

MIDAS / ACE Design Interface

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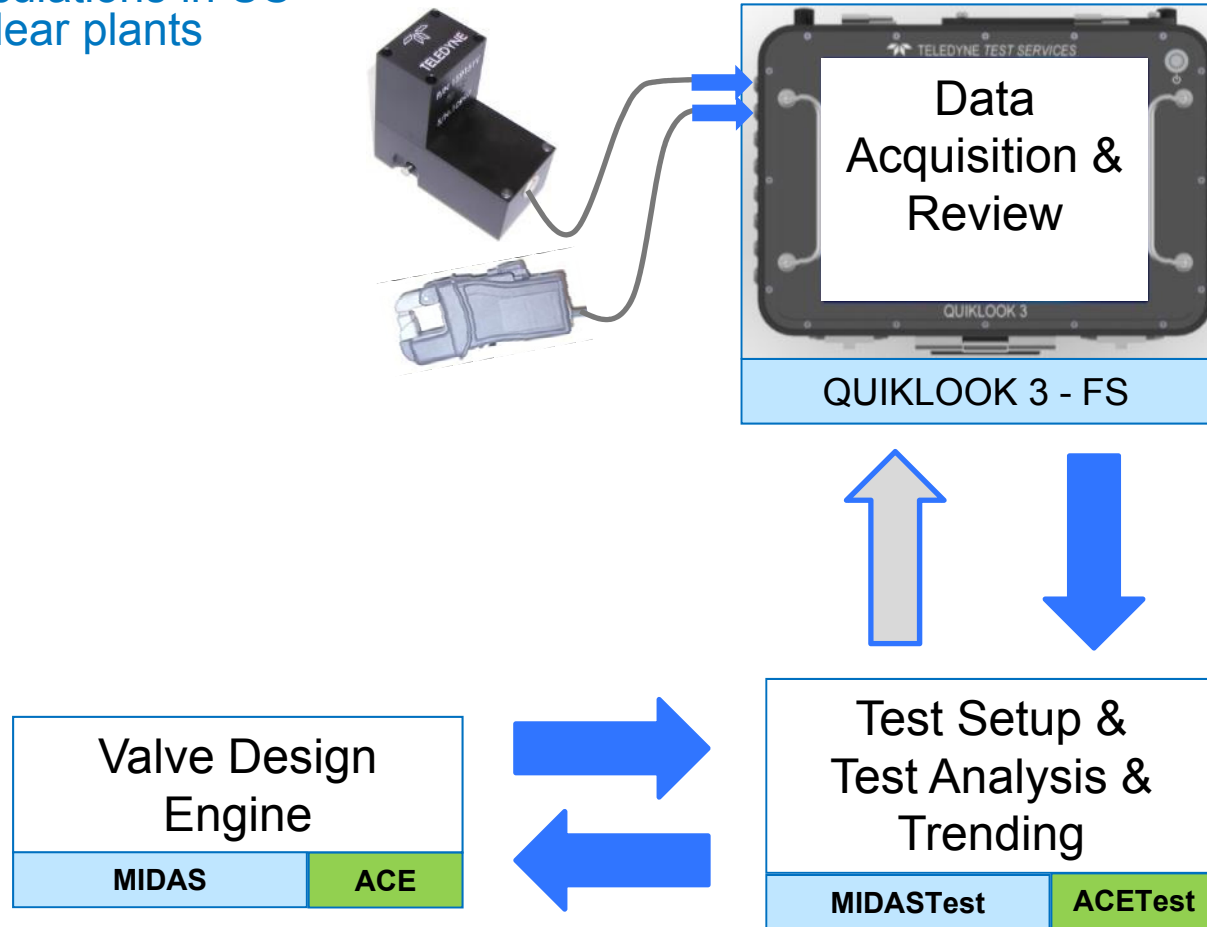


TELEDYNE LECROY TEST SERVICES
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QUIKLOOK 3 Software - Analysis



MIDAS and ACE are used for design basis calculations in US and Foreign nuclear plants





Quiklook 3 – FS – Goals

Auto Import Design Requirements from Midas into QL3-FS

Auto Import Design Requirements from ACE into QL3-FS and ACETest to generate the CTG file

