

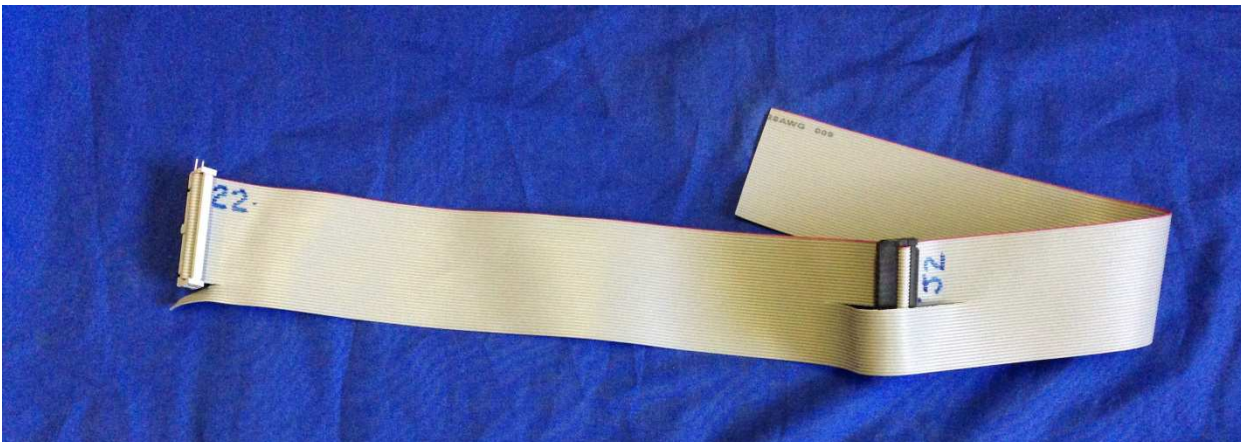
GVG TO ATEM Interface cable construction

By Baz Leffler

The Controller for the **GVG TO ATEM** connects to the ATEM panel using a custom made ribbon cable. There are variations of this cable depending of the facilities required.

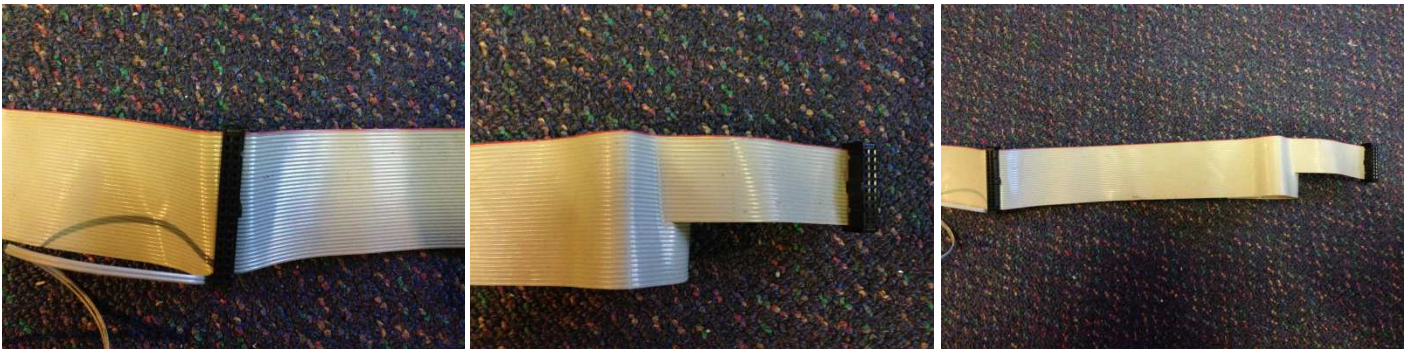
1. Basic control (normal)

The basic control is where just a GVG panel is connected to the ATEM and simple tallies and GPI are required.



The basic cable uses a 34 pin IDC connector at the controller end, a 20 pin IDC at the centre for the GVG's J2 connector and an open (unterminated) at the other end.

