



# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for ROLAND TD-12. You'll find the answers to all your questions on the ROLAND TD-12 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

## User manual ROLAND TD-12 User guide ROLAND TD-12 Operating instructions ROLAND TD-12 Instructions for use ROLAND TD-12 Instruction manual ROLAND TD-12

### TD-12 MIDI Implementation

Model: TD-12  
Date: Dec 17, 2008  
Version: 1.01

#### 1. Receive data

##### Channel Voice Messages

\* Following Channel Voice Messages can be received in [RETRY][MIDI][MIDI CH]/[R/Ch Channel].

\* Not received when [RETRY][MIDI][MIDI CH]/[R/Ch Switch] is set to "OFF".

##### Note Off

Status	Oct 4 hex	Oct 5 hex
0x41	0x11	0x7F
0x42	0x12	0x7F

n = MIDI channel number: 0x11 - FH (ch. 1 - ch. 16)  
 0x = note number: 0x11 - 7FH (0 - 127)  
 0x7F = note off velocity

\* Only the channels assigned to the backing part can be received.  
 \* The velocity value of Note Off message are ignored.  
 \* When recording, this is recorded in the sequencer data itself.

##### Note On

Status	Oct 4 hex	Oct 5 hex
0x81	0x11	0x7F
0x82	0x12	0x7F

n = MIDI channel number: 0x11 - FH (ch. 1 - ch. 16)  
 0x = note number: 0x11 - 7FH (0 - 127)  
 0x7F = note on velocity

\* A channel which is assigned to the drum part will receive only the note numbers which are specified by the drum kit. For more on note numbers, refer to "Preset Performance Set List" (p. 92) in the Owner's Manual.  
 \* When the [RETRY][MIDI][MIDI CH] Switch is set to "ON", the note number set by means of [ENST][CONTROL][R/MIDI] Break Note No. is received on the channel assigned to the drum part (when an instrument compatible with touch performance is selected for the drum part).  
 \* The note number set by means of [ENST][CONTROL][R/MIDI] Stick Note No. is received on the channel assigned to the drum part (when an instrument compatible with cross-sticking is selected for the drum part).  
 \* When recording, this is recorded in the sequencer data itself.

##### Polyphonic Key Pressure

Status	Oct 4 hex	Oct 5 hex
0xA1	0x11	0x7F
0xA2	0x12	0x7F

n = MIDI channel number: 0x11 - FH (ch. 1 - ch. 16)  
 0x = note number: 0x11 - 7FH (0 - 127)  
 0x7F = velocity

\* A channel which is assigned to the drum part will receive only the note numbers which are specified by the drum kit. For more on note numbers, refer to "Preset Performance Set List" (p. 92) in the Owner's Manual.  
 \* If the value is greater than 0x7F, the decay of the note recorded by the rest of note number will be shortened. (Local checking)  
 \* When recording, this is recorded in the sequencer data itself.

##### Control Change

###### Bank Select (Controller number 0, 32)

Status	Oct 4 hex	Oct 5 hex
0xB1	0x00	0x01
0xB1	0x01	0x01

n = MIDI channel number: 0x11 - FH (ch. 1 - ch. 16)  
 0x = Bank number MSB: 0x11 - 7FH (bank 1 - bank 128)  
 0x = Bank number LSB: processed as 0x11

\* Only the channels assigned to the backing part can be received. Refer to "Backing Performance List" (p. 94) in the Owner's Manual.  
 \* Bank select processing will be suspended until a program change message is received.  
 \* Not recorded in the sequencer.

