

			Bytes Allocated:	243		MAX: 255 bytes
System	Subsystem	Data	Data Type	# Bytes	Units	Notes
APRS	Packet	Data type identifier	UINT8	3	ASCII String	"{{z" User-Defined APRS packet format
APRS	Packet	Revision	UINT8	1	Count	revision 2
C3	Packet	Craft ID	UINT8	1		Unique ID for Satellite (0 = OreSat0)
C3	M4	OreSat0 State	State	1	State	Character representing C3 critical state
C3	M4	Uptime	UINT32	4	Seconds	Stick at 0xFFFFFFFF if we reach 194 days of uptime :)
C3	RTC	Time	UINT32	4	Seconds	SCET coarse / UNIX timestamp
C3	M4	Temperature	INT8	1	deg C	Internal temp of the C3's STM32F439
C3	M4	Ref voltage	UINT8	1	0.02 V	Reference voltage on the C3's ADC (should be VCC = 3.3V)
C3	M4	Vbusp Voltage	UINT8	1	0.02 V	WAIT WHAT?! HOW DOES THE C3 KNOW THE BUS VOLTAGE?!!
C3	M4	Vbusp Current	UINT8	1	0.02 mA	"VBUS_ILIM" from U4 (TS59621 with 3.1k resistor)
C3	WDT	# timeouts	UINT16	2	Count	Stored in FRAM; Stick at 0xFFFF until reset from ground
C3	eMMC	% full	UINT8	1	% (0 - 100)	
C3	L RX	Bytes received	UINT32	4		
C3	L RX	Valid packets	UINT32	4		
C3	L RX	RSSI	UINT8	1	dBm	Of last packet received; -126 to -45 dBm range; 1 dB step; after LNA, filters, and digital channel filter.
C3	L RX	PLL Lock	State	1	Lock state	0 : AX5043 PLL Lock; 1 : Downconverter synth PLL lock; More space in bit field available
C3	UHF TX	Temperature	INT8	1	deg C	
C3	UHF TX FWD	Forward power	UINT16	2	dBm	"UHF_LOG_RF_FWD" from U32; Scaled to usable dBm range
C3	UHF TX REV	Reverse power	UINT16	2	dBm	"UHF_LOG_RF_REV" from U33; Scaled to usable dBm range
C3	UHF RX	Bytes received	UINT32	4		
C3	UHF RX	Valid packets	UINT32	4		
C3	UHF RX	RSSI	UINT8	1	dBm	Of last packet received; -126 to -45 dBm range; 1 dB step; after LNA, filters, and digital channel filter.
C3	UHF RX	PLL Lock	State	1	Lock state	0 : AX5043 PLL Lock; More space in bit field available
C3	FW Bank	Current and next bank	State	1		
C3	CAN1	State	State	1	State	Operational/High # errors/Other CAN status?
C3	CAN2	State	State	1	State	Operational/High # errors/Other CAN status?
C3	OPD	Current	UINT8	1	0.02 mA	"OPD_ILIM" from U? (MAX? with ?k resistor)
C3	OPD	State	UINT8	1	Bit field	Which OPDs are currently on
Battery	Pack 1	VBatt	UINT16	2	mV	Total battery pack voltage
Battery	Pack 1	VCell	UINT16	2	mV	Lowest cell in the pack: voltage
Battery	Pack 1	VCell Max	UINT16	2	mV	Lowest cell in the pack: maximum voltage (since ... last charge?)
Battery	Pack 1	VCell Min	UINT16	2	mV	Lowest cell in the pack: minimum voltage (since ... last charge?)
Battery	Pack 1	VCell 1	UINT16	2	mV	Cell 1 voltage
Battery	Pack 1	VCell 2	UINT16	2	mV	Cell 2 voltage
Battery	Pack 1	VCell Avg	UINT16	2	mV	Lowest cell in the pack: average voltage (since ... last charge?)
Battery	Pack 1	Temperature	INT16	2	deg C	Why is this a INT16 instead of an INT8?