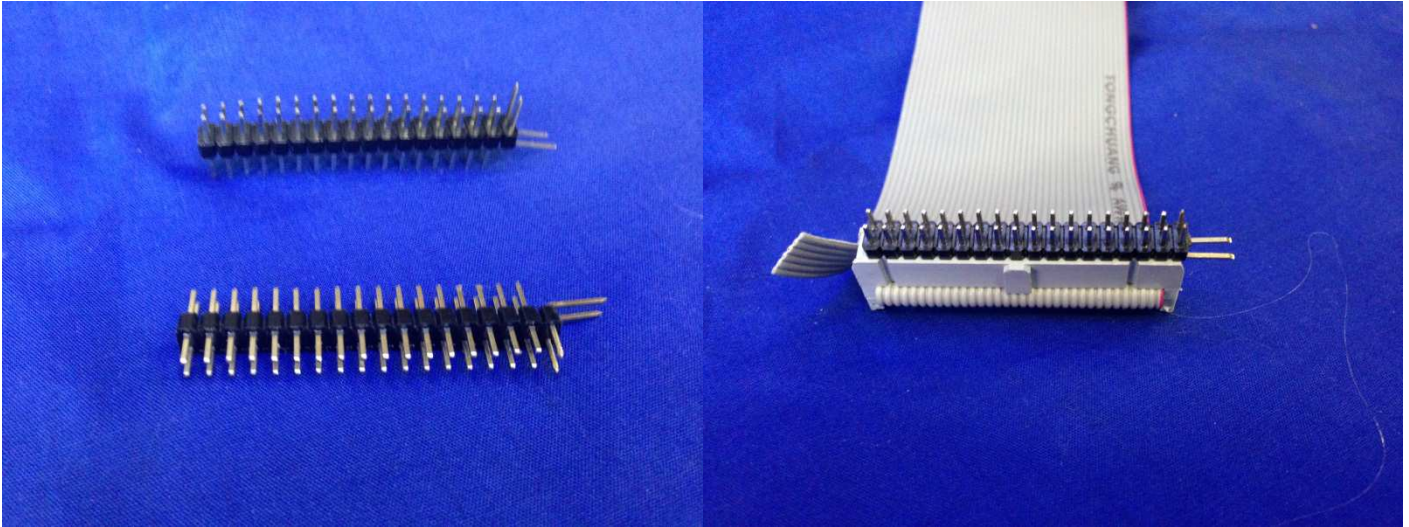
Earlier versions had the 34 pin at the centre and the 20 pin at the end.



34 pin IDC

The 34 pin IDC connector plugs into the Controller card. The controller card uses a 36 pin connector but for some reason they are hard if not impossible to find (minimum order is 10,000).

This 34 pin IDC plugs into a 36 pin header with the top 2 pins bent over to provide 5 volts where necessary.



Notice the orientation of the RED tracer wire in the ribbon. It connects to pin 22 of the controller.

