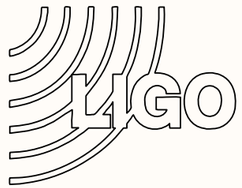


TP1 TP2

GND GND

P3

VCC

GND

1

2

VCC

PN1 connector

Newark

10B6044

EXCEN VCO_TestRig2.SchDoc

EXCEN D

OK VCO_TestRig3.SchDoc

OK D

EXCSW VCO_TestRig3.SchDoc

SW 2 4 D

U1

P2

MON1_P	1	2	MON1_N
MON2_P	3	4	MON2_N
MON3_P	5	6	MON3_N
TMON1_P	7	8	TMON1_N
TMON2_P	9	10	TMON2_N
TMON3_P	11	12	TMON3_N
OK	13	14	GND
EXCEN	15	16	GND
SW	17	18	GND
SMON	19	20	SMONG
RADJ_P	21	22	RADJ_N
SPARE_P	23	24	SPARE_N
	25	26	

09 18 526 6324

P1

MON1_P_E	1	2	MON1_N_E
MON2_P_E	3	4	MON2_N_E
MON3_P_E	5	6	MON3_N_E
TMON1_P_E	7	8	TMON1_N_E
TMON2_P_E	9	10	TMON2_N_E
TMON3_P_E	11	12	TMON3_N_E
OK_E	13	14	GND
EXCEN_E	15	16	GND
SW_E	17	18	GND
SMON_E	19	20	SMONG_E
RADJ_P_E	21	22	RADJ_N_E
SPARE_E	23	24	SPAREG_E
	25	26	

09 18 526 6324

M1 VCO_TestRig4.SchDoc

MON1_P D_P

MON1_N D_N

M2 VCO_TestRig4.SchDoc

MON2_P D_P

MON2_N D_N

M3 VCO_TestRig4.SchDoc

MON3_P D_P

MON3_N D_N

T1 VCO_TestRig4.SchDoc

TMON1_P D_P

TMON1_N D_N

T2 VCO_TestRig4.SchDoc

TMON2_P D_P

TMON2_N D_N

T3 VCO_TestRig4.SchDoc

TMON3_P D_P

TMON3_N D_N

MON VCO_TestRig4.SchDoc

SMON D_P

SMONG D_N

ADJ VCO_TestRig4.SchDoc

RADJ_P D_P

RADJ_N D_N

SPARE VCO_TestRig4.SchDoc

SPARE_P D_P

SPARE_N D_N

Low Noise VCO Signals (EtherCAT signals end in _E, example MON1_P_E[1]

MON1_P[1]: Measures the RF power of the reference frequency (mixer LO input)
MON2_P[2]: Measures the RF power of the output (after output amplifier)
MON3_P[3]: Measures the RF power of the divider frequency (mixer RF input)

TMON1_P[4]: Measures the temperature inside RF detector M1
TMON2_P[5]: Measures the temperature inside RF detector M2
TMON3_P[6]: Measures the temperature inside RF detector M3

OK[7]: Status bit (TTL) indicating that the input voltage is within range, low indicates fault
SW[9]: Readback of the excitation enable (TTL, low is on)
SMON[10]: VCO tune voltage monitor
RADJ[11]: Manual frequency tuning input
EXCEN[8]: Enables the excitation input by pulling low (TTL)

H1	Handle, 3"	E1	BNC lock washer	E17	BNC nut	PN2	Front Panel
H2	Handle, 3"	E2	BNC lock washer	E18	BNC nut	LIGO	
Mouser		E3	BNC lock washer	E19	BNC nut	D1100571-v1	
534-9109		E4	BNC lock washer	E20	BNC nut	PN3	Rear Panel
H3	Ferrule	E5	BNC lock washer	E21	BNC nut	LIGO	
H4	Ferrule	E6	BNC lock washer	E22	BNC nut	D1100572-v1	
H5	Ferrule	E7	BNC lock washer	E23	BNC nut	PN4	DB25cable
H6	Ferrule	E8	BNC lock washer	E24	BNC nut	Newark	
Mouser		E9	BNC lock washer	E25	BNC nut	05M6817	
534-9121		E10	BNC lock washer	E26	BNC nut	PN5	IDC header
M1	#6-32 3/8" flat	E11	BNC lock washer	E27	BNC nut	PN6	IDC header
M2	#6-32 3/8" flat	E12	BNC lock washer	E28	BNC nut	Newark	
M3	#6-32 3/8" flat	E13	BNC lock washer	E29	BNC nut	73K6217	
M4	#6-32 3/8" flat	E14	BNC lock washer	E30	BNC nut	PN7	Jack screw
McMaster-Carr		E15	BNC lock washer	E31	BNC nut	PN8	Jack screw
91099A215		E16	BNC lock washer	E32	BNC nut	Newark	
		Newark		Newark		80K5431	
		78M7215		78M7214		PN10	Banana jack
H7	Standoff M-F					Newark	
H8	Standoff M-F					39F1575	
H9	Standoff M-F					PN9	Banana jack
H10	Standoff M-F					Newark	
H11	Standoff M-F					39F1574	
H12	Standoff M-F						
H13	Standoff M-F	H19	Standoff F-F	M5	M4-8mm, flat	M11	M4-8mm, flat
H14	Standoff M-F	H120	Standoff F-F	M6	M4-8mm, flat	M12	M4-8mm, flat
H15	Standoff M-F	H21	Standoff F-F	M7	M4-8mm, flat	M13	M4-8mm, flat
H16	Standoff M-F	H22	Standoff F-F	M8	M4-8mm, flat	M14	M4-8mm, flat
H17	Standoff M-F	H23	Standoff F-F	M9	M4-8mm, flat	M15	M4-8mm, flat
H18	Standoff M-F	H24	Standoff F-F	M10	M4-8mm, flat	M16	M4-8mm, flat
Newark		Newark				McMaster-Carr	
56K3066		56K3039				91420A218	

