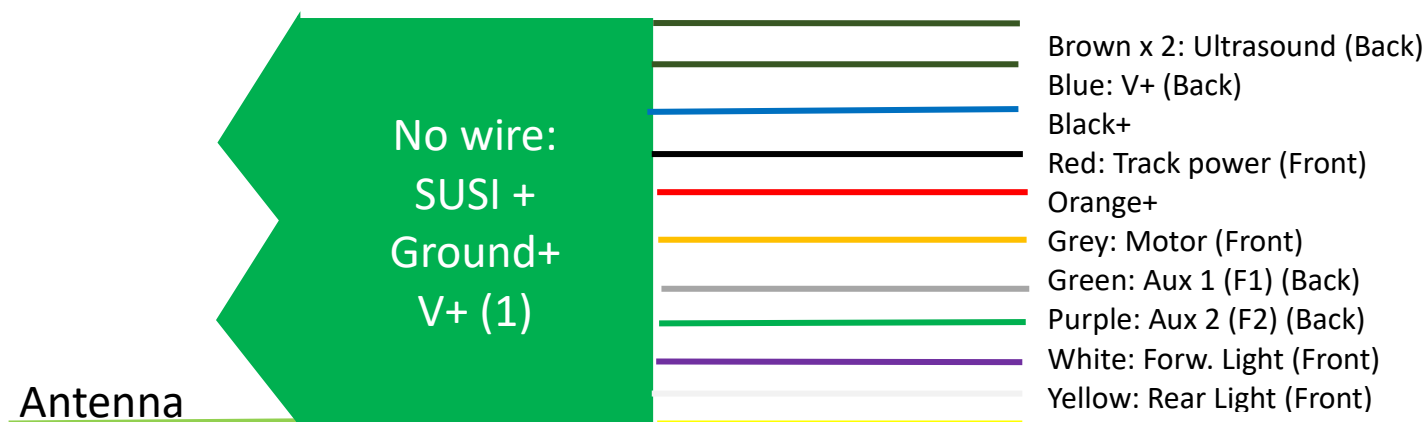


GamesOnTrack A/S, Uhresoevej 35, DK 7500 Holstebro, Denmark, www.gamesontrack.com.
Tel: +45 3070 3777, email: nb@gamesontrack.com, CVR and VAT number: DK 3105 3013

Datasheet: Item 1302701 GT-Xcontrol N+H0 Loco

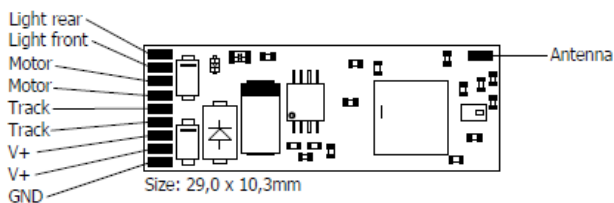
Xcontrol N+H0 Loco is DCC over Radio directly to the train. The 1302701 is a combined module in the train which contains both Radio, Decoder and Position function. It can be installed in any model train, analogue or DCC. It substitutes the decoder in the train. It can be used with or without the Position function.



Date	14-12-2016	
Item	1302701 GT-Xcontrol N+H0 Loco	Dim:29x10,5x 4 mm
Application	Controls a model train with DCC-signals over radio. Receives power from track. Connects directly to the engine. Provides direction control, directional lights, + 2 AUX functions, normally for light, max 300 mA together.	
Power	12-20 V DC or DCC from tracks	
Performance	Provides totally 1200 mA, cuts power with any short circuit on any AUX or driver, No polarity on power supply, Engine control through CV's – see below. CV's to be specified from GT-Command directly over radio, Initial DCC-address is 3, to be changed by customer via GT-Command. ID is unique Radio address. Shows up in GT-Command automatically when power is on. Red Diode blinks slowly when seeking the master, blinks faster when operating. SUSI connectors for eventual sound use.	
Connections	Wire Color diagram, see above Connectors like 6-pole, 8-pole, 21-pole MTC can be provided. Top-side:	