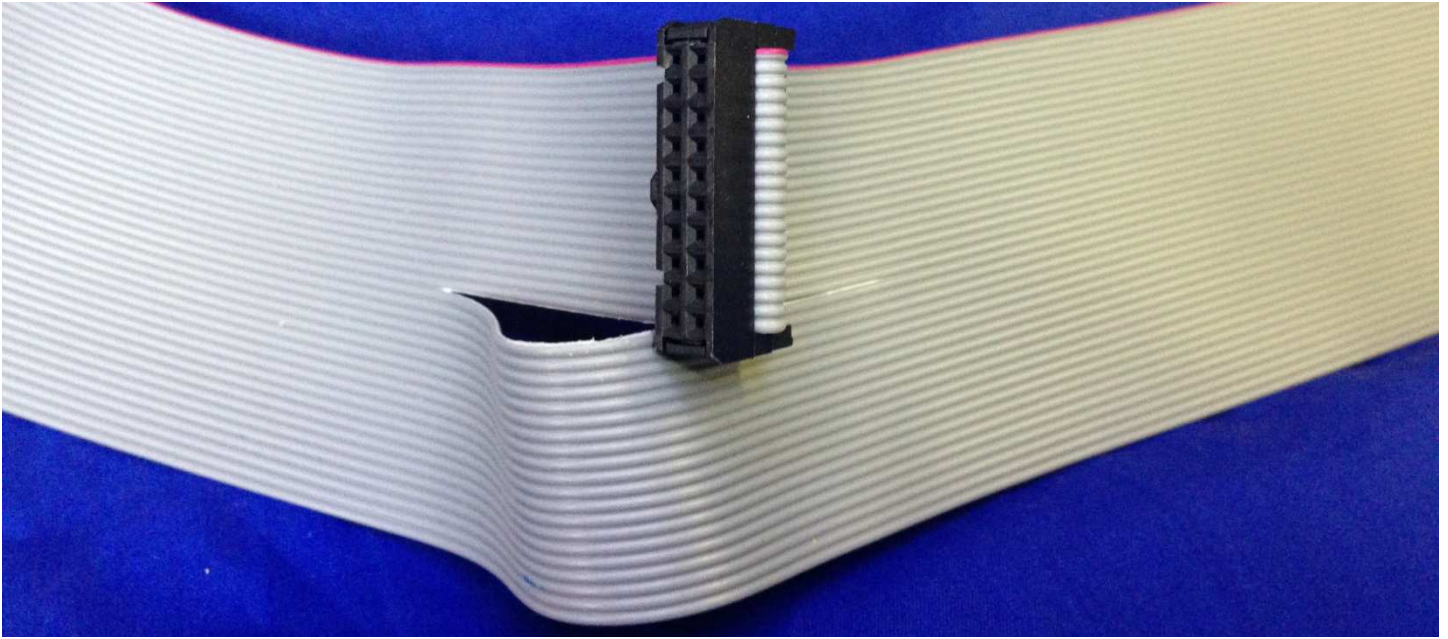
Pin 1 of ALL IDC connectors are identified by a ▼ embedded into the plastic. This is where the **RED** tracer wire connects. The controller's 36 pin connector starts at pin 20.

There are 6 unused wires in this ribbon cable which are not necessary if you need to discard them. They are there for future expansion.

The connector on the controller is designed to plug in leaving the cable feed *away* from the board.



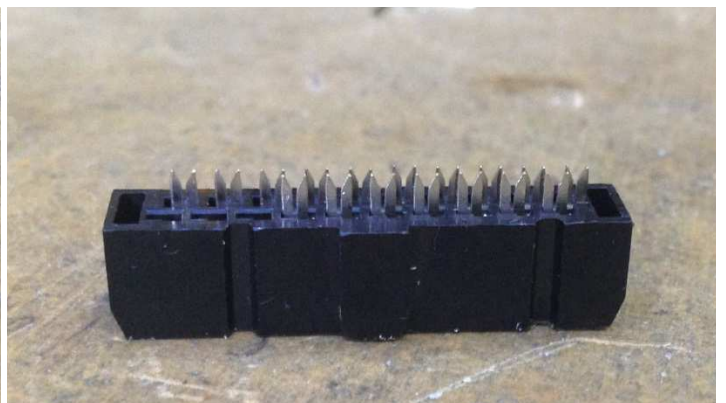
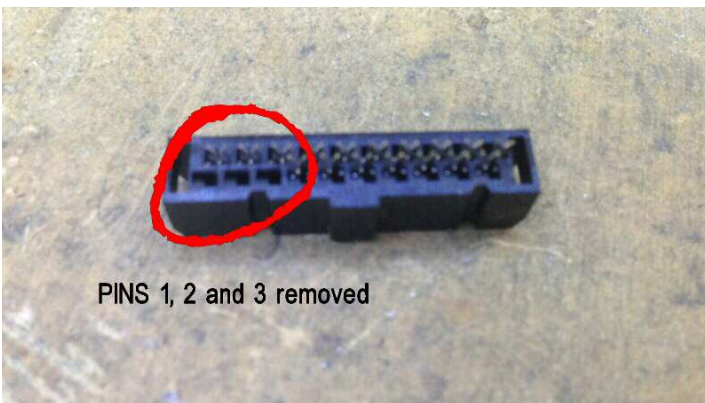
20 pin IDC (*modified to 17 pins)



The last 20 wires in the ribbon bypass the connector

This connector is mounted on the cable so as to allow the cable to feed *away* from the board. The **RED** tracer wire connects to pin 20.

