



Merlin

British Telecom Business Systems

HERALD EVENT LOGGING

Guide Note



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INTRODUCTION

Event logging on the Herald is a means of identifying what the system processor is seeing happening on the system. It can be enabled on the whole Herald system or just on one device only. Its use is to help in identifying and clearing difficult faults. It should only be used after all other means of clearing the fault have been tried or if misoperation is suspected but cannot be proved. Its use on a busy system will produce a large printout with a lot of hexadecimal information which will need very careful interpretation.

HARDWARE REQUIREMENTS

The hardware requirements for event logging are fairly standard in these days of processor controller systems and consists of, as a minimum, a keyboard printer or a VDU. These should be capable of operating at least at 300 Baud and preferably 1200 Baud. If a VDU is used, then a printer connected to it is almost essential as the amount of data that can be sent out by the Herald will very quickly fill a screen. If a printer is used, then consideration should be given to placing the printer in such a position as to cause minimum inconvenience to the customer.

CONNECTIONS

The connections to the 'TEAM' socket of the Herald follow standard V24 practice that is:-

pin 2 data to Herald
pin 3 data from Herald
pin 7 common return
pin 20 DTR

The connections at the other end will of course vary with the type of equipment being used but it would be reasonable to expect that a 4 way straight cord would be correct.

If 300 Baud is to be used, then an addition to the above is that pins 24 & 25 at the Herald end should be linked to slow the processor output down. It should be noted that if there is a large amount of data coming out from the Herald and 300 Baud is being used, then there is a possibility of events being missed as the processor does not buffer the information.

Once the printer or VDU has been connected to the Herald then to prove it is working correctly, RETURN should be pressed. An A or 100B processor should respond with 000, followed after a short period by K04B. A B8 or C processor should respond with K04B only. If it does not, and the system is working then the cord and terminal must be checked before trying to continue.

It is important that keys are not pressed indiscriminately as it is just possible to overwrite parts of the EEPROM database and this may cause a system failure either at that time or after a subsequent cold start.

NOTE Commands should be sent to the Herald without undue delay otherwise the system may time out in the middle of the command. If the Herald does not understand a command then it will send K04B.

ENABLING EVENT LOGGING

The method of enabling event logging is different for each generic of Herald.

HERALD A AND 100 B

For the Herald A or 100B the enabling code that needs to be typed in should be in the following form:-

aaaa la<RETURN>
 [^]SPACE

The Herald will respond with:-

aaaa laccc

The instruction should be confirmed with:-

Zccc<RETURN>

And the Herald will acknowledge with:-

Oaaaa laccc

Where:-

aaaa is*409E for a Herald A
 or*C110 for a Herald 100B

la is the logical address if logging is required on only one device or FF to enable logging on the whole system

ccc is a checksum returned by the Herald.

NOTE The logical address for each device can be obtained from the H3S printout and must be converted from decimal to a two character hexadecimal number before being sent to the Herald.

DISABLING EVENT LOGGING

To disable the logging, use the following procedure:-

aaaa 00<RETURN>

The Herald will reply:-

aaaa 00ccc

The confirmation is as above:-

Zccc<RETURN>

The Herald will then acknowledge with:-

0 ccc

Logging is also disabled if the Herald is powered down.

NOTE On power up the logging will need to be re-enabled if still required.

ENABLING EVENT LOGGING HERALD B8 AND C

For the Herald B8 and C the enabling command is

Apa<RETURN>

The Herald will reply:-

Apa ccc

The confirmation is:-

Zccc<RETURN>

The Herald will acknowledge with:-

0 ccc

Where:-

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pa is the physical address of the required device (in hexadecimal). If this is 00 then logging will resume to the last setting prior to the last disable command. The physical address can be obtained from the HDS printout but must be converted from decimal to hexadecimal. Physical address maps for the B8 and C systems is given in tables 3 and 4. If FF is used as the physical address then logging will be enabled on the whole system.

ccc is a checksum returned by the Herald.

DISABLING EVENT LOGGING

The logging is disabled by:-

D<RETURN>

The Herald will reply:-

Dccc

The confirmation is:-

Zccc<RETURN>

The Herald will acknowledge with:-

0ccc

Logging is also disabled if the Herald is powered down.

8 Analysis Of Event Logging Output

Herald A & 100B The event logging output is in the following form:-

Mlaevid laevid laevid mon dy hh:mm:ss.s ccc

where:-

M = header character (replaced by L if >3 events per frame).

la = logical address of device where event occurred.
ev = event data received from device (see tables 2a - c)
id = last recorded id of device (see table 1).

mon = month e.g. JAN FEB etc.

dy = date of month.

hh:mm:ss.a = hour minute second - the time of the frame

ccc = checksum generated by Herald.