Battery	Pack 1	Temperature Avg	INT16	2	deg C	Why is this a INT16 instead of an INT8?
Battery	Pack 1	Temperature Max	INT16	2	deg C	Why is this a INT16 instead of an INT8?
Battery	Pack 1	Temperature Min	INT16	2	deg C	Why is this a INT16 instead of an INT8?
Battery	Pack 1	Current	INT16	2	mA	Instantaneous current
Battery	Pack 1	Current Avg	INT16	2	mA	Average current
Battery	Pack 1	Current Max	INT16	2	mA	Max current
Battery	Pack 1	Current Min	INT16	2	mA	Min current
Battery	Pack 1	State	UINT8	1	Bit field	Bit 0: heater on/off , B1: discharge disabled, B2: charge disabled, B3: discharge status, B4: charge statu

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System	Subsystem	Data	Data Type	# Bytes	Units	Notes
Battery	Pack 1	Reported State of Charge	UINT8	1	%	State of Charge (%) of the pack (reported capacity / full capacity)
Battery	Pack 1	full capacity	UINT16	2	mAh	Best guess at the total storage capacity of the pack
Battery	Pack 1	reported capacity	UINT16	2	mAh	Best guess at the current capacity of the pack
Battery	Pack 2	VBatt	UINT16	2	mV	Total battery pack voltage
Battery	Pack 2	VCell	UINT16	2	mV	Lowest cell in the pack: voltage
Battery	Pack 2	VCell max	UINT16	2	mV	Lowest cell in the pack: maximum voltage (since ... last charge?)
Battery	Pack 2	VCell min	UINT16	2	mV	Lowest cell in the pack: minimum voltage (since ... last charge?)
Battery	Pack 2	VCell 1	UINT16	2	mV	Cell 1 voltage
Battery	Pack 2	VCell 2	UINT16	2	mV	Cell 2 voltage
Battery	Pack 2	VCell avg	UINT16	2	mV	Lowest cell in the pack: average voltage (since ... last charge?)
Battery	Pack 2	temperature	INT16	2	deg C	Why is this a INT16 instead of an INT8?
Battery	Pack 2	temperature avg	INT16	2	deg C	Why is this a INT16 instead of an INT8?
Battery	Pack 2	temperature max	INT16	2	deg C	Why is this a INT16 instead of an INT8?
Battery	Pack 2	temperature min	INT16	2	deg C	Why is this a INT16 instead of an INT8?
Battery	Pack 2	current	INT16	2	mA	Instantaneous current
Battery	Pack 2	current avg	INT16	2	mA	Average current
Battery	Pack 2	current max	INT16	2	mA	Max current
Battery	Pack 2	current min	INT16	2	mA	Min current
Battery	Pack 2	state	UINT8	1	Bit field	Bit 0: heater on/off , B1: discharge disabled, B2: charge disabled, B3: discharge status, B4: charge status
Battery	Pack 2	reported state of charged	UINT8	1	%	State of Charge (%) of the pack (reported capacity / full capacity)
Battery	Pack 2	full capacity	UINT16	2	mAh	Best guess at the total storage capacity of the pack
Battery	Pack 2	reported capacity	UINT16	2	mAh	Best guess at the current capacity of the pack
Solar-X		Voltage avg	UINT16	2	mV	Average of the solar array voltage since power up (NOT bus voltage!)
Solar-X		Current avg	INT16	2	mA	Average of the solar array current since power up (NOT bus current)
Solar-X		Power avg	UINT16	2	mW	Average of the solar array power output since power up
Solar-X		Voltage max	UINT16	2	mV	Maximum of the solar array voltage since power up (NOT bus voltage!)
Solar-X		Current max	INT16	2	mA	Maximum of the solar array current since power up (NOT bus current)
Solar-X		Power max	UINT16	2	mW	Maximum of the solar array power output since power up
Solar-X		Energy	UINT16	2	J	Total energy (power over time) output of the solar array since power up
Solar-Y		Voltage avg	UINT16	2	mV	Average of the solar array voltage since power up (NOT bus voltage!)
