

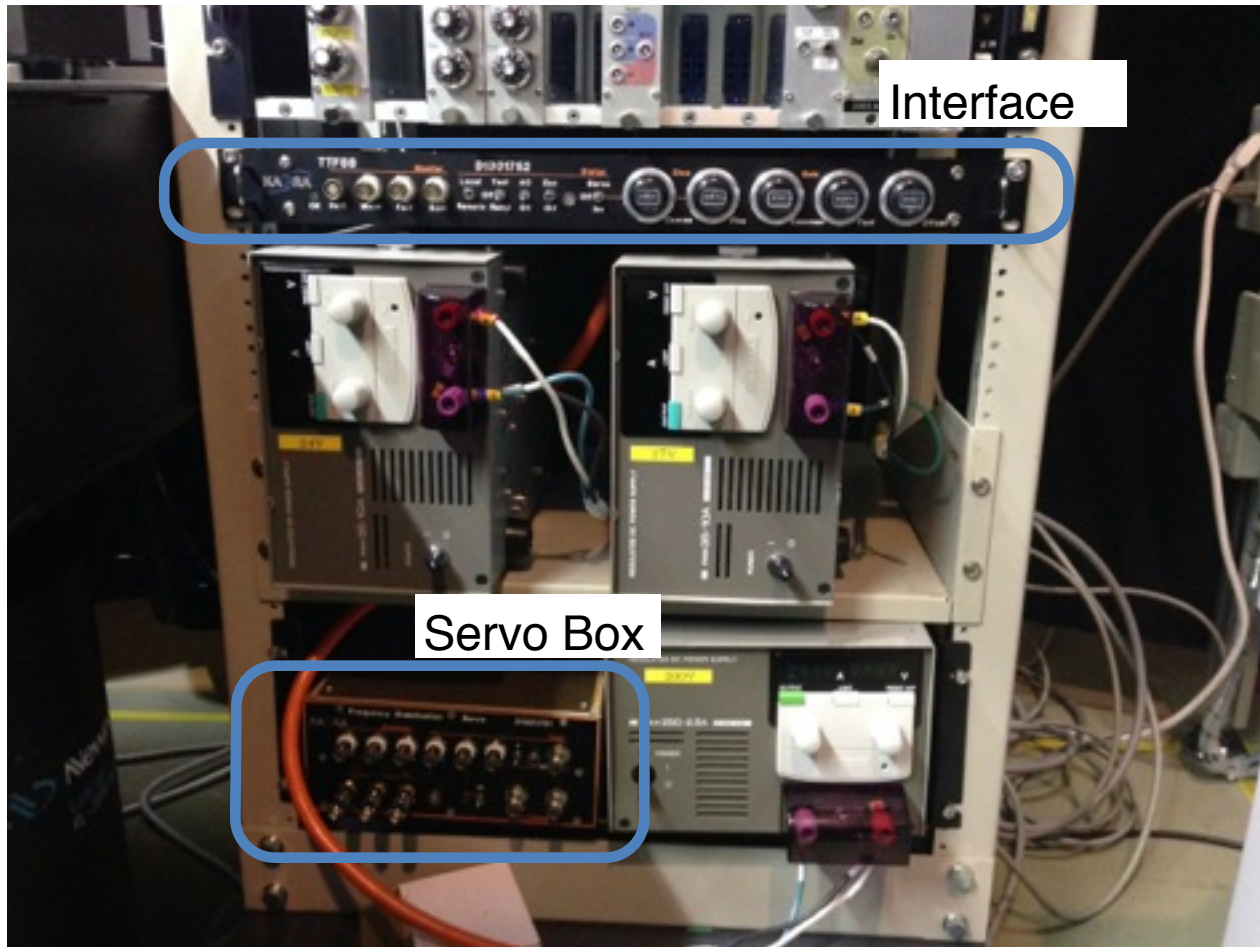
Circuits and Cables of Table Top Frequency Stabilization Servo (TTFSS)