OK_E VCO_TestRig5.SchDoc

OK_E D

EXCEN_E VCO_TestRig3.SchDoc

EXCEN_E 2 4 D

U2

EXCSW_E VCO_TestRig5.SchDoc

EXCSW_E 4 2 D

U3

M1_E VCO_TestRig4.SchDoc

MON1_P_E D_P

MON1_N_E D_N

M2_E VCO_TestRig4.SchDoc

MON2_P_E D_P

MON2_N_E D_N

M3_E VCO_TestRig4.SchDoc

MON3_P_E D_P

MON3_N_E D_N

T1_E VCO_TestRig4.SchDoc

TMON1_P_E D_P

TMON1_N_E D_N

T2_E VCO_TestRig4.SchDoc

TMON2_P_E D_P

TMON2_N_E D_N

T3_E VCO_TestRig4.SchDoc

TMON3_P_E D_P

TMON3_N_E D_N

MON_E VCO_TestRig4.SchDoc

SMON_E D_P

SMONG_E D_N

ADJ_E VCO_TestRig4.SchDoc

RADJ_P_E D_P

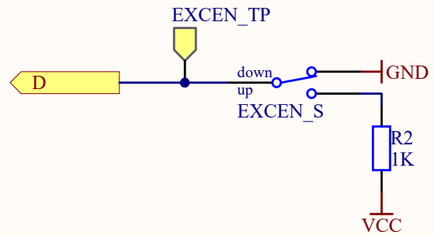
RADJ_N D_N

SPARE_E VCO_TestRig4.SchDoc

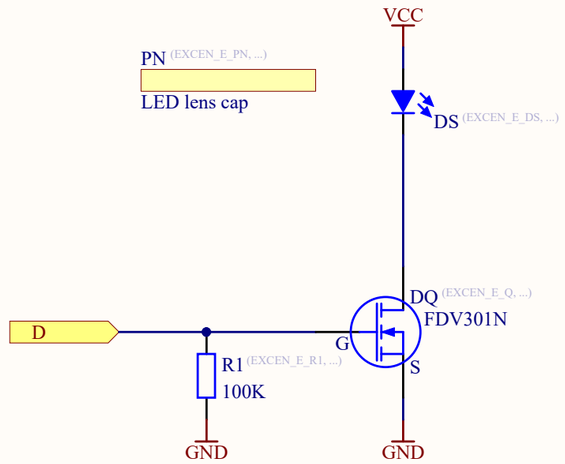
SPARE_E D_P

SPAREG_E D_N

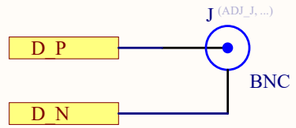
Title	EtherCAT Low Noise VCO Test Rig		
Size B	Number D1100545	Revision 2	
Date: 3/21/2019		Sheet 1 5of	
File: C:\Users\..\VCO_TestRig1.SchDoc		Drawn By: F. Clara	



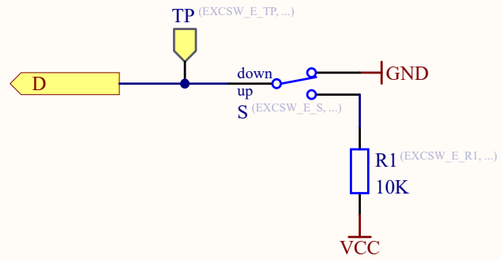
Title	**EtherCAT Low Noise VCO Test Rig**	
Size: A	Number: **D1100545**	Revision: **2**
Date: 3/21/2019		Sheet 2 5of
File: C:\Users\..\VCO_TestRig2.SchDoc		Drawn By: F. Clara



Title	**EtherCAT Low Noise VCO Test Rig**	
Size: A	Number: **D1100545**	Revision: **2**
Date: 3/21/2019		Sheet 3 5of
File: C:\Users\..\VCO_TestRig3.SchDoc		Drawn By: F. Clara



Title	**EtherCAT Low Noise VCO Test Rig**	
Size: A	Number: **D1100545**	Revision: **2**
Date: 3/21/2019		Sheet 4 5of
File: C:\Users\..\VCO_TestRig4.SchDoc		Drawn By: F. Clara



Title	**EtherCAT Low Noise VCO Test Rig**	
Size: A	Number: **D1100545**	Revision: **2**
Date: 3/21/2019		Sheet 5 5of
File: C:\Users\..\VCO_TestRig5.SchDoc		Drawn By: F. Clara