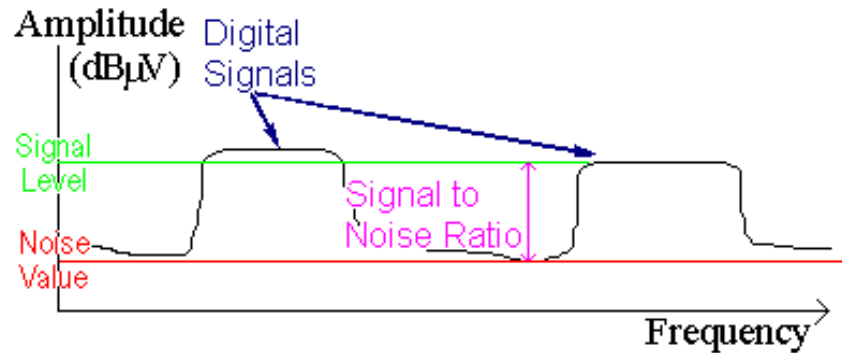


Technical Background



The *IMdigital-T* quickly and accurately tests digital signals. It gives three pieces of information, which together will allow the installer to be confident that pictures will be received in all situations:

1. Signal Level
2. Signal-to-Noise Ratio (SNR)
3. Pass/Marginal/Fail indication

The signal level is the amount of signal being received; This is a good indicator of the quality of the installation, for example if there are any faulty connections. The Set-Top Box (STB) will only accept signals in the range of 36 to 70 dB μ V. So if the meter reads outside this value there is a fault with the system, for example the lead or aerial needs to be tested or attenuation added.

Once the signal is in the range of the STB, the Signal to Noise Ratio (SNR) must be checked. The SNR indicates how high the signal is, in comparison to the noise, as too much noise will swamp the signal.

As a final check, the meter assesses the SNR and flashes up "Pass" or "Fail". Occasionally the signal could be close to failing, so that rain, for example, could reduce the signal, and then "Marginal" will appear.

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The logo for Swires Research, featuring the word 'swires' in a blue sans-serif font with a blue circle containing a white dot above the 'i', followed by the word 'research' in a blue serif font.



Operators Manual For Digital Installers Meter - *IMdigital-T* Master

July '99

Using the Meter

The Master unit comes pre-programmed with the transmitter multiplexes listed on pages 5-7

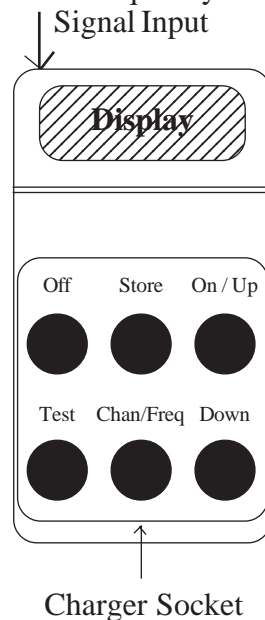
After the start up screen when the instrument initialises itself the display will show a channel number, ie 46, on the top line. The meter automatically senses the TV standard and displays either ANALOG or DIGITAL on the second line of the screen. The signal level is then measured according to the requirements of the detected standard. Should the signal be very low the meter will display SIG LOW. The channels are on a continuous loop. Each press of the "Up" or "Down" will select the next frequency, either up or down.

To reach a frequency quicker, hold either button down, and after a couple of seconds, the meter will scan the frequencies more quickly.

Meter Layout

The meter has six buttons:

- "Off" switches it off.
- "On/Up" switches it on, and steps up the frequency plan.
- "Down" steps down the frequency plan.
- "Test" performs the SNR quality test.



57	Pontypool	52	48	42	45	66	68
58	Presely	47	51	39	42	45	49
59	Redruth	39	42	45	49	43	50
60	Reigate	31	21	24	27		
61	Ridge Hill	34	30	52	39	42	45
62	Rosemarkie	47	51	41	44	46	50
63	Rosneath	67	53	57	60	63	48
64	Rowridge	67	52	30	32	25	28
65	Rumster Frst	28	22	25	32	62	59
66	Saddleworth	47	41	44	51	39	54
67	Salisbury	55	56	59	62	65	52
68	Sandy Heath	29	45	42	67	40	46
69	Selkirk	53	57	60	63	66	56
70	Sheffield	39	53	57	60	45	42
71	Stockland HI	22	28	25	32	30	34
72	Storeton	30	34	23	26	29	33
73	Sudbury	46	47	50	51	55	65
74	Sudbury B	49	68	48	39	54	50
75	Sutton Colfd	41	44	47	51	52	55
76	Tacolneston	63	60	64	57	43	46
77	The Wrekin E	39	49	42	45		
78	The Wrekin W	21	31	24	27	53	57
79	Torosay	23	26	29	33	21	31
80	Tunbridge Wl	55	61	42	45	39	59
81	Waltham	56	66	68	50	60	63
82	Wenvoe	30	34	56	67		
83	Whitehawk HI	66	50	55	48	58	61
84	Winter Hill	56	66	68	50	60	63
85	Winter Hill B	67	46	43	40		