Masayuki Nakano

ICRR

TTFSS

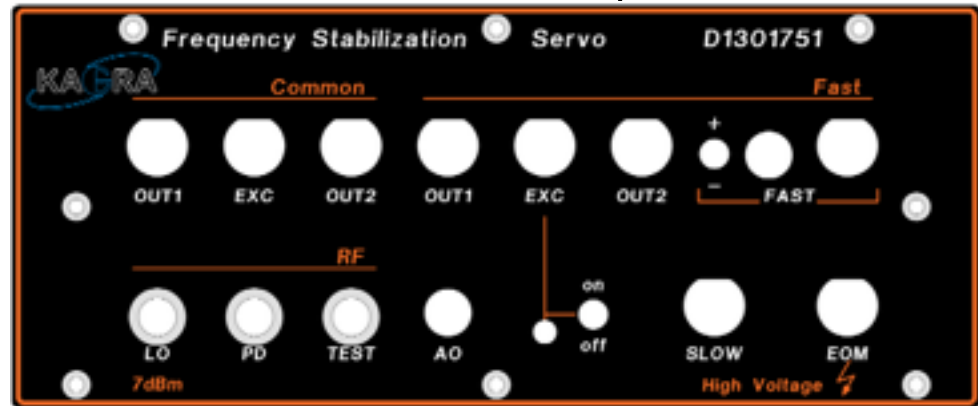
- The copy of LIGO
- It has servo box and Interface board



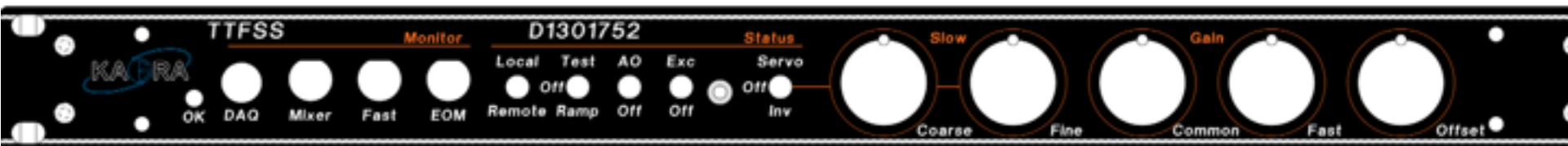
TTFSS

- The copy of LIGO
- It has servo box and Interface board
- [JGW-D1301751](#)
(TTFSS Assembly and link for each circuit)
- [JGW-D1301752](#)
(Interface Assembly and link for each circuit)