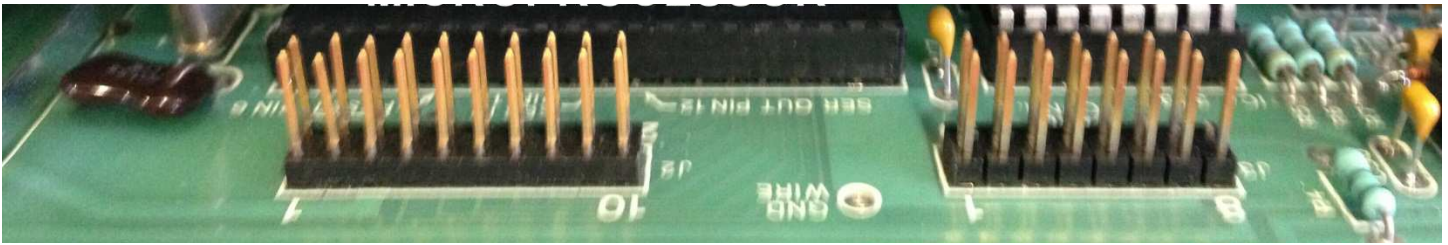
The 20 pin IDC connector is **MODIFIED** by removing pins 1, 2 and 3 from the crimp. Pin 1 is identified by a ▼ embedded into the plastic.



These pins have to be removed to prevent the GVG panels electronics from grounding signals from the Controller that provide Tally 9, Tally 10 and GPIO to the expansion end.

The pins can be removed by gently extracting them with long nose pliers.

The 20 pin IDC connector plugs into the GVG panels electronics J2 connector.



J2 of the GVG panel is on the left and J3 (power in) is on the right.

Open (unterminated) expansion end



This is left unterminated so as it can be modified to suit individual purposes.

The main wires are –

Wire	Function
16	TALLY 10
18	TALLY 9
20	GPI 0
21	TALLY 1
22	TALLY 2
23	TALLY 3
24	TALLY 4
25	TALLY 5
26	TALLY 6
27	TALLY 7
28	TALLY 8
33	ground
34	ground

Where **RED** is wire 1

2. Advanced control (peripheral)

The advanced control is where not only the basic functions are needed but facilities for extended tallies, deck controls etc are required.