28	Fenton	34	30	22	25	28	32
29	Fremont Point	38	43	49	32	66	68
30	Guildford	49	44	41	51	47	54
31	Hannington	50	43	40	46	29	48
32	Hastings	31	27	21	24	63	60
33	Heathfield	62	63	65	66	68	
34	Hemel Hempst	48	55	60	66	50	43
35	Huntshaw Cr	54	58	61	64	53	67
36	Huntshaw B	51	47				
37	Idle	45	53	34	56	30	42
38	Bristol Il Cr	49	39	41	44	47	51
39	Keelylang Hl	48	52	41	44	47	51
40	Keighley	53	48	30	34		
41	Kilvey Hill	25	22	28	32	21	31
42	Knock More	34	30	53	57	60	56
43	Lancaster	28	22	25	32	34	30
44	Lark Stoke	21	31	24	27	57	60
45	Limavady	67	58	53	57	60	63
46	Llanddona	67	54	58	61	64	46
47	Malvern	67	59	65	55	23	26
48	Mendip	59	55	62	65	52	48
49	Midhurst	56	65	62	59	64	60
50	Moel-y-Parc	54	58	61	64	30	34
51	Nottingham	39	67	53	63	29	59
52	Olivers Mount	49	67	54	58	61	64
53	Oxford	34	68	56	52	48	67
54	Pendle Forest	21	24	27	31	30	34
55	Plympton	52	67	66	60	63	56
56	Pontop Pike	48	55	59	62	65	53

Testing an Installation

With the meter switched on, select the first frequency of the transmitter you wish to check. Look at the signal level, measured in dB μ V. It needs to be in the range 36 to 70 to be acceptable to the set-top box. If it is outside this range or if the display shows "High" or "Low" then there is a fault with the installation, which must be remedied first.

Press the "Test" button, to check the signal to noise ratio (SNR). The unit will search for the noise floor, this will take about 15 seconds, then the display will flash up the SNR value in dB. The number is important for fault finding and so you may be asked to write it down.

After a pause the display then shows "Pass", "Fail" or "Marginal".

- If it indicates "Pass", then the signal is acceptable (SNR > 26 dB). The test should then be repeated for each signal of a transmitter, and for each transmitter.
- If it indicates "Marginal" (SNR 23 - 25 dB) or "Fail" (SNR < 23 dB) then further work needs to be done on the installation.

Charging the IMdigital

An overnight charge will fully charge the meter, giving approximately 4 hours use. The meter can also be charged from a car cigarette lighter using the optional car charger lead. To conserve the batteries, the meter switches off automatically after 5 minutes.

Programming the Slave units

There are three stages to programming the Slave units:

1. Nominate the UHF channels to be programmed
2. Switch the Slave unit into receive mode
3. Switch the Master unit into transmit mode

1. Nominate the channels to be programmed

With the Master unit off, hold the "Store" key, and then press the "On" key. The display will change to show the transmitters in the top line and "Enable" or "Disable" in the bottom. Scan through the transmitters with the "Up" and "Down" keys.

Each frequency can be toggled either "Enable" and "Disable" with the "Store" key. Only enabled frequencies will be transmitted to the Slave unit. When all the required frequencies have been enabled, switch off the Master unit and connect the power sockets of the Master and the Slave units with the programming lead.

2. Switch the Slave unit into receive mode

Hold the "Down" key then press the "On" key. Continue to hold both keys until "Rx" appears on the screen. Release both keys.

3. Switch the Master unit into transmit mode

Hold the "Chan/Freq" key then press the "On" key. Continue to hold both keys until "TX" appears in the screen. Release both keys and the unit will start transmitting. The progress of the transmission can be seen on the Slave's screen by the end two digits counting down to 00. This will take about 1 minute.

When the transmission is complete the displays will show "Tx end" and "Rx end" respectively. Unplug the units and to ensure the transfer has been successful scan through the frequencies stored in the Slave unit.

	Transmitter	Multiplex					
		1	2	3	4	5	6
1	Aberdare	28	32	23	26	29	33
2	Angus	68	66	59	62	56	65
3	Beacon Hill	52	61	58	54	56	64
4	Belmont	30	48	68	66	60	57
5	Bilsdale	34	21	31	24	27	42
6	Black Hill	41	47	44	51	55	65
7	Blaenplwyf	28	22	25	32	29	33
8	Bluebell Hill	59	24	27	45	42	39
9	Bressay	21	24	27	31	66	68
10	Brierley Hill	68	65	56	59	66	62
11	Bristol KW	22	25	28	32	30	34
12	Bromsgrove	34	29	33	23	26	30
13	Brougher Mtn	30	34	23	26	29	33
14	Caldbeck	25	23	26	39	45	42
15	Caradon Hill	34	31	48	21	24	27
16	Carmel	55	65	59	62	68	66
17	Chatton	40	50	43	46	47	51
18	Chesterfield	34	40	43	46	50	52
19	Craigkelly	33	29	23	26	42	39
20	Crystal Pal	25	22	32	28	34	29
21	Darvel	22	25	32	28	30	34
22	Divis	29	33	23	26	48	34
23	Dover	28	30	31	32	34	35
24	Durriss	30	34	52	51	41	44
25	Eitshal	34	30	22	25	28	32
26	Emley Moor	52	40	43	46	50	49
27	Fenham	30	22	25	28	32	57