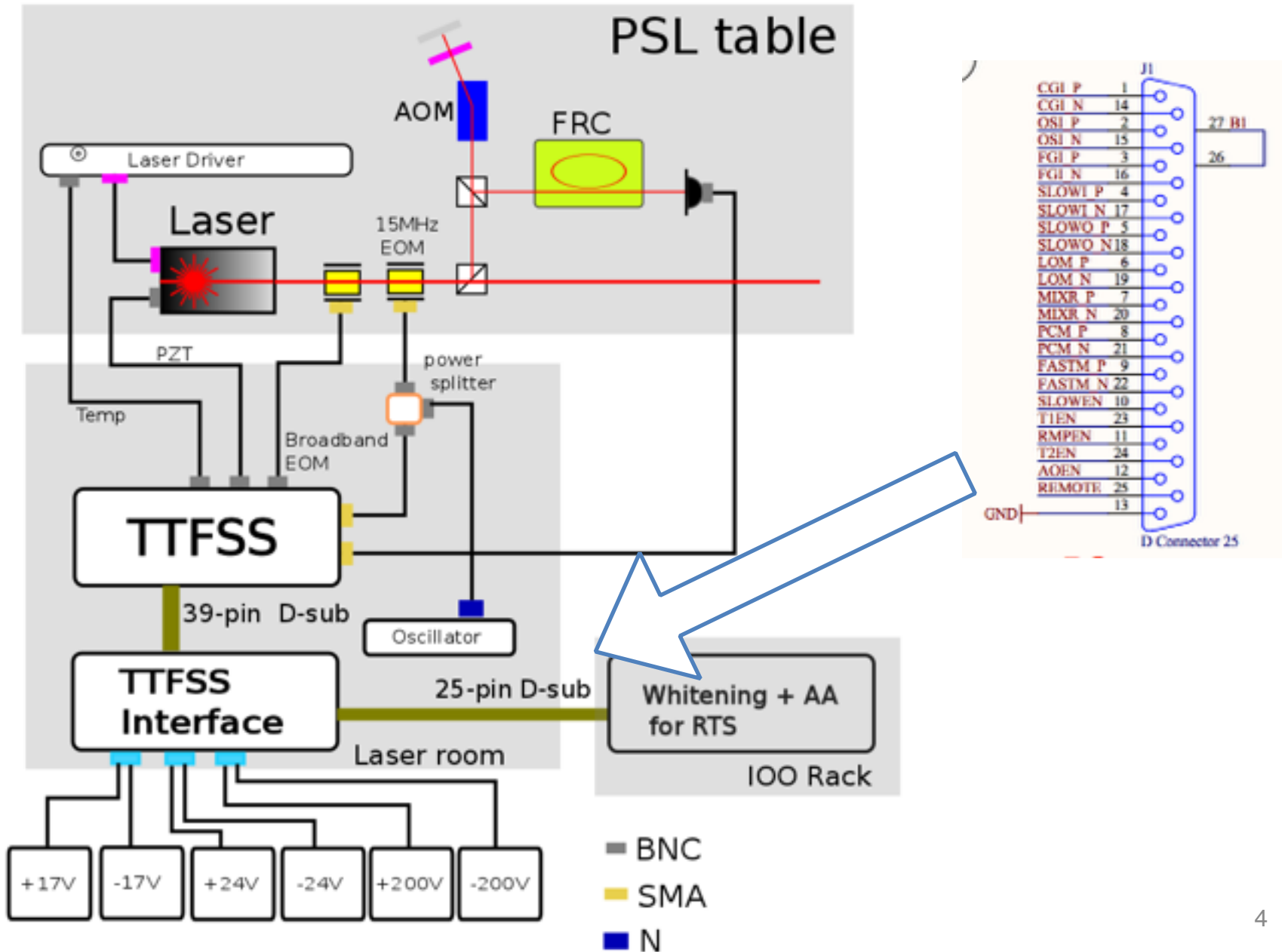
front panel of Servo Box