NOTE 1 A frame is a period of 250mS

NOTE 2 If there are less than 3 events in a frame then the 3rd and possibly the 2nd 'laevid' will be omitted. If there are more than 3 events in a frame then these events may not be logged. However the Herald is quite capable of dealing with much more than 3 events/frame.

NOTE 3 Date and time are only given on Herald 100B with software version 5.A or greater and will only be correct if the system clock has been set correctly.

HERALD B8 & C The event logging output is in the following form:-

M frame M-lapa-evid M-lapa-evid M-lapa-evid M-lapa-evid M-lapa-evid

where:-

frame = the frame number in which the event happened (250ms period)

la = Logical address.

pa = Physical address.

ev = event data from device (see tables 2a - c).

id = last recorded id of device (see table 1).

NOTE 4 If there are less than 5 events per frame data will only be output for the events actually occurring in that frame.

NOTE 5 Any event logging outputs prefixed by letters other than M should be ignored.

TABLE 1

Identity	Data
2 wire telephone on hook	38
2 wire telephone off hook	B8
4 wire telephone on hook	78
4 wire telephone off hook	F8
Line seized - digit store not empty	29
Line idle	89
Line seized - digit store empty	A9
Line seized & held	B9
Line ringing/looped	C9
PW not held	7C
PW held	FC

TABLE 2A - LINE
INTERFACE

Function	Event Data
No change	00
End of ringing	1C
Start of ringing	5C
End of dialling	9C

TABLE 2B - SSSC
INTERFACE

Function	Event Data
No change	00
End of seize/hold	19
Digit 1 received	81
Digit 2 received	82
Digit 3 received	83
Digit 4 received	84
Digit 5 received	85
Digit 6 received	86
Digit 7 received	87
Digit 8 received	88
Digit 9 received	89
Digit 0 received	8A
Start of seize/hold	99
Start of dialling	D9

TABLE 2C -
TELEPHONE INTERFACE

Description	event data			
	On hook normal mode	program mode	Off hook normal mode	program mode
Idle	00		80	
Handset lifted			99	note 6
Handset replaced	19			
Earth button pressed	1A		9A	
Start program	12		92	
End program		52		D2
Recall key	13	53	93	D3
Transmit key	14	54	94	D4
Hold key	15	55	95	D5
Start of dialling			D9	note 7
Keypad 1	01	41	81	C1
Keypad 2	02	42	82	C2
Keypad 3	03	43	83	C3
Keypad 4	04	44	84	C4
Keypad 5	05	45	85	C5
Keypad 6	06	46	86	C6
Keypad 7	07	47	87	C7
Keypad 8	08	48	88	C8
Keypad 9	09	49	89	C9
Keypad 0	0A	4A	8A	CA
Keypad *	0B	4B	8B	CB
Keypad #	0C	4C	8C	CC

Table continued on next page

- NOTE 6** A handset lifted may sometimes show 9A depending on the point in time of the ringing cycle at which the handset was lifted. This is a function of the extension interface card seeing an unbalance. The processor will not be confused by this and will treat a 9A as a 99.
- NOTE 7** When a handset is replaced, the processor may see the disconnection as the start of a dial pulse and the event logging for a clear-down may show a D9 as well as the correct 19.
- NOTE 8** On a Herald 100 B if call logging data is also being outputted, then the call logging output will be just before the event log of the clear-down.

TABLE 2C CONTINUED

Description	event data			
	On hook normal mode	On hook program mode	Off hook normal mode	Off hook program mode
Programmable key 1	16	56	96	D6
Programmable key 2	17	57	97	D7
Programmable key 3	20	60	A0	E0
Programmable key 4	21	61	A1	E1
Programmable key 5	22	62	A2	E2
Programmable key 6	23	63	A3	E3
Programmable key 7	24	64	A4	E4
Programmable key 8	25	65	A5	E5
Programmable key 9	28	68	A8	E8
Programmable key 10	29	69	A9	E9
Programmable key 11	2A	6A	AA	EA
Programmable key 12	2B	6B	AB	EB
Programmable key 13	2C	6C	AC	EC
Programmable key 14	2D	6D	AD	ED
Programmable key 15	30	70	B0	F0
Programmable key 16	31	71	B1	F1
Programmable key 17	32	72	B2	F2
Programmable key 18	33	73	B3	F3
Programmable key 19	34	74	B4	F4
Programmable key 20	35	75	B5	F5
Programmable key 21	38	78	B8	F8
Programmable key 22	39	79	B9	F9
Programmable key 23	3A	7A	BA	FA
Programmable key 24	3B	7B	BB	FB
Programmable key 25	3C	7C	BC	FC
Programmable key 26	3D	7D	BD	FD

NOTE 9 Event logging should be disabled after it has been used otherwise difficulties will be experienced with data transfer to or from the data entry room.

NOTE 10 The Herald does not sense the conditions on an exchange line so if a call is released at the exchange line this will not be logged. It will only be logged when the Herald releases the call.

TABLE 3 HERALD B8 PHYSICAL ADDRESS MAP

CONTROL SHELF

1/9	1/8	1/7	1/6	1/5	1/4	1/3	1/2	1/1	1/0
21	19	11	09	01	T	B	N	P	B
22	1A	12	0A	02	O	8	O	S	S
23	1B	13	0B	03	N		T	U	U
24	1C	14	0C	04	E	P			
25	1D	15	0D	05	S	R	U		
26	1E	16	0E	06		O	S		
27	1F	17	0F	07		C	E		
28	20	18	10	08			D		

FIRST EXTENSION SHELF

2/9	2/8	2/7	2/6	2/5	2/4	2/3	2/2	2/1	2/0
71	69	61	59	51	49	41	39	31	29
72	6A	62	5A	52	4A	42	3A	32	2A
73	6B	63	5B	53	4B	43	3B	33	2B
74	6C	64	5C	54	4C	44	3C	34	2C
75	6D	65	5D	55	4D	45	3D	35	2D
76	6E	66	5E	56	4E	46	3E	36	2E
77	6F	67	5F	57	4F	47	3F	37	2F
78	70	68	60	58	50	48	40	38	30

SECOND EXTENSION SHELF

3/9	3/8	3/7	3/6	3/5	3/4	3/3	3/2	3/1	3/0
C1	B9	B1	A9	A1	99	91	89	81	79
C2	BA	B2	AA	A2	9A	92	8A	82	7A
C3	BB	B3	AB	A3	9B	93	8B	83	7B
C4	BC	B4	AC	A4	9C	94	8C	84	7C
C5	BD	B5	AD	A5	9D	95	8D	85	7D
C6	BE	B6	AE	A6	9E	96	8E	86	7E
C7	BF	B7	AF	A7	9F	97	8F	87	7F
C8	CO	B8	BO	A8	AO	98	90	88	80

TABLE 4 HERALD C PHYSICAL ADDRESS MAP

CONTROL SHELF	1/9	1/8	1/7	1/6	1/5	1/4	1/3	1/2	1/1	1/0
	39	31	29	21	19	11	09	01	C	P
	3A	32	2A	22	1A	12	0A	02		S
	3B	33	2B	23	1B	13	0B	03	P	U
	3C	34	2C	24	1C	14	0C	04	R	
	3D	35	2D	25	1D	15	0D	05	O	
	3E	36	2E	26	1E	16	0E	06	C	
	3F	37	2F	27	1F	17	0F	07		
	40	38	30	28	20	18	10	08		

FIRST EXTENSION SHELF	2/9	2/8	2/7	2/6	2/5	2/4	2/3	2/2	2/1	2/0
	89	81	79	71	69	61	59	51	49	41
	8A	82	7A	72	6A	62	5A	52	4A	42
	8B	83	7B	73	6B	63	5B	53	4B	43
	8C	84	7C	74	6C	64	5C	54	4C	44
	8D	85	7D	75	6D	65	5D	55	4D	45
	8E	86	7E	76	6E	66	5E	56	4E	46
	8F	87	7F	77	6F	67	5F	57	4F	47
	90	88	80	78	70	68	60	58	50	48

SECOND EXTENSION SHELF	3/9	3/8	3/7	3/6	3/5	3/4	3/3	3/2	3/1	3/0
	D9	D1	C9	C1	B9	B1	A9	A1	99	91
	DA	D2	CA	C2	BA	B2	AA	A2	9A	92
	DB	D3	CB	C3	BB	B3	AB	A3	9B	93
	DC	D4	CC	C4	BC	B4	AC	A4	9C	94
	DD	D5	CD	C5	BD	B5	AD	A5	9D	95
	DE	D6	CE	C6	BE	B6	AE	A6	0E	96
	DF	D7	CF	C7	BF	B7	AF	A7	9F	97
	EO	D8	DO	C8	CO	B8	BO	A8	AO	98

NOTES
