AIN
12/8/2022

Settings Used for 85Rb (linewidth ≈ 20 kHz)

	Sweep mode	Modulation mode
RIGOL Ch1	RF shape = Sine RF frequency = 13.979 MHz RF amplitude = 2 Vpp (into 50Ω) Sweep shape = Linear Sweep size = 1 MHz Sweep frequency = 20 Hz	RF shape = Sine RF frequency = 13.979 MHz RF amplitude = 2 Vpp (into 50Ω) Mod source = External Mod size = 10 kHz/±5V
RIGOL Sync1	Out Square wave Frequency = 20 Hz Amplitude = 1.7 Vpp (into 50Ω)	In Square wave Frequency = 100 Hz Amplitude = +5 Vpp (if pot is 1 turn before max)
RIGOL Ch2	Disabled	Square wave Frequency = 200 Hz Amplitude = 2 Vpp (into 50Ω) 10% duty cycle
RIGOL Sync2	Disabled	Square wave Frequency = 200 Hz Amplitude = 1.7 Vpp (into 50Ω) 50% duty cycle
Lock-in Amplifier	Unlocked	BANDPASS (in) LINE (out) LINEx2 (out) Sensitivity = 10 mV Trig = Square Time const = 1 ms

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How to Use the EPR Control Circuits

Turn on the power amp. box and the lock-in amplifier. RIGOL should already be on.

Sweep Mode:

1. **Enable** RIGOL Ch1 and press "**sweep**" button.
2. Keep RIGOL Ch2 **OFF**.
3. Keep Adder switch **OFF**.
4. **Disconnect** lock-in amplifier A input (optional).
5. Keep Prop. switch **OFF**.
6. Keep Int. switch **OFF**.

See the spectrum on Ch1 of the scope and 20Hz square wave on Ch2.

Modulation Mode:

1. **Enable** RIGOL Ch1 and press "**Mod**" button.
2. Turn RIGOL Ch2 **ON**.
3. Turn Adder switch **ON**.
4. **Connect** lock-in amplifier A input (if it was not).
5. Keep Prop. switch **OFF**.
6. Keep Int. switch **OFF**.

Watch the lock-in meter or the amplitude of the square wave on the scope as you change the RF frequency.

Locking Mode:

1. **Enable** RIGOL Ch1 and press "**Mod**" button.
2. Turn RIGOL Ch2 **ON**.
3. Turn Adder switch **ON**.
4. **Connect** lock-in amplifier A input (if it was not).
5. Turn Prop. switch **ON**.
6. Turn Int. switch **ON**.

Watch the amplitude of the square wave on the scope quickly offset and go to zero.