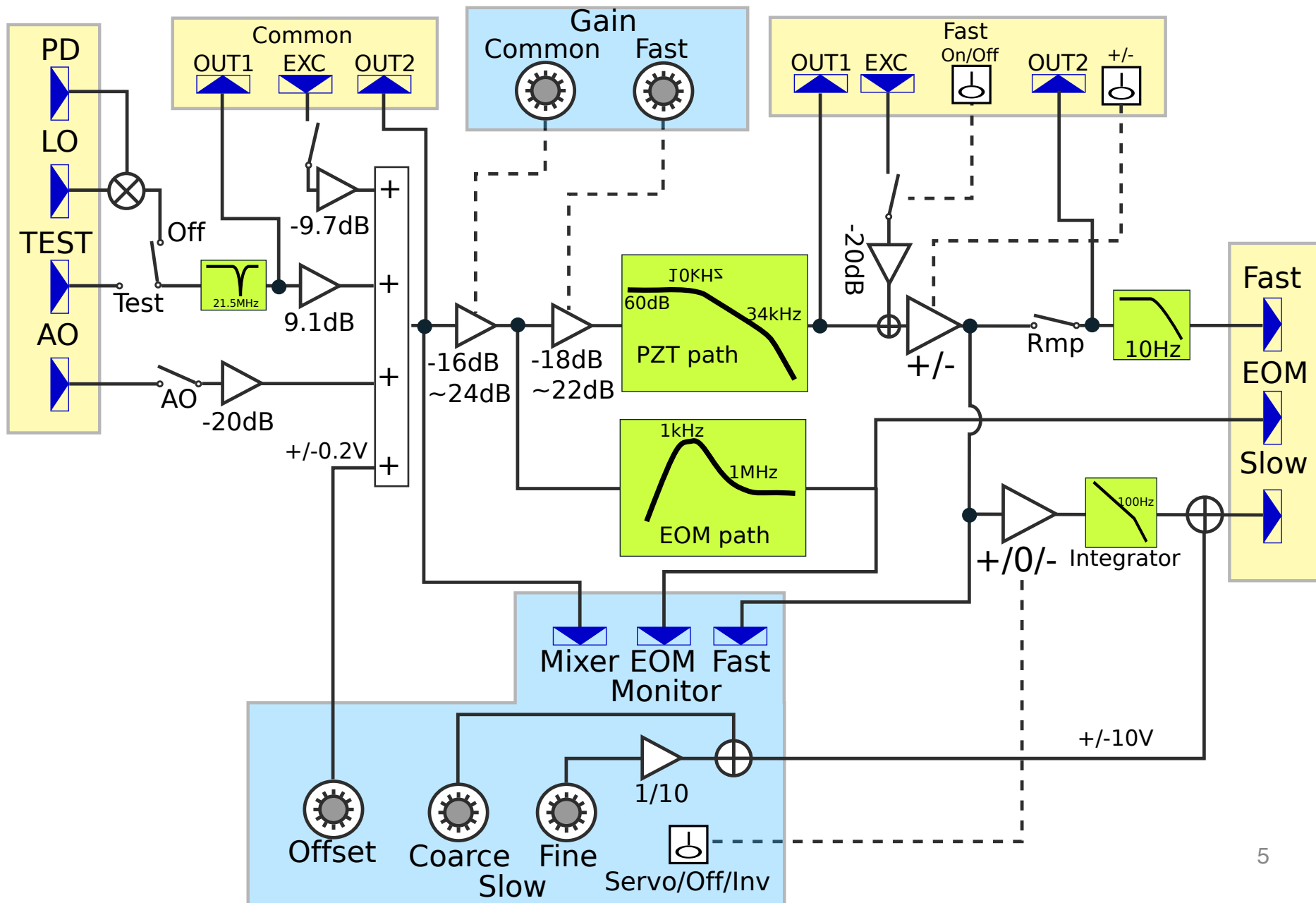
front panel of Interface



Cabling



Block Diagram(Local)