GOT X-Control-Decoder

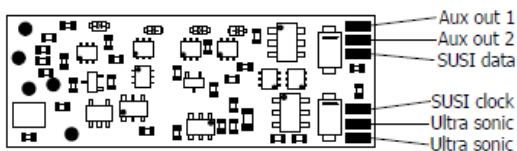
Wiring, top side.
2016-02-03 Rev. B



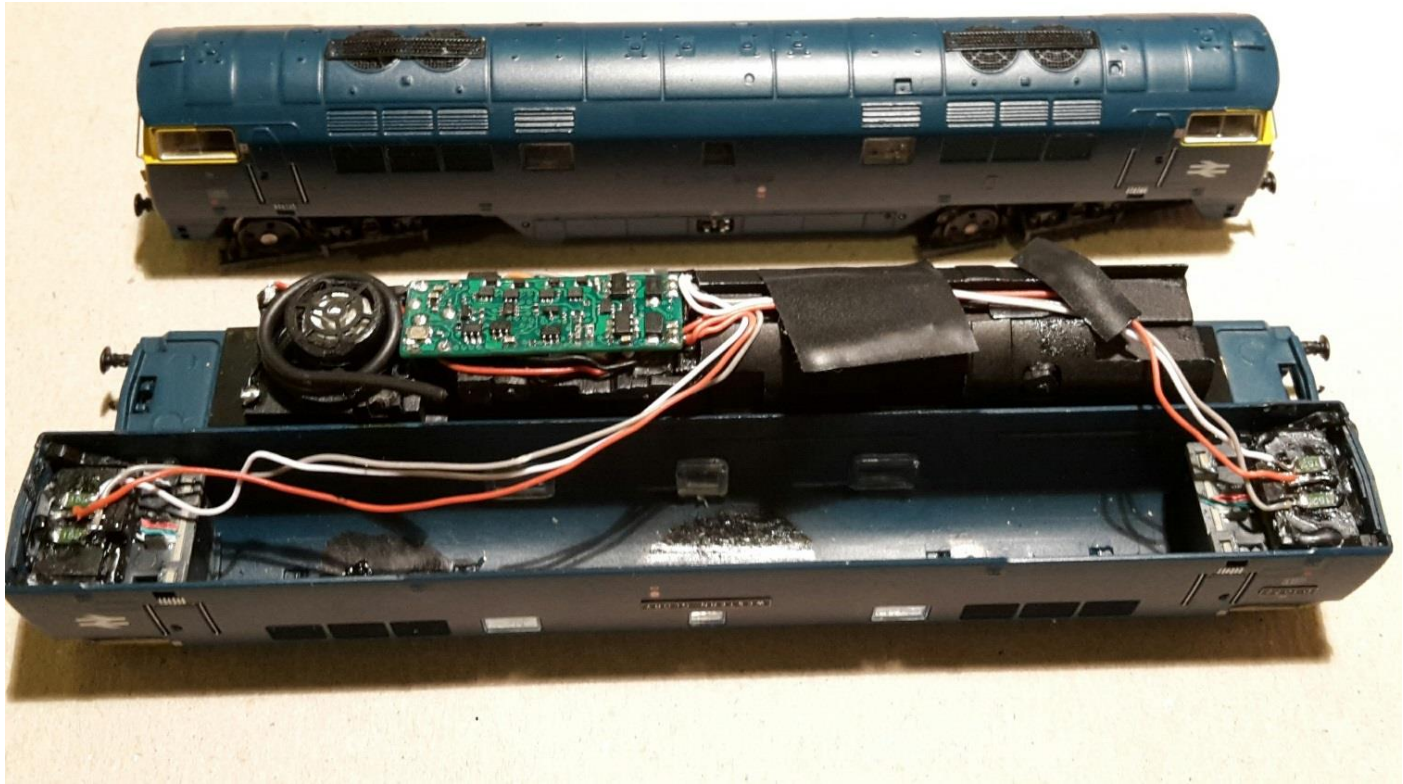
Bottom side:

GOT X-Control-Decoder

Wiring, bottom side.