###### Modulation (Controller number 1)

Status	Oct 4 hex	Oct 5 hex
0xB1	0x01	0x7F
0xB1	0x01	0x00

n = MIDI channel number: 0x11 - FH (ch. 1 - ch. 16)  
 0x = Control value: 0x11 - 7FH (0 - 127)  
 0x7F: pedal position: open to closed  
 0x00: pedal position: center to pre-release  
 0x00: Rim strike position: drop to full/roll

\* Received only on channels not assigned to a percussion part.  
 \* In the channel assigned to the drum part, setting [RETRY][MIDI][CTRL] Pedal CC to MODULATEDV changes the hi-hat control pedal position.  
 \* In the channel assigned to the drum part, the strike position of the pad corresponding to the note number received changes immediately after [RETRY][MIDI][CTRL] Snare CC (for the SNARE pad head) and rim. Ride CC (for the RIDE pad head) or Tom CC (for the TOM 1,3 and AUX 1,2 pad rims) is set to MODULATEDV.  
 \* During recording, the sequencer data is recorded to the TD-12 in accordance with the above settings as "Pedal CC message," "Snare CC message," "Ride CC message," and "Tom CC message."  
 \* The modulation effect is applied to the channel assigned to the backing part. It is not recorded to the sequencer during recording.

###### Breath Controller (Controller number 2)

Status	Oct 4 hex	Oct 5 hex
0xB1	0x02	0x7F
0xB1	0x02	0x00

n = MIDI channel number: 0x11 - FH (ch. 1 - ch. 16)  
 0x = Control value: 0x11 - 7FH (0 - 127)  
 0x7F: pedal position: open to closed  
 0x00: pedal position: center to pre-release  
 0x00: Rim strike position: drop to full/roll

\* Only the channel assigned to the drum part can be received.  
 \* Setting [RETRY][MIDI][CTRL] Pedal CC to BREATH changes the hi-hat control pedal position.  
 \* The strike position of the pad corresponding to the note number received changes immediately after [RETRY][MIDI][CTRL] Snare CC (for the SNARE pad head) and rim. Ride CC (for the RIDE pad head) or Tom CC (for the TOM 1,3 and AUX 1,2 pad rims) is set to BREATH.  
 \* During recording, the sequencer data is recorded to the TD-12 in accordance with the above settings as "Pedal CC message," "Snare CC message," "Ride CC message," and "Tom CC message."



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**Manual abstract:**

@@@Refer to "Backing Instrument List" (p. 94) in the Owner's Manual. @Not recorded in the sequencer. Modulation (Controller number 1) n = MIDI channel number: kk = note number: vv = note off velocity: \*\*\* Status BnH 2nd byte 01H 3rd byte vH 0H - FH (ch.1 - ch.16) 00H - 7FH (0 - 127) Pedal position: open to closed Head strike position: center to perimeter Rim strike position: deep to shallow Only the channels assigned to the backing part can be received. The Velocity Values of Note Off message are ignored. When recording, this is recorded in the sequencer data itself. n = MIDI channel number: vv = Control value: Note On Status 9nH 2nd byte kkH 3rd byte vH 0H - FH (ch.1 - ch.

16) 00H - 7FH (0 - 127) 01H - 7FH (1 - 127) \*\*\* n = MIDI channel number: kk = note number: vv = note on velocity: \*\*\* A channel which is assigned to the drum part will receive only the note numbers which are specified by the drum kit. For more on note numbers, refer to "Preset Percussion Set List" (p. 92) in the Owner's Manual. When the [KIT]-[FUNC]-[BRUSH] Brush Switch is set to "ON", the note number set by means of [INST]-[CONTROL]-[BR MIDI] Brush Note No. @@@@@@In the channel assigned to the drum part, setting [SETUP]-[MIDI]-[CTRL] Pedal CC to MODULATION changes the hi-hat control pedal position.

In the channel assigned to the drum part, the strike position of the pad corresponding to the note number received changes immediately after [SETUP][MIDI]-[CTRL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms CC (for the TOM 1-3 and AUX 1-2 pad rims) is set to MODULATION. During recording, the sequencer data is recorded to the TD-12 in accordance with the above settings as "Pedal CC messages," "Snare CC messages," "Ride CC messages," and "Toms CC messages." The modulation effect is applied in the channel assigned to the backing part. It is not recorded to the sequencer during recