

T3-0000 TCS3 Control System Design Document Index

General Documents		
Number	Filename	Description
T3-1000	T3-1000-Documents_Index	TCS3 Control System Document Index
T3-1010	T3-1010-Block_Diagram	Block diagram of TCS3 Control System
T3-1011	T3-1010-Block_Diagram-Item_Index	Indexes TCS3 equipment with documentation

Physical Schematics	
Filename	Description
T3-2010-FIOAB	FIO AB Electronic box
T3-2020-Dome_HP.SchDoc	Dome Hand Paddle schematic and HP functional description
T3-2021-Dome_HP.vsd	Dome Hand Paddle face plate cut out dimension
T3-2030-TO_Panel-Overview	Telescope Operator's Panel - Block Diagram & Photo
T3-2031-TO_Panel-PCB_IO	Telescope Operator's Panel - PCB and related IO
T3-2032-TO_Panel-Guider_cables	Telescope Operator's Panel - Guider IO and cables
T3-2040-Observers_Panel	Schematic of Observers Handpaddle.
T3-2041-Observers_Panel_Mech	Observer's Hand Paddle Mechanical Informaiton
T3-2043-TO_Hand_Paddle_&_Cable	TO HandPaddle and Cable (5 Pages)
T3-2050-FIOCD	FIO CD Electronic Box
T3-2051-FIOCD_Relay	Motor Relay board inside FIO CD
T3-2060-SE_FIOE	Servo Electronic and FIO E Box
T3-2070-Safety_Top	Safety Board Overview of signal routing and Major components
T3-2070BOM_Safety_Board_Rev_C.xls	Safety Board Parts List (PL)
T3-2071-Safety_CPLD_Logic	Safety Board Diagram of CPLD Logic
T3-2072-Safety_Fault_Logic	Safety Board (Need Description)
T3-2073-Safety_Fault_Comp1	Safety Board HA Dec overspeed overcurrent analog logic
T3-2074-Safety_Fault_Comp2	Safety Board Dome overcurrent analog logic
T3-2075-Safety_HA_Tach	Safety Board Dome HA Tach Circuit
T3-2076-Safety_Dec_Tach	Safety Board Dec Tach Circuit
T3-2080-FIOF	FIO F
T3-2090-Computers.vsd	TCS3 Computers and Network Documentations, 2 pages
T3-2092_Mirror_Cooling_Board	Mirror Cooling Board Schematics (zip=project)
T3-2092BOM_Mirror_Cooling_Board	Mirror Cooling Board BOM
T3-2093_Mirror_Cooling_Board_Assembly	Mirror Cooling Board Assembly
T3-2100_Dome_Servo_Cabinet	Dome Servo System using the Baldor E100 Drives
T3-2201-SE_DataMon_Cable	SE_DataMon to DataQ Cable.
T3-2202-SE_Computer_Cables	SE to T1/T2 Computer cables
T3-2203-T3C021	Sa210 to Pa210 (FIOCD to MCC) cable
T3-2204-T3C022	Sa211 to Pa211 (FIOCD to MCC) cable
T3-2205-T3C023	Sa902 to Pa902 (FIOCD to Chopper) Cable
T3-2206-T3C010-011_cables	Dec (104) and HA(105) Incremental Encoder and Tach Y cable
T3-2207-T3C007	FIO-CD to Servo FIO-E (CD1 to SE5) Interconnect cable
T3-2208-AB_cables	AB cables T3C013, T3C015, T3C018
T3-2209-T3C009_cable	AB1/SE7 to power/brake control cable.
T3-2210_Amp_Ter_Blck	Servo Amp Rack Terminal Block
T3-2211_MISpec_Connector_Layout	Layout of all TCS3 MISpec connectors
T3-2212_SE_cables	SE cables T3C004, T3C008
T3-2213_CD_cables	CD cables T3C019, T3C020
T3-2301_FioE_Lab.schDoc	Schematic of TCS3 Lab system.