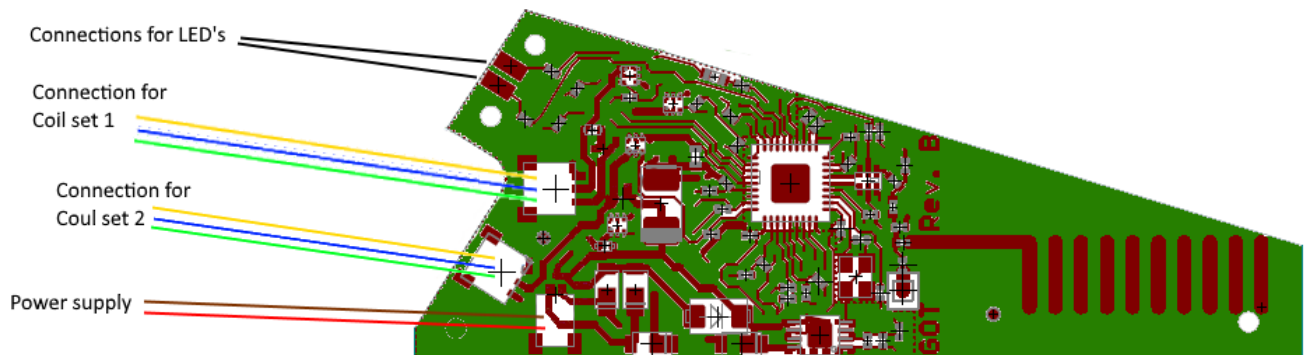


Temperature	Operating temperature about 40 degree C																																																									
Firmware	From V 1.1																																																									
Radio	SRD CE EN 300 220-1 868-870 MHz																																																									
Note 1	Cannot take any DCC from track																																																									
Note 2	Form fitted for N-trains. Antenna wire (light green) should be placed straight under the cover in the roof.																																																									
Note 3	LED's might be too bright, each LED might need a 300 ohm extra resistor if not on main board.																																																									
Note 4	<p>CV-specifications, follows NMRA norm:</p> <table border="1"> <thead> <tr> <th></th> <th>Limits</th> <th></th> <th>Default values</th> </tr> </thead> <tbody> <tr> <td>CV 1: DCC addr</td> <td></td> <td>(+ CV17 + CV18 + CV29 long addresses)</td> <td>3</td> </tr> <tr> <td>CV 2: Speed min.</td> <td>1..63</td> <td>The motor barely operates at speed step 1</td> <td>1</td> </tr> <tr> <td>CV 3: Acceleration delay</td> <td></td> <td>No Delay, not active</td> <td>0</td> </tr> <tr> <td>CV 4: Breaking delay</td> <td></td> <td>No Delay, not active</td> <td>0</td> </tr> <tr> <td>CV 5: Speed max.</td> <td>1..63</td> <td>If 63 the motors runs max speed at 127 steps</td> <td>63</td> </tr> <tr> <td>CV 6: Speed middle</td> <td>1..63</td> <td>Default= 0, means not active</td> <td>0</td> </tr> <tr> <td>CV 8: Set default setting</td> <td></td> <td>Set to 8 in order to reset all CVs</td> <td>1</td> </tr> <tr> <td>CV 49: Config</td> <td></td> <td>1=EMF control is active</td> <td>1</td> </tr> <tr> <td>CV 52: EMF max</td> <td>10..255</td> <td>Default= 200</td> <td>200</td> </tr> <tr> <td>CV 53: Motor reg. loop interval</td> <td>1..10</td> <td>x10ms, default 20 ms</td> <td>2</td> </tr> <tr> <td>CV 54: Motor reg. P-constant</td> <td>0..63</td> <td>Default= 15, good for N</td> <td>15</td> </tr> <tr> <td>CV 55: Motor reg. I-constant</td> <td>0..63</td> <td>Default=15, good for N</td> <td>15</td> </tr> <tr> <td>CV 57: Motor reg. D-constant</td> <td>0..63</td> <td>Default=15, good for N</td> <td>15</td> </tr> </tbody> </table>		Limits		Default values	CV 1: DCC addr		(+ CV17 + CV18 + CV29 long addresses)	3	CV 2: Speed min.	1..63	The motor barely operates at speed step 1	1	CV 3: Acceleration delay		No Delay, not active	0	CV 4: Breaking delay		No Delay, not active	0	CV 5: Speed max.	1..63	If 63 the motors runs max speed at 127 steps	63	CV 6: Speed middle	1..63	Default= 0, means not active	0	CV 8: Set default setting		Set to 8 in order to reset all CVs	1	CV 49: Config		1=EMF control is active	1	CV 52: EMF max	10..255	Default= 200	200	CV 53: Motor reg. loop interval	1..10	x10ms, default 20 ms	2	CV 54: Motor reg. P-constant	0..63	Default= 15, good for N	15	CV 55: Motor reg. I-constant	0..63	Default=15, good for N	15	CV 57: Motor reg. D-constant	0..63	Default=15, good for N	15	