Switches

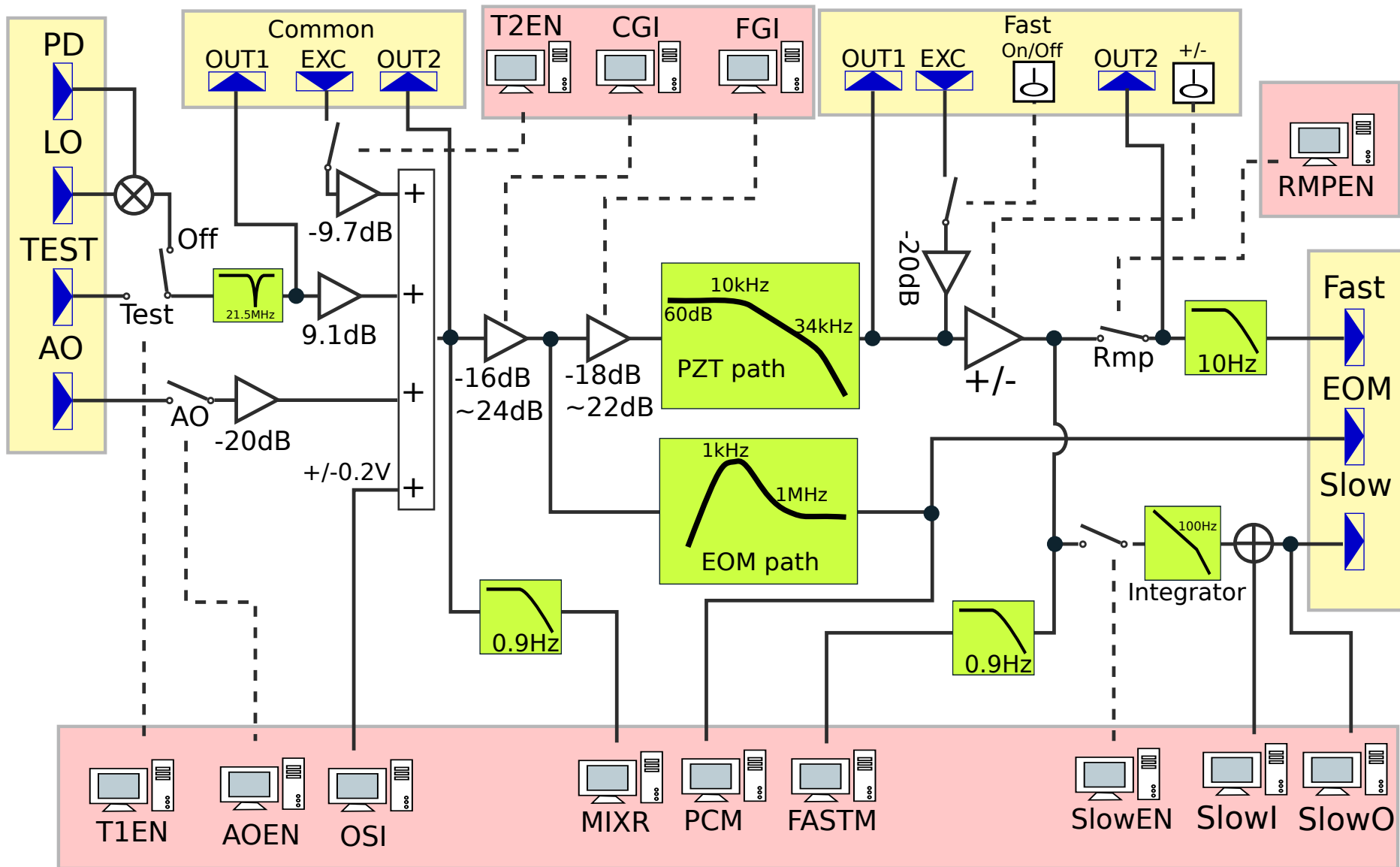
- The servo box
 - Exc: Connect/Disconnect the Exc(Fast) input
 - +/- : Change the sign of the Fast output.
- The Interface
 - Local/Remote : Select control with Digital system or with Interface switches and nobs (gain, offset, Slow loop, etc)
 - Test/Off/Ramp : Connect the Test input(Test)/ Connect the PD input(Off)/ Disconnect Fast output from PD input, and OUT2(Fast) works as input.(Ramp)
 - AO/Off : Connect/Disconnect the AO input.
 - Exc/Off : Connect/Disconnect the EXC(Common) input.
 - Servo/Off/Inv : Turn on/off the Slow integrator(Servo/Off)/ Change the sign of the integrator(Inv)

Nobs

- The Interface

- Common Gain : Adjust the Gain for all signal. 0 corresponds to 24 dB and 1000 corresponds to -16dB
- Fast Gain : Adjust the Gain for Fast signal. 0 corresponds to 22 dB and 1000 corresponds to -18dB
- Offset : Adjust common offsets. 0 corresponds to 0.2 V and 1000 corresponds to -0.2V at injection point
- Slow Fine(Coarse) : Adjust the offset of Slow signal. 0 corresponds to 1V(10V) and 1000 corresponds to -1V(-10V)

