Buf Int Rx25
1124	SL Buf Real Rx25
1125	SL Buf Int Rx26
1126	SL Buf Real Rx26
1127	SL Buf Int Rx27
1128	SL Buf Real Rx27
1129	SL Buf Int Rx28
1130	SL Buf Real Rx28
1131	SL Buf Int Rx29

Buffered DataOut

1160	Tx Buf Data Type
1161	SL Buf Int Tx00
1162	SL Buf Real Tx00
1163	SL Buf Int Tx01
1164	SL Buf Real Tx01
1165	SL Buf Int Tx02
1166	SL Buf Real Tx02
1167	SL Buf Int Tx03
1168	SL Buf Real Tx03
1169	SL Buf Int Tx04
1170	SL Buf Real Tx04
1171	SL Buf Int Tx05
1172	SL Buf Real Tx05
1173	SL Buf Int Tx06
1174	SL Buf Real Tx06
1175	SL Buf Int Tx07
1176	SL Buf Real Tx07
1177	SL Buf Int Tx08
1178	SL Buf Real Tx08
1179	SL Buf Int Tx09
1180	SL Buf Real Tx09
1181	SL Buf Int Tx10
1182	SL Buf Real Tx10
1183	SL Buf Int Tx11
1184	SL Buf Real Tx11
1185	SL Buf Int Tx12
1186	SL Buf Real Tx12
1187	SL Buf Int Tx13
1188	SL Buf Real Tx13
1189	SL Buf Int Tx14
1190	SL Buf Real Tx14
1191	SL Buf Int Tx15
1192	SL Buf Real Tx15
1193	SL Buf Int Tx16
1194	SL Buf Real Tx16
1195	SL Buf Int Tx17
1196	SL Buf Real Tx17
1197	SL Buf Int Tx18
1198	SL Buf Real Tx18
1199	SL Buf Int Tx19
1200	SL Buf Real Tx19
1201	SL Buf Int Tx20
1202	SL Buf Real Tx20
1203	SL Buf Int Tx21
1204	SL Buf Real Tx21
1205	SL Buf Int Tx22
1206	SL Buf Real Tx22
1207	SL Buf Int Tx23
1208	SL Buf Real Tx23
1209	SL Buf Int Tx24
1210	SL Buf Real Tx24
1211	SL Buf Int Tx25
1212	SL Buf Real Tx25
1213	SL Buf Int Tx26
1214	SL Buf Real Tx26
1215	SL Buf Int Tx27
1216	SL Buf Real Tx27
1217	SL Buf Int Tx28
1218	SL Buf Real Tx28
1219	SL Buf Int Tx29
1220	SL Buf Real Tx29

Parameter Data In Linear List Format

No.	Name Description	Values		
111	**Curr Ref 1** Supplies an external current reference to the drive. This parameter is divided by the value inparameter 112 [Curr Ref1 Div]. A value of 1.0 represents rated current of the drive.	Default: Min: Max: Type: File: Group:	0 -2200000000 2200000000 Linkable, Read-Write, Floating Point Field Control Current	
112	**Curr Ref1 Div** The divisor for parameter 111 [Curr Ref 1].	Default: Min: Max: Type: File: Group:	1 -2200000000 2200000000 Non-Linkable, Read-Write, Floating Point Field Control Current	
113	**Curr Ref 2** Supplies an external current reference to the drive. This parameter is multiplied by the value in [Curr Ref2 Mult]. A value of 1.0 represents rated current of the drive.	Default: Min: Max: Type: File: Group:	0 -2200000000 2200000000 Linkable, Read-Write, Floating Point Field Control Current	
114	**Curr Ref2 Mult** The multiplier for parameter 113 [Curr Ref 2].	Default: Min: Max: Type: File: Group:	1 -2200000000 2200000000 Linkable, Read-Write, Floating Point Field Control Current	
115	**Current Trim** The amount added to the Current Reference before the Speed - Torque Mode Selector. A value of 1.0 represents rated current of the drive.	Units: Default: Min: Max: Type: File: Group:	P.U. 0 -8 8 Linkable, Read-Write, Floating Point Field Control Current	
150	**Logic State Mach** Indicates the logical state of the drive. Value 0 - Stopped indicates zero speed has been detected and the speed and torque regulators are disabled.	Default: Options: File: Group:	0 Val 0 Val 1 Val 2 Val 3 Val 4 Val 5 Val 6 Monitor Control Status	Zero Stopped Starting Running Stopping Inertia Test MC Diag Reserved