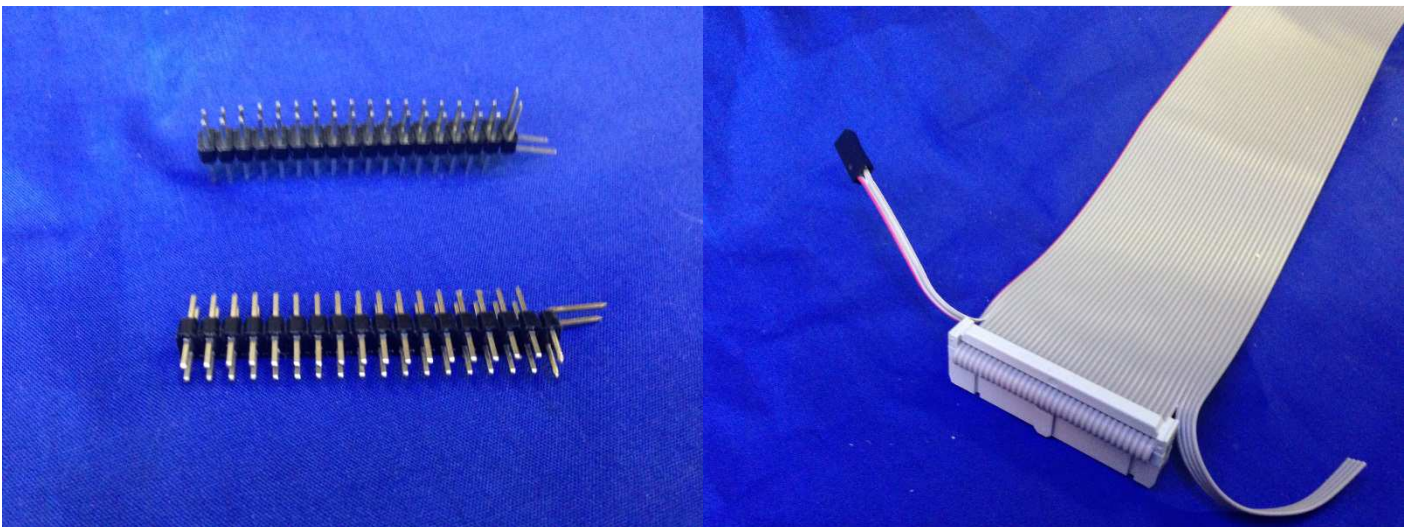


The advanced cable uses a 34 pin IDC connector and a 2 pin SIL at the controller end, a 20 pin IDC at the centre for the GVG's J2 connector and a DB 37 at the opposite end.

34 pin IDC and 2 pin SIL (single in line)

The 34 pin IDC connector plugs into the Controller card. The controller card uses a 36 pin connector but for some reason they are hard if not impossible to find (minimum order is 10,000).

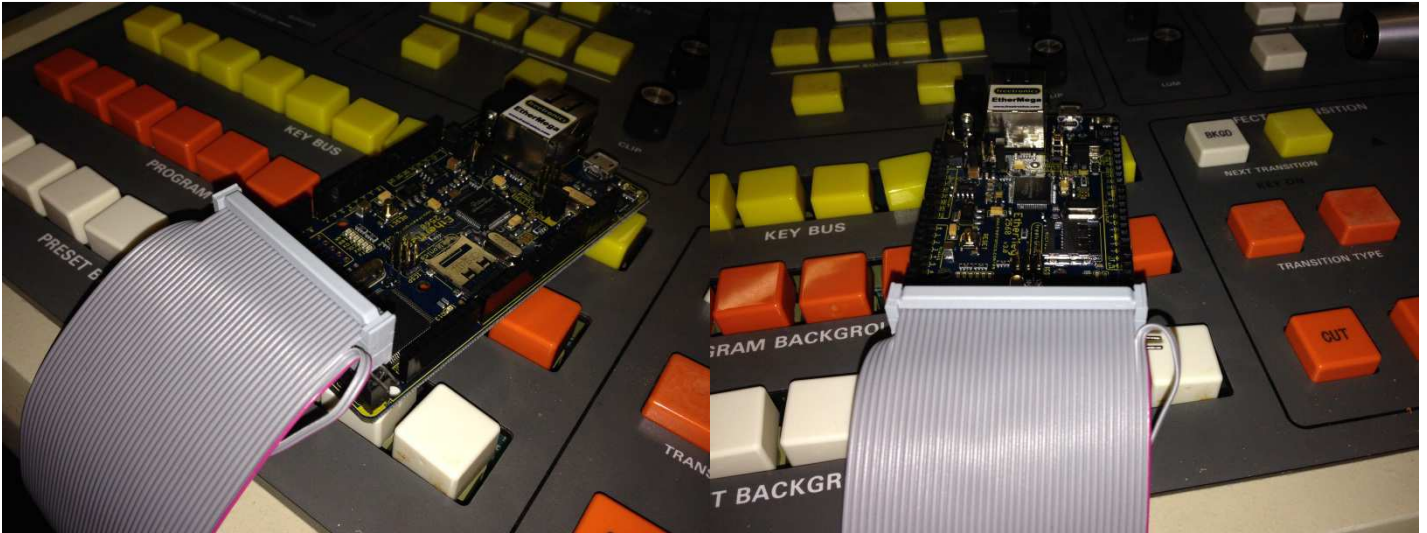
This 34 pin IDC plugs into a 36 pin header with the top 2 pins bent over to provide 5 volts for the 2 pin SIL connector. Both of these pins have 5 volts so polarity is not important.



Pin 1 of ALL IDC connectors are identified by a ▼ embedded into the plastic. This is where the **THIRD** wire from the **RED** tracer wire connects.

There are 4 unused wires in this ribbon cable which are not necessary if you need to discard them but one of them goes directly to the DB37 connectors pin 37. They are there for future expansion.

