

Analogue Transmission over Fibre
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PRODUCT – FIBRE LINK FOR REMOTE
 ANALOGUE DATA COLECTION
 LL6000
 USER MANUAL
 VERSION 1.1

 20 JUNE 2008

Product: Analogue Transmission	Model:	
Serial Number:	JOB No :	
TEST	CRITERIA	RESULT
<i>Transmitter</i>		
Power Indicator	LED	
Start up	All Leds step	
Supply Range	10.4V – 14.1V.	
Optic output	> -20dB	
Input Power selection	Cha 1,2,3	
Test Sequence	Dip Sw 1-4	
Test Link	All channels and gain settings	
<i>Receiver</i>		
Power Indicator		
Start up	All Leds step	
Ref 1	5.00V	
Ref 2	3.33V	
Test setup 1 Dip 4	-10.0V all outputs.	
Test setup 2 Dip 1&4	-5.0V all outputs.	
Test setup 3 Dip 2&4	0V all outputs.	
Test setup 4 Dip 1&2&4	+5.0V all outputs.	
Test setup 5 Dip 3&4	+10.0V all outputs.	
Test setup 6 Dip 1&3&4	1kHz Tri angle	
Optic Sensitivity	< -25dB	

Date: **Tested By:**

General.

This system is divided into two sides, one is the transmitter and one is the receiver. They are connected by a fibre link. The receiver is used in conjunction with a PC to measure voltages that are picked up by the transmitter. The transmitter is normally in the high voltage area where the sense voltages are connected directly to the transmitter. The fibre optic link has a transmit level of approximately -20dB's and a receive sensitivity of -23dB's. The receiver units are installed in a 19" card frame Operating from 220VAC. It is automatically turned on when the power is applied to the rack. The unit has 3 Isolated input channels and 3 ordinary input channels with common ground. The whole unit is isolated via fibre link to the receiver. The transmitter operates from a 12Volt DC battery and draws less than 200mA. The receiver operates from 220VAC.

The Receiver.

The receiver has 6 banana sockets for output of the received signals and two ground reference sockets. There are also 3 BNC sockets for the first three channels. On the rear of the unit there is a 9-way DB connector with all channels repeated.

For technical set up on the receiver there is a dipswitch inside the unit and this dipswitch allows you to set the unit's output levels for accurate measurement of the output signals. The unit is set up internally. It has 2 reference voltages, one is set at 5-volts and the other one is set at 3,33-volts. **This is done in the factory and should not be changed.**

The dipswitch can select the output of the unit. Dipswitch 4 should be on to enable the setting, then the other 3 dipswitches will select between -10, -5, 0, +5, and 10-volts respectively, in binary code. If you go 1 step further it will then select a triangle wave of 1 kHz on all channels.

The receiver is equipped with a 4-digit LCD display. The display can be selected to indicate remote conditions. Selection of the following indication is done by pressing and holding the select button for 2 secs.

The receiver display functions:

- First option - is the battery transmitter Battery Voltage
Indicated by b 00.0
- Second option - is the Battery Current indicated by
A 000 in mA max indication are 255
- Third option - is the Battery Capacity left
Indicated by a C 00.0 a full battery is 6.5AH
- Forth option - displays the transmitter unit number for easy
identification
Indicated by F000

If you press the button once more, it has a test set-up to test the display. Pressing the button again will go back to the first selection. I.e. battery voltage.

The Transmitter

The transmitter has 3 input channels measuring 0 to 10V P-P. In addition 3 isolated inputs that can be individually enabled allow measurements from 10mV, 50mV, 150mV, 1V, 10V and 150V P-P input signals. The output at the receiver end will always be + - 10V for full scale input voltage.

The input scale selection switches are located in-between the banana sockets. The left hand side switch will control the amplification from 10-milivolts to 1- volt. If you want to use the 10-volt scale then you use the attenuator switch, which is situated on the right hand side of the channel. The attenuator switch will always attenuate the incoming signal according to its position. If it is set to position 1 volt, it will not attenuate the incoming signal. If it is set to position 10 volts it will give a 10-1 attenuation. If you set it to position 150-volts that will be 150-1 attenuation.

Should you wish to use the 10-millivolt, 50-millivolt or 150-millivolt scale, and then the attenuator must always be set to the 1-volt position.

The transmitter is automatically switched on when the battery power is applied. The unit allows for the user to sequentially power the three isolated inputs to be operational as or when they are required. The purpose of this function is to save battery energy when not all the channels are required as well as improve the signal resolution on the output side. The output signal resolution will depend on the operational mode selected (the number of channels being used). When the unit is initially powered, all channels will be turned on.

The channel selection is done in the following sequence:

Step 1:

All channels are switched on, this is typically when using all six channels for a -10V to +10V input. This setting will result in the lowest output signal resolution.

Step 2:

Channel two switched off, all other channels switched on, typically used for temperature modules connected to channel one and three.

Step 3:

Channel two and three switched off, all other channels on.

Step 4:

Channel one, two and three switched off, all other channels on.

Step 5:

Channel two switched on, all other channels off. This setting allows for the highest output signal resolution, and frequency response.

The unit will remember the setting if the power is removed and will switch the selected power supply on again after power up. The unit also measures the amount of current that is drawn, and will calculate the battery capacity

left during operation. When the unit is first switched on it will reset the capacity of the battery to 6,5Aph.

This capacity will count down as the unit uses power during its operation and it will reduce down to 0 during the time that it is used. The remaining capacity can be displayed at the receiver side. Note that if the battery is removed and connected again the remaining capacity will reset to max.

Dip Switch

The transmitter has a 4-way dipswitch. This switch has the same effect on the receiver as the switch located on the receiver card. The fibre must be connected to enable this operation from the transmitter. Data is sent from the transmitter to the receiver via the fibre. The transmitter is pre-programmed to send various signal levels to the receiver and in addition a triangular wave of 1kHz is sent when selected. See receiver section.

Remember to switch these dipswitches to the “off” position again after you have completed your tests, to enable normal operation.

The dipswitches are really just for lab set-up, if you need to do any checks.

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