	Limits		Default values																																																							
CV 1: DCC addr		(+ CV17 + CV18 + CV29 long addresses)	3																																																							
CV 2: Speed min.	1..63	The motor barely operates at speed step 1	1																																																							
CV 3: Acceleration delay		No Delay, not active	0																																																							
CV 4: Breaking delay		No Delay, not active	0																																																							
CV 5: Speed max.	1..63	If 63 the motors runs max speed at 127 steps	63																																																							
CV 6: Speed middle	1..63	Default= 0, means not active	0																																																							
CV 8: Set default setting		Set to 8 in order to reset all CVs	1																																																							
CV 49: Config		1=EMF control is active	1																																																							
CV 52: EMF max	10..255	Default= 200	200																																																							
CV 53: Motor reg. loop interval	1..10	x10ms, default 20 ms	2																																																							
CV 54: Motor reg. P-constant	0..63	Default= 15, good for N	15																																																							
CV 55: Motor reg. I-constant	0..63	Default=15, good for N	15																																																							
CV 57: Motor reg. D-constant	0..63	Default=15, good for N	15																																																							
Note 5																																																										



Datasheet: Item 1302702 GT-Xcontrol Coil

GT-Xcontrol Coil is radio control of track turnouts and LED's. The module control 2 turnouts and 2 set of LED's. It fits underneath a Märklin H0 track turnout, but can be used to control any coil operated track turnout using single or double coil action.



Date	14-11-2016	
Item	1302702 GT-Xcontrol Coil	Dim:69x29x6 mm
Application	Control 2 coils operated track turnouts and 2 set of LED's. Any Modeltrain turnouts rf crossings etc. Set-up done inside GT-Command in Turnout menu.	
Power	14-18 V DC or DCC from tracks	
Performance	Switches 2 coils operating 2 independent turnouts and 2 set of LED's independently.	
Connection	Power is wired to track, no polarity. 2 set of connectors to Märklin 74490/74491 coil sets. 1 set of power connector to track	
Temperature	Operating temperature about 30 degree C	
Firmware	From V 1.0	
Radio	SRD CE EN 300 220-1 868-870 MHz	
Note 1	Use radio to control the switching from GT-Command.	
Note 2	Form fitted for Märklin and Trix C-track profile, however is applicable for any model environment. Tested for Märklin, Trix, Fleissmann (H0, N), Faller. Can be used for normal dual coil sets with 3 wires.	
Note 3	LED connections is to be soldered by the user.	
Note 4	Antenna is printed on the circuit board, diode blinks red when connected to GT-Xconnect.	
Note 5	Servos for turnouts are controlled using Item 1302762	