The connector on the controller is designed to plug in leaving the cable feed *away* from the board.



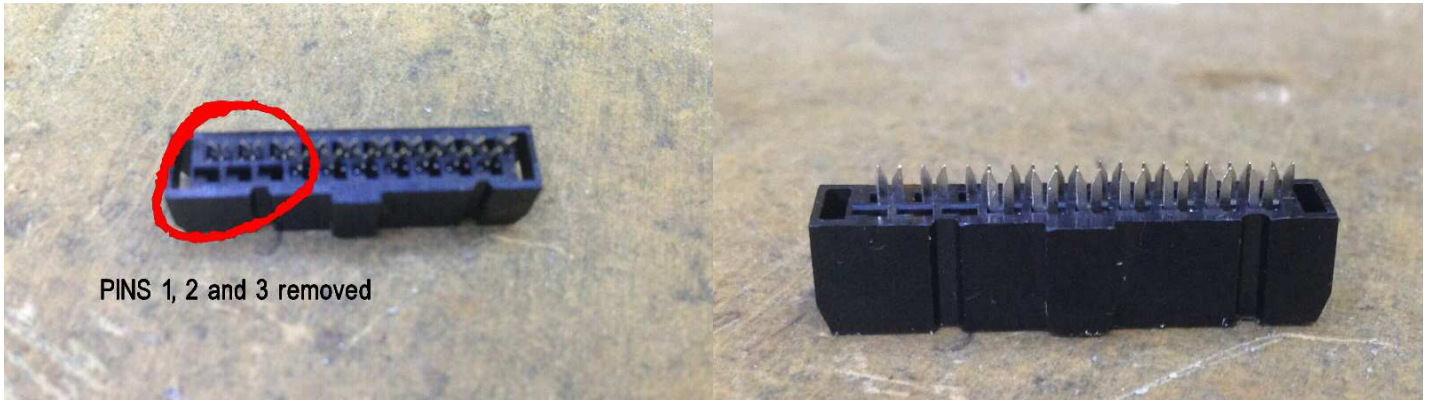
20 pin IDC (*modified to 17 pins)



The first 2 wires in the ribbon bypass the connector as does the last 18

This connector is mounted on the cable so as to allow the cable to feed *away* from the board. The **THIRD** wire from the **RED** tracer wire connects to pin 20.

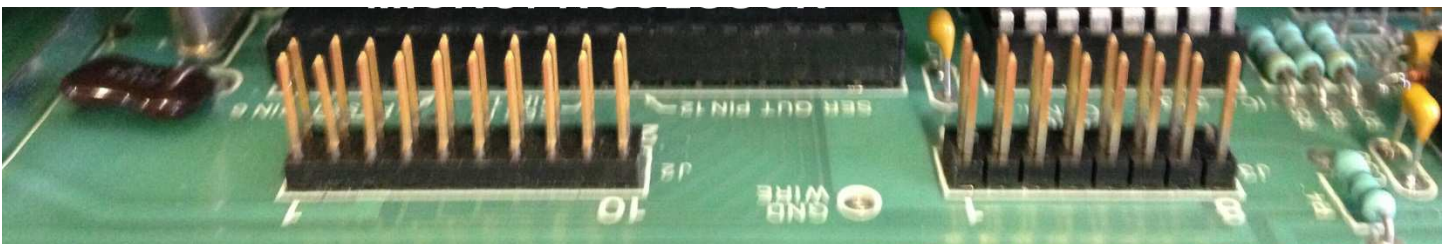
The 20 pin IDC connector is **MODIFIED** by removing pins 1, 2 and 3 from the crimp. Pin 1 is identified by a ▼ embedded into the plastic.



These pins have to be removed to prevent the GVG panels electronics from grounding signals from the Controller that provide Tally 9, Tally 10 and GPIO to the expansion connector.

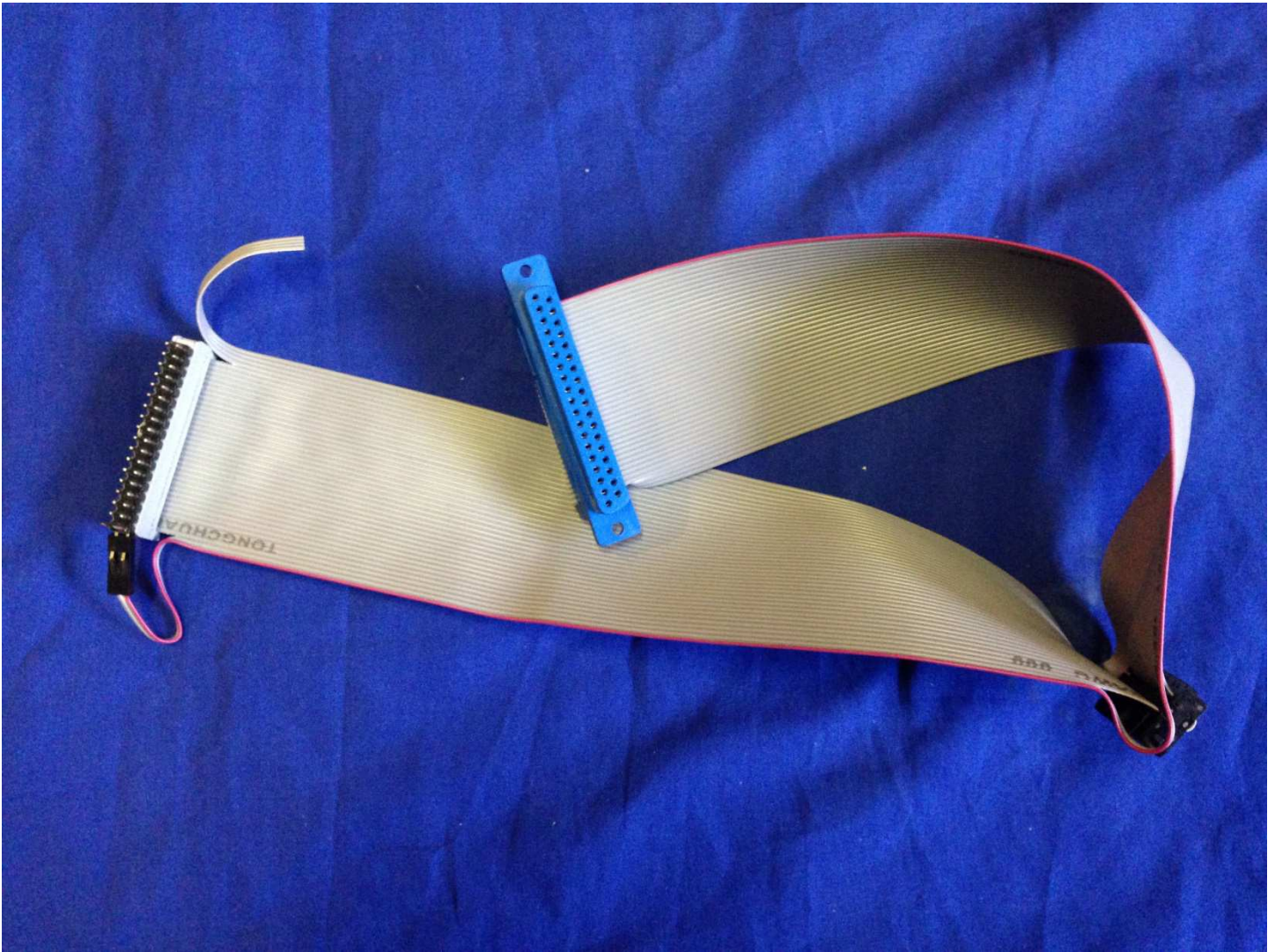
The pins can be removed by gently extracting them with long nose pliers.

The 20 pin IDC connector plugs into the GVG panels electronics J2 connector.

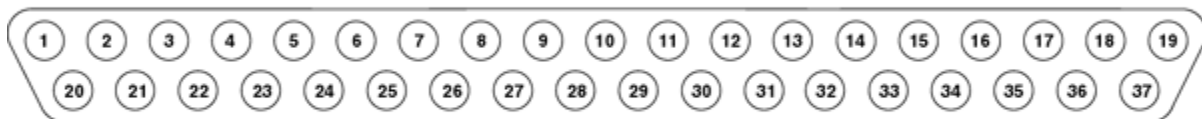


J2 of the GVG panel is on the left and J3 (power in) is on the right.

DB 37 female connector



This is a standard ribbon cable crimp connector. It is female so as not to expose the 5 volts that exists on pins 1 and 20. The RED wire connects to pin 1. The connectors pin numbers are printed into the connector



REAR VIEW OF FEMALE 37 PIN
SUB-D CONNECTOR

EXPANSION CABLE Version A (standard)			
(red wire is 1)	func	(arduino)	(GVG J2)
1	Br	22	20
2	D4	23	10
3	D3	24	19
4	Dw	25	9
5	Lw	26	18
6	D5	27	8
7	D2	28	17
8	Ac	29	7
9	D1	30	16
10	D6	31	6
11	D0	32	15
12	Ar	33	5
13	W3	34	14
14	D7	35	4
15	W2	36	13
16	TALLY 10	37	n/c
17	W1	38	12
18	TALLY 9	39	n/c
19	W0	40	11
20	GPI00	41	n/c
21	TALLY 1	42	n/c
22	TALLY 2	43	n/c
23	TALLY 3	44	n/c
24	TALLY 4	45	n/c
25	TALLY 5	46	n/c
26	TALLY 6	47	n/c
27	TALLY 7	48	n/c
28	TALLY 8	49	n/c
29	SPI: MISO	50	n/c
30	SPI: MOSI	51	n/c
31	SPI: SCK	52	n/c
32	SPI: SS	53	n/c
33	GND	54	n/c
34	GND	55	n/c
35	n/c	n/c	n/c
36	n/c	n/c	n/c

This ribbon cable is used when no Serial Option or Extended Tally is installed. The original cable had the Controller connector in the centre, the GVG J2 at one end and the opposite end unterminated for user specific connections (eg GPIO and Tallies 1 to 10). The revised cable had the GVG J2 connector at the centre and the Controller connector at one end with the opposite end unterminated. The 34 pin IDC connector does not connect to the first 2 pins (p20, p21) of the 36 pin Controller board and connects via a 34 pin male to male adaptor. (36 pin IDC connector are not available)

EXPANSION CABLE Version B (peripheral)				
(red wire is 1)	func	(arduino)	(GVG J2)	DB 37
1 *	+5v	20	n/c	1
2 *	+5v	21	n/c	20
3	Br	22	20	2
4	D4	23	10	21
5	D3	24	19	3
6	Dw	25	9	22
7	Lw	26	18	4
8	D5	27	8	23
9	D2	28	17	5
10	Ac	29	7	24
11	D1	30	16	6
12	D6	31	6	25
13	D0	32	15	7
14	Ar	33	5	26
15	W3	34	14	8
16	D7	35	4	27
17	W2	36	13	9
18	TALLY 10	37	n/c	28
19	W1	38	12	10
20	TALLY 9	39	n/c	29
21	W0	40	11	11
22	GPI00	41	n/c	30
23	TALLY 1	42	n/c	12
24	TALLY 2	43	n/c	31
25	TALLY 3	44	n/c	13
26	TALLY 4	45	n/c	32
27	TALLY 5	46	n/c	14
28	TALLY 6	47	n/c	33
29	TALLY 7	48	n/c	15
30	TALLY 8	49	n/c	34
31	SPI: MISO	50	n/c	16
32	SPI: MOSI	51	n/c	35
33	SPI: SCK	52	n/c	17
34	SPI: SS	53	n/c	36
35	GND	54	n/c	18
36	GND	55	n/c	37
37	n/c	n/c	n/c	19

This ribbon cable is used when a Serial Option or Extended Tally is installed. It has the GVG J2 connector at the centre with the Controller connector at one end and the opposite end terminated on a 37 pin 'D' female connector. As 36 pin IDC connector are not available, p20, p21 (+5v) have their own special connector. This allows both 5 volts and ground available on the DB 37 connector to power external devices. The wires with the * marked are connected to a separate 2 pin SIL female connector.