Solar-Y		Current avg	INT16	2	mA	Average of the solar array current since power up (NOT bus current)
Solar-Y		Power avg	UINT16	2	mW	Average of the solar array power output since power up
Solar-Y		Voltage max	UINT16	2	mV	Maximum of the solar array voltage since power up (NOT bus voltage!)
Solar-Y		Current max	INT16	2	mA	Maximum of the solar array current since power up (NOT bus current)
Solar-Y		power max	UINT16	2	mW	Maximum of the solar array power output since power up
Solar-Y		Energy	UINT16	2	J	Total energy (power over time) output of the solar array since power up
Solar+X		Voltage avg	UINT16	2	mV	Average of the solar array voltage since power up (NOT bus voltage!)
Solar+X		Current avg	INT16	2	mA	Average of the solar array current since power up (NOT bus current)
Solar+X		Power avg	UINT16	2	mW	Average of the solar array power output since power up
Solar+X		Voltage max	UINT16	2	mV	Maximum of the solar array voltage since power up (NOT bus voltage!)
Solar+X		Current max	INT16	2	mA	Maximum of the solar array current since power up (NOT bus current)
Solar+X		power max	UINT16	2	mW	Maximum of the solar array power output since power up
Solar+X		Energy	UINT16	2	J	Total energy (power over time) output of the solar array since power up
Solar+Y		Voltage avg	UINT16	2	mV	Average of the solar array voltage since power up (NOT bus voltage!)

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Solar+Y		Current avg	INT16	2	mA	Average of the solar array current since power up (NOT bus current)	
Solar+Y		Power avg	UINT16	2	mW	Average of the solar array power output since power up	
Solar+Y		Voltage max	UINT16	2	mV	Maximum of the solar array voltage since power up (NOT bus voltage!)	
Solar+Y		Current max	INT16	2	mA	Maximum of the solar array current since power up (NOT bus current)	
Solar+Y		power max	UINT16	2	mW	Maximum of the solar array power output since power up	
Solar+Y		Energy	UINT16	2	J	Total energy (power over time) output of the solar array since power up	
Star Tracker		eMMC Capacity	UINT8	1	% (0 - 100)		
Star Tracker		readable files	UINT8	1			
Star Tracker		updater status	UINT8	1			
Star Tracker		updates cached	UINT8	1			
Star Tracker		Right Ascension	INT16	2			
Star Tracker		Declination	INT16	2			
Star Tracker		Roll	INT16	2			
Star Tracker		Timestamp of last packet	UINT32	4	ms since midnight		
GPS		eMMC Capacity	UINT8	1	% (0 - 100)		
GPS		readable files	UINT8	1			
GPS		updater status	UINT8	1			
GPS		updates cached	UINT8	1			
GPS		gps status	UINT8	1			
GPS		num of sats locked	UINT8	1			
GPS		X position	INT32	4	cm		
GPS		Y position	INT32	4	cm		
GPS		Z position	INT32	4	cm		
GPS		X velocity	INT32	4	cm/s		
GPS		Y velocity	INT32	4	cm/s		
GPS		Z velocity	INT32	4	cm/s		
GPS		Timestamp of last packet	UINT32	4	ms since midnight		
ADS	Gyro	Roll dot	INT16	2	deg/sec?		
ADS	Gyro	Pitch dot	INT16	2	deg/sec?		
ADS	Gyro	Yaw dot	INT16	2	deg/sec?		
ADS	Gyro	IMU temp	INT8	1	Deg C		
DxWiFi		eMMC Capacity	UINT8	1	% (0 - 100)		
DxWiFi		readable files	UINT8	1			
DxWiFi		updater status	UINT8	1			
DxWiFi		updates cached	UINT8	1			
DxWiFi		transmitting	BOOL	1			
APRS	Packet	CRC-32	UINT32	4	FCS	Polynomial 0x04C11DB7; computed over all bytes allocated	