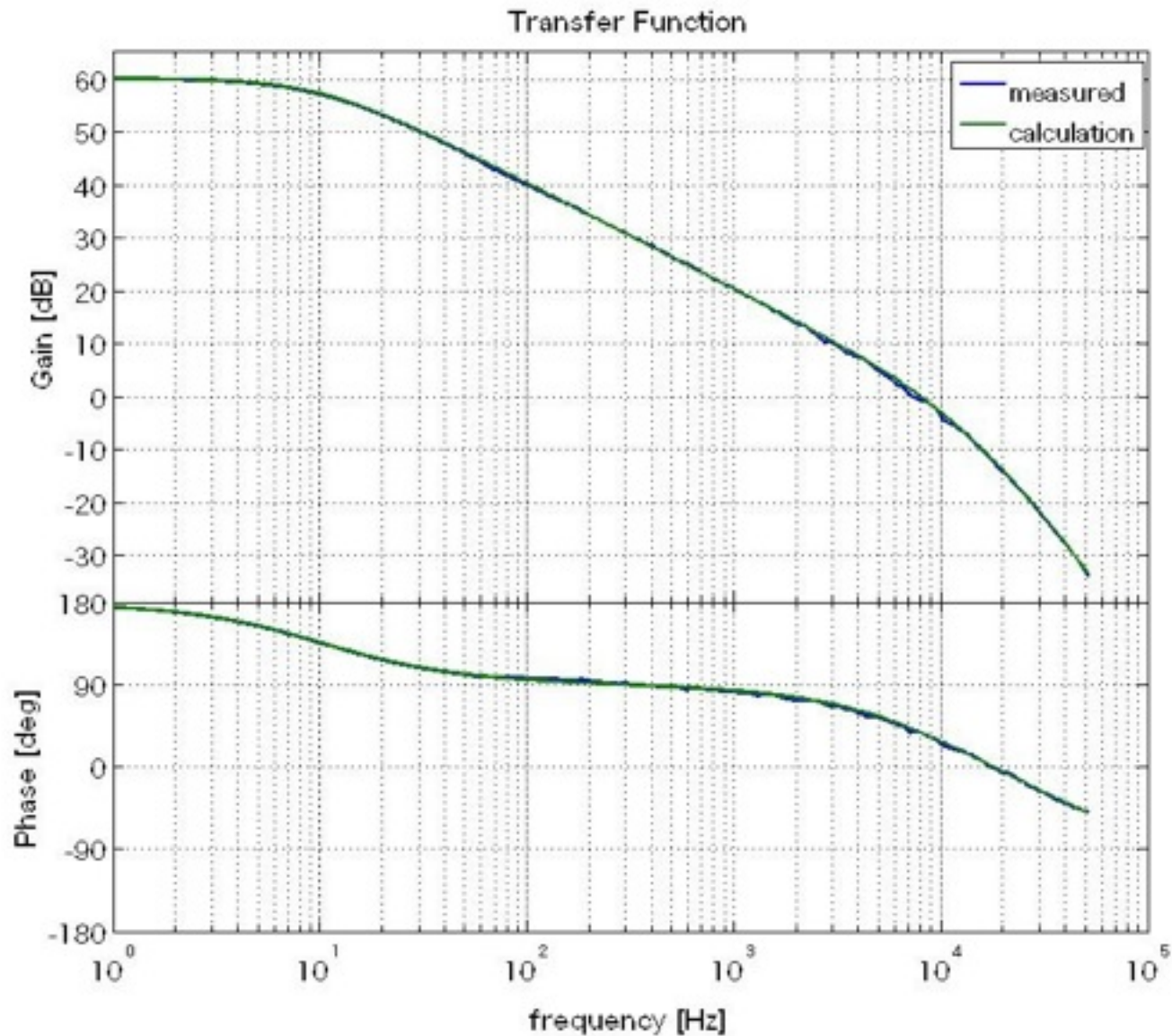
Block Diagram(Remote)



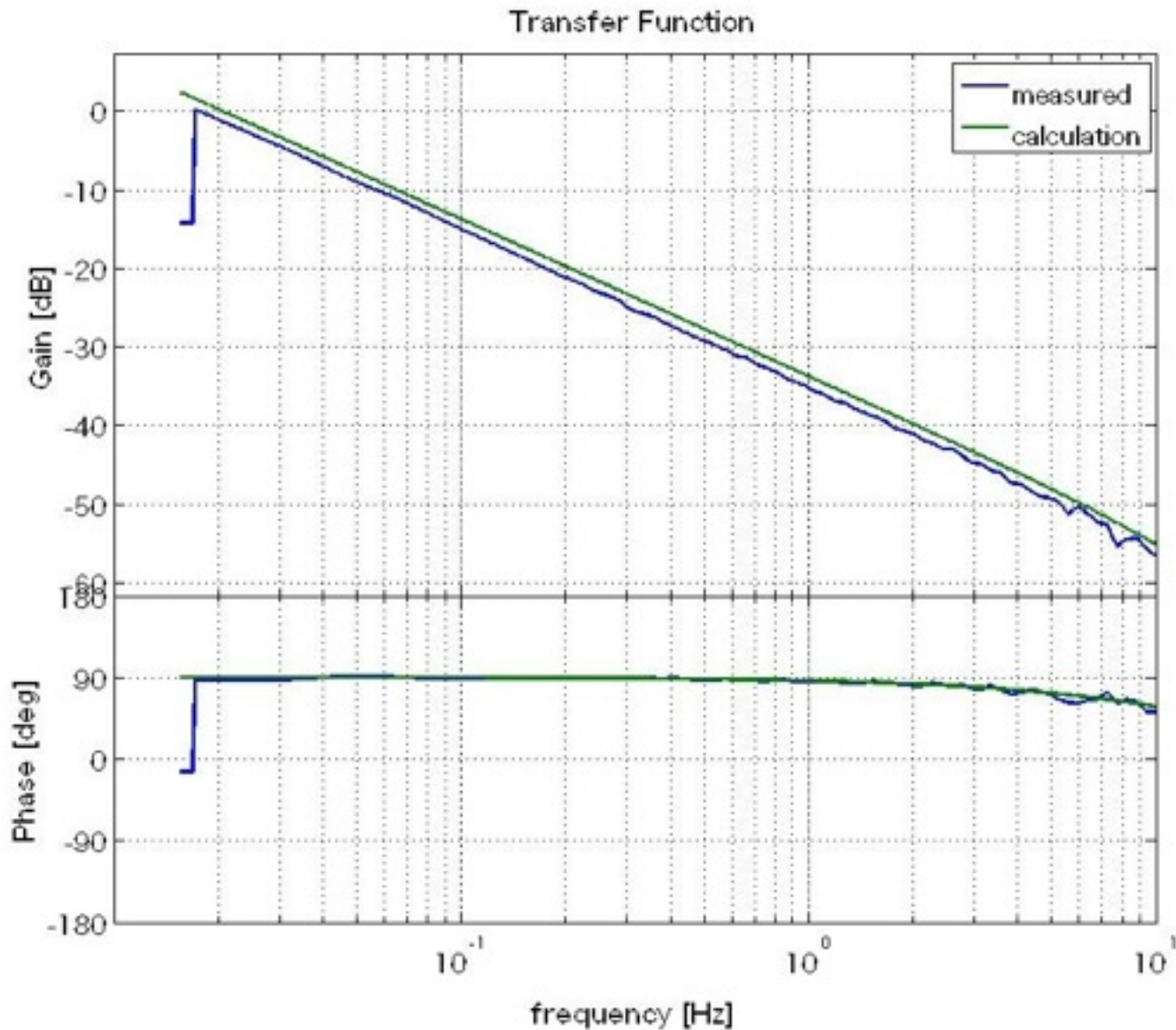
Pin assign for 25 pin D-sub

- **Input port : P/N means positive and negative (differential input)**
 - 1-14 : Common Gain(CG)
 - 2-15 : Common Offset(OS)
 - 3-16 : Fast Gain(FG)
 - 4-17 : Slow input(SLOWI)
 - 10 : Switch for Slow servo(SLOWEN)
 - 23 : Switch for Test/PD (T1EN)
 - 11 : Switch for Ramp(RMPEN)
 - 24 : Switch for common excitation (T2EN)
 - 12 : Switche for AO input port (AOEN)
- **Output port : N port is connected to ground.(single ended)**
 - 5-18 : Slow monitor(SLOWO)
 - 6-19 : Local oscillator monitor (LOM)
 - 7-20 : Error signal monitor (MIXR)
 - 8-21 : EOM signal monitor (PCM)
 - 9-22 : Fast signal monitor (FASTM)

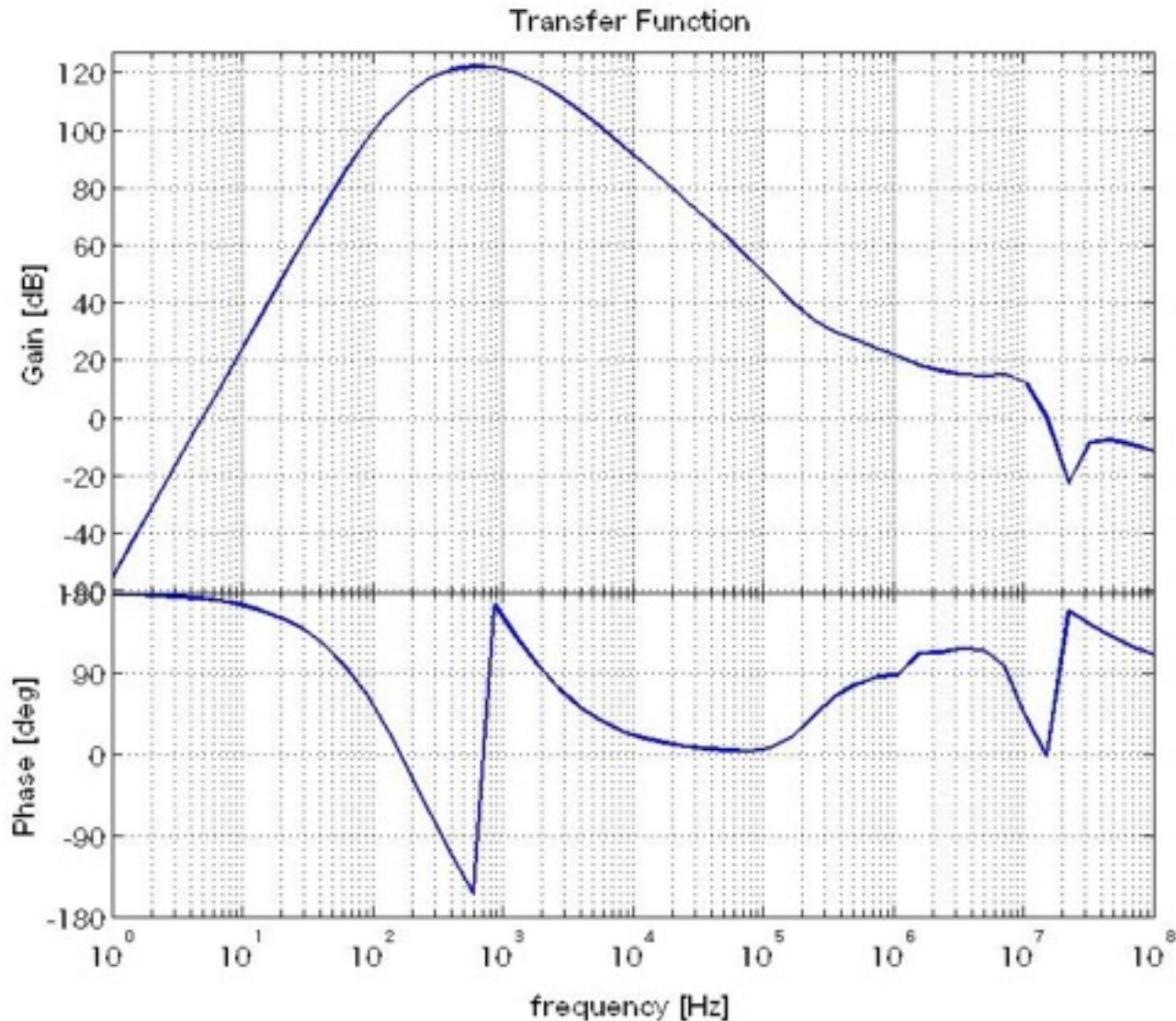
Transfer Function (Test-Fast)



Transfer Function (Test-Slow)



Transfer Function (Test-EOM)



TF cannot be measured because of saturation.