

Gryphon Hardware Information: KWP2000 / BDLC card

External D-9 connector pinout

Pin # Channel Assignment

01	1	K
02	1	K-12VTERM
03	1	K-24VTERM
04	2	J1850 BUS
05	1 and 2	V- IN/GND
06	1	L
07	1	L-12VTERM
08	1	L-24VTERM
09	1	V+ IN

BUS termination requirements

Configuration Termination

ECU/Vehicle No Additional jumpers

Tester/12V Vbat Tie pins 2 and 7 to pin 9(Vbat)

Tester/24V Vbat Tie Pins 3 and 8 to pin 9(Vbat)

Event definitions

The following values may be transmitted as FT_EVENT type GCProtocol frames.

The event value will be in the *event* field of such a frame.

Note: Please see the include file [dev_kwp.h](#) for numeric values of the following symbols.

Note: Please see the documentation on the [GM J1850 \(DLC\)](#) card for info regarding the BDLC channel.

The following event documentation is based on the original version of the KWP card.

Event name Event meaning

GKWPWAKEFIVE five baud wake up seen (Please see NOTE 1)

byte 0 - five baud address (tester)

byte 1 - sync byte (ecu)

byte 2 - first keybyte (ecu)

byte 3 - second keybyte (ecu)

byte 4 - inverted second keybyte (tester)

byte 5 - inverted address (ecu)

byte 6 - status 0 = timing good

GKWPWAKEFAST fast wake up seen

byte 0 - the wake up as interpreted by a uart, i.e. usually 0xf0

byte 1-5 - the start communication request message

byte 6 - the start communication response message
 GKWPBUSIDLE intermessage time elapsed since last byte
 byte 0,1 - time expired (in units of half milliseconds network byte order)

The following event documentation is based on observing the current version of the KWP card.

Event name	byte(s)	Event meaning
GKWPWAKEFAST		fast wake up seen
	0	set to zero by the KWP2000 driver
	1	message status byte; it should be 0x04
	2-6	the wakeup request message: 3 header bytes, 1 data byte and a checksum Format: 0x81 or 0xC1 for physical / logical addressing Target address Source address startCommunication Request Service Id: 0x81 Checksum
	7	message status byte; it should be 0x04
	8-14	the wakeup response message: 3 header bytes, 3 data bytes and a checksum Format: 0x83 or 0xC3 for physical / logical addressing Target address Source address startCommunication Positive Response Service Id: 0xC1 Key byte 1 Key byte 2 Checksum
	15	message status byte; it should be 0x04
	16	should be 0x00

Please also see [generic events](#) for non card-specific events.

NOTE 1: Any length of data should be tolerated by client. Currently implemented lengths are 1 (i.e. an unsuccessful wake up) and 7. Longer data lengths may occur in the future if more information is appended to this event.

Card-specific IOCTL definitions

These values are used with the CMD_CARD_IOCTL command.

The protocol P and W timing values and their default values are shown on the far right for GKWPSETPTIMES and GKWPSETWTIMES.

Please see the include file [dev_kwp.h](#) for numeric values of IOCTLs and data field bit assignments.

Note: Please see the documentation on the [GM J1850 \(DLC\)](#) card for info regarding the BDLC channel.

IOCTL name	Function	Data field length/purpose
GKWPSETPTIMES	Set P Times	24 data bytes:(half milliseconds, 'x86' byte order) Byte 0,1 - P1 rx min Byte 2,3 - P1 rx max Byte 4,5 - P1 tx Byte 6,7 - P2 rx min
		P1 max (20ms) P1 min (0ms)

		Byte 8,9 - P2 rx max	P2 max (50ms)
		Byte 10,11 - P2 tx	P2 min (25ms)
		Byte 12,13 - P3 rx min	
		Byte 14,15 - P3 rx max	P3 max (5,000ms)
		Byte 16,17 - P3 tx	P3 min (55ms)
		Byte 18,19 - P4 rx min	
		Byte 20,21 - P4 rx max	P4 max (20ms)
		Byte 22,23 - P4 tx	P4 min (5ms)
GKWPSETWTIMES	Set W Times	30 data bytes:(half milliseconds, 'x86' byte order)	
		Byte 0,1 - W1 rx min	
		Byte 2,3 - W1 rx max	W1 max (300ms)
		Byte 4,5 - W1 tx	W1 min (60ms)
		Byte 6,7 - W2 rx min	
		Byte 8,9 - W2 rx max	W2 max (20ms)
		Byte 10,11 - W2 tx	W2 min (5ms)
		Byte 12,13 - W3 rx min	
		Byte 14,15 - W3 rx max	W3 max (20ms)
		Byte 16,17 - W3 tx	W3 min (0ms)
		Byte 18,19 - W4 rx min	
		Byte 20,21 - W4 rx max	W4 max (50ms)
		Byte 22,23 - W4 tx	W4 min (25ms)
		Byte 24,25 - W5 rx min	
		Byte 26,27 - W5 rx max	W5 max (30,000ms)
		Byte 28,29 - W5 tx	W5 min (300ms)
GKWPDOWNAKEUP	Send wake up	0 data bytes:	
GKWPGETBITTIME	Get Bit Time	2 data bytes returned: bit time (microseconds, 'x86' byte order) 0x0060=10,417 bits/sec (10,400 bits/sec nominal)	
GKWPSETBITTIME	Set Bit Time	2 data bytes:bit time (microseconds, 'x86' byte order) 0x0060=10,417 bits/sec (10,400 bits/sec nominal)	
GKWPSETNODEADDR	Set node address	1 data bytes: Node Address	
GKWPGETNODETYPE	Get node type	1 data bytes returned: GKWPMONITOR=0x00, GKWPECU=0x01,GKWPTESTER=0x02	
GKWPSETNODETYPE	Set node type	1 data bytes: GKWPMONITOR=0x00, GKWPECU=0x01,GKWPTESTER=0x02	
GKWPSETWAKEUPTYPE	Set wake up type to either "fast" or "five baud"	1 data bytes: GKWPFFAST=0x00,GKWPFIVEBAUD=0x02	
GKWPSETTARGADDR	Set target address	1 data bytes: Address of node to wake up	
GKWPSETKEYBYTES	Set keybytes	2 data bytes: keybytes to send in five baud wake up process	
GKWPSETSTARTREQ	Set start request	5 data bytes: fast wake up start communication request	
GKWPSETSTARTRESP	Set target address	7 data bytes: fast wake up start communication response	
GKWPSETPROTOCOL	Set protocol type	1 data bytes: GKWPKWP2000=0x01, GKWPISO9141FORD=0x02	
GKWPGETLASTKEYBYTES	Get last key bytes	2 data bytes returned: value of keybytes seen in last successful wake up (only currently implement for 5 baud)	

GKWPSETLASTKEYBYTES Set last key bytes

2 data bytes:value GKWPGETLASTKEYBYTES returns until a successful wake up is seen.

FT_DATA frame stat field definitions:

The following bits may be set in the stat field of FT_DATA messages

Data name	Description
GKWPSTAT_KLINE	Message on K line (rx and tx)
GKWPSTAT_LLINE	Message on L line (rx and tx)
GKWPSTAT_ERR	General bus error (rx only)
GKWPSTAT_CSERR	Checksum error (rx only)
GKWPSTAT_CONTENTION	Bus contention is detected (rx only)
GKWPSTAT_BLOCK	Message recieved over multiple interrupts (rx only)