Auto CTG files would define what tests to run and how to run them

- Like Ramp Time
- Hold time
- Type of test to perform

ACETest will include the QL3 – FS CTG setup routines



Existing Running Loads Table



Running Loads & Stroke Times

Times Loads

Loads

Description	Channel	#	Marker	Load
Hard Seat Contact	Thrust	2	c11	-1,769
In-Rush Close Current	RMS-Current	17	c1	13.33
In-Rush Open Current	RMS-Current	17	o1	13.13
Max Seating Current	RMS-Current	17	msc	2.958
Spr-Pack Displ @ C14	SprPack	8	c14	-0.1328
Spr-Pack Displ @ C16	SprPack	8	c16	-0.1887
Spr-Pack Displ @ O9	SprPack	8	o9	0.0001810
Thrust @ C14	Thrust	2	c14	-11,682
Thrust @ C16	Thrust	2	c16	-13,846
Thrust @ O9	Thrust	2	o9	1,624
Torque @ C14	Torque	3	c14	-118.2
Torque @ C16	Torque	3	c16	-137.3
Torque @ O9	Torque	3	o9	18.89
—Add New—				

Delta Y

Description	Channel	#	Start	End	Delta Y
Spring Pack Gap	SprPack	8	cdz	odz	0.0003258
Thrust Inertia	Thrust	2	c14	c16	2,164
Torque Inertia	Torque	3	c14	c16	19.07
—Add New—					

Running Loads

Description	Channel	#	Start	End	Average Load
Current Close Running Amps	Current	1	c4	c5	-0.01005
Current Open Running Amps	Current	1	o13	o14	-0.01410
RMS Current Close Running Amps	RMS-Current	17	c4	c5	2.541
RMS Current Open Running Amps	RMS-Current	17	o13	o14	2.546
Spr-Pack Close Running Displ	SprPack	8	c4	c5	-0.0006831
Spr-Pack Open Running Displ	SprPack	8	o13	o14	0.0005024
Thrust Close Running Load	Thrust	2	c4	c5	-1,361
Thrust Open Running Load	Thrust	2	o13	o14	1,235
Torque Close Running Load	Torque	3	c4	c5	-12.06
Torque Open Running Load	Torque	3	o13	o14	18.55
—Add New—					

Existing Running Loads Table



Times		Loads		
Stroke Times				
Description	Start	End	Time (Secs)	
Contact Dropout Time Close	c14	c15	0.014	
Contact Dropout Time Open	o16	o17	0.000	
Red Light Off Time	c8	c14	0.571	
Stroke Time Close	c0	c14	42.289	
Stroke Time Open	o0	o16	42.110	
Zero Plateau Time Close	c3a	c3b	0.087	
Zero Plateau Time Open	o4a	o4b	0.042	
—Add New—				
Lights				
Description	Start	End	Light	%
Close Indication	c0	c14	c8	98.65%
Close TS Bypass	c0	c14	c7	2.67%
Open Indication	c0	c14	c6	3.24%
Open TS Bypass	o0	o16	o12	26.52%
—Add New—				

Existing Running Loads Table



The Midas Column is auto Imported or manually input
This table provides a live test acceptance

MOV Test Criteria for Quiklook 3 - FS							
Gate and Globe Valves							
Channel	Marker	Design Requirement Description	Midas	Qualifier	Tested Value	Margin (%)	
Thrust	c14	Required Thrust	12,987	>	19,237	48.13	
Thrust	c16	Maximum Thrust Closed	67,239	<	82,987	18.98	
Thrust	o9	Maximum Thrust Open	19,098	<	8,712	119.21	
Thrust	c4-c5	Running Load Closed	1,500	<	2,000	25.00	
Thrust	o13-o14	Running Load Open	1,500	<	1,278	17.37	
Torque	c14	Maximum Allowed Torque	250	<	212	17.92	
Torque	t16	Maximum Torque Closed	189	<	154	22.73	
Current	c0-c14	Maximum Stroke Time Closed	23	<	20	15.00	
Current	o0-o1	Maximum Stroke Time Open	23	<	20	15.00	
Thrust	c16	Sealing Load	14,978	>	17,896	19.48	
ByPass	(o0-o16)o12	Open Torque Switch Bypass	40	60	Between	50	Pass
Thrust	c3a-c3b	Stem Nut Time Closed	0.231	<	0.099	133.33	
Thrust	o4a-o4b	Stem Nut Time Open	0.231	<	0.107	115.89	
SprPack	c16	Maximum Spring Pack Displacement	0.300	<	0.303	0.99	
Thrust/Torque	c14	COF	0.200	<	0.12	Pass	