Functional Description and Other Misc Documents		
Number	Filename	Description
T3-3000	T3-3000_Telescope_Servo_Overview	Overview of TCS3 Servo System
T3-3001	Servo_Tuning_and_PMAC_config	Servo Tuning Notes and PMAC configurations
T3-3002	T3-3002_Safety_Board_CPLD_Programming_Guide.doc (.pdf)	Safety Board CPLD programming guide.
T3-3003	T3-3003_TCS3_SB_Test_Procedure.doc (.pdf)	Safety Board Test Procedure.
T3-3004	T3-3002_Safety_Board_HDD.doc (.pdf)	Safety Board Hardware Description Document (HDD)
T3-3005	T3-3005_EC_Safety_Board_Rev C.vsd (.pdf)	EC for Rev C of Safety Board
T3-3009	T3-3009_4chan_Gain_Text_Box	gain test box for testing overcurrent on safety board.
T3-3010	T3-3010-APE-Overview	Overview of the Absolute Position Encoders
T3-3011	T3-3011-APE-Schematics	Schematics of the APE electronics and cables
		Instructions on installing the spare APE electronics, calibration, and software setup
T3-3012	T3-3012-APE-Spare	
T3-3020	T3-3020-Collimation	Collimation Functional Description
T3-3030	T3-3030-Counter_Weight_Overview	Overview of Counter Weight Control
T3-3040	T3-3040-Dome_Control-Overview	Dome Control -Block Diagram and Software Overview
T3-3041	T3-3041-Dome_Control-Dome_System	Dome Control - Overview of the dome control FIO
		Dome Control - Overview of the Dome currents and Feedback (Bar Scanner)
T3-3042	T3-3042-Dome_Control-Feedback	
T3-3043	T3-3043-Dome_Control-AMP_Motors	Dome Control Overview - Amps and Motors Schematics
		Dome Control Overview - Picture of Dome Amps Hardware in TCS Room
T3-3044	T3-3043-Dome_Control-AMP_Pictures	
T3-3050	T3-3050-Shutter_Cntl-Dome_Lights	Overview of Shutter Control and Dome Lights
T3-3060	T3-3060-Environmental_Data_Acq	Environmental Data Acquisition
T3-3070	T3-3070-Focus_Overview	Focus
T3-3080	T3-3080_Telescope_Position_Limits	Limits - HA, Dec, Zenith, Horizon
T3-3090	T3-3090_Mirror_Covers	Mirror Covers
T3-3100	T3-3100-Mirror_Support_Overview	Mirror Support System Overview
T3-3110	T3-3110_Amp_Power_Relay_Check	Monitor AMP Relays and Power to insure they are online.
T3-3120	n/a	n/a
T3-3130	T3-3130-Overview_of_Software	TCS3 Software Overview
T3-3140	T3-3140-Power_Grounding	Overview of Power and Grounding
T3-3150	T3-3150_Mirror_Cooling_System	Mirror cooling schematic diagram
T3-3151	T3-3151_Mirror_Cooling_Spec_&_Design	Mirror cooling Specification and Design
T3-3152	T3-3152-Mirror_Cooling_Logic	Mirror cooling software logic flow chart

Additional Online Documentation	
Link	Description
http://irtfweb.ifa.hawaii.edu/~tcs3/tcs3/Design/APE	APE Engineering Data, Description of TCS1 Encoders, Pictures and documents produced during the design and construction of the APE Electronics.
http://irtfweb.ifa.hawaii.edu/~tcs3/tcs3/Design/Requirements	The design requirements for the TCS3 Upgrade Project
http://irtfweb.ifa.hawaii.edu/~tcs3/tcs3/Design/Lab_System	Additional lab system documentation. Includes the Mechanical Engineering drawing, notes, calculations for the lab motor mechanical description. Assemble notes. Vendor Data Sheets.
http://irtfweb.ifa.hawaii.edu/~tcs3/tcs3/Design/Archive	Monthly Archive of TCS3 Design Documents
http://irtfweb.ifa.hawaii.edu/~tcs3/tcs3	TCS3 Home Page
http://irtfweb.ifa.hawaii.edu/~tcs3/tcs3/Design/Safety Board CPLD/Safety Board Rev C/	Safety Board Xilinx project for CPLD. Used to design and program.
http://irtfweb.ifa.hawaii.edu/~tcs3/tcs3/Design/Protel Safety Board Rev C/	Protel (DXP) Safety Board Project directory. Contains schematic documents and PCB.
http://irtfweb.ifa.hawaii.edu/~tcs3/tcs3/Design/Safety Board Schematic Analyses/	Analysis on modifications to Safety Board.

Title	T3-1000-Documents_Index.vsd		
Project	TCS3 Control System Upgrade, NASA IRTF		
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