Existing Criteria Tab QL3-FS



- Design criteria to interface with ACE

Valve Explorer: CV-31025 - 10/30/2014 10:33:26

Compare to Valve Tag Return

General Body Trim Actuator
Positioner Transducer I/P Criteria Accessories

Valve Tag CV-31025 Serial No

Criteria

Total Valve			
	Min	Tag	Max
Travel	1.900	2.000	2.100
Dyn Err Band	1.25	.	6.80
Linearity	1.00	.	1.50

I/P			
	Min	Tag	Max
Zero Cal.	0.00	0.00	0.00
Full Cal.	0.00	0.00	0.00
Dyn Err Band	0.00	.	0.00
Linearity	0.00	.	0.00

Positioner			
	Min	Tag	Max
Zero Cal.	0.00	0.00	0.00
Full Cal.	0.00	0.00	0.00
Dyn Err Band	0.00	.	0.00
Linearity	0.00	.	0.00

Net Pressure			
	Min	Tag	Max
Low Bench	9.00	6.00	10.00
High Bench	15.50	33.00	16.50
Friction	150	300	300
Seat Load	580	.	700
Svc Seat Ld	0	690	0
Spring Rate	1500	1900	2500

Regulator / Supply			
	Min	Tag	Max
Regulator Setpoint	0.00	0.00	0.00
Supply Min. Limit	34.00		
Supply Ave. Limit	34.00		

Average Friction: 288 lbs
 Friction Range: 250 - 326 lbs
 Spring Rate: 1981 lbs/in
 Travel: 2.145 in
 Bench Set: 6.67 - 33.90 psig
 Seat Load: 822 lbs
 Service Seat Load: NSC
 Supply (Init/Min/Ave): 36.76 / 35.67 / 36.67 psig

Show Friction
 Show Results

Signal Full Open = 49.26
 Signal Seat = 11.12
 Overall - HD Error - Avg = 3.87 %
 Overall - HD Error - Max = 7.13 %
 Overall - HD Error - Min = 3.14 %
 Overall - HD Error - Linearity = 1.33 %

Show Friction
 Show Results



Develop QL3-FS CTG File in ACE

- Planning on including QL3 AOV Configure menus in ACE & ACETest
- Allows Engineer to define test types
- Can include design criteria (pass/fail)
- Working on common variable between QL3-FS and ACE

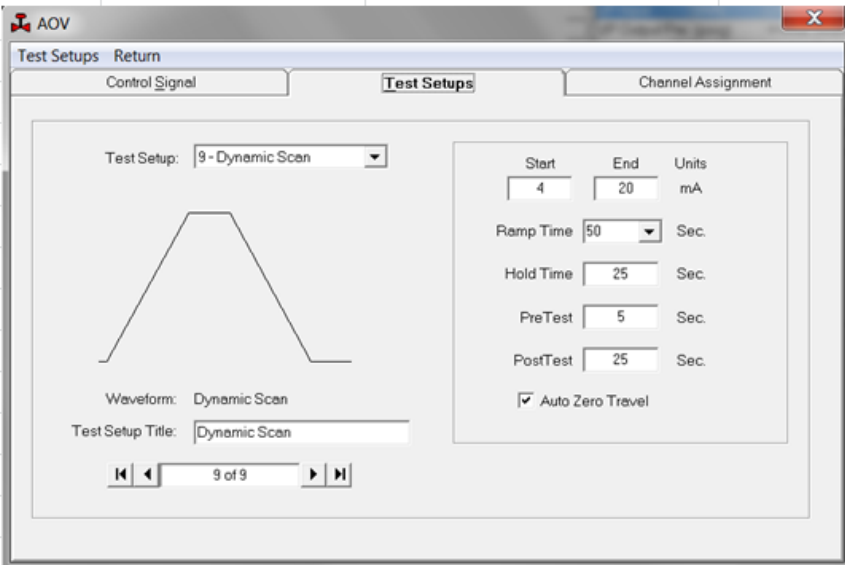


Develop QL3-FS CTG File in ACE



Test Setups

QL3-FS CTG File					
Wave Forms					
Monitor				Comes From	QL3-FS Variable
	N/A				
Dynamic Scan					
	Start		mA	AceTest	Control Min
	End		mA	AceTest	Control Max
	Ramp Time		Sec.	AceTest	Ramp Time
	Hold Time		Sec.	AceTest	Hole Time
	PreTest		Sec.	AceTest	PreTest
	PostTest		Sec.	AceTest	PostTest



Any Questions?

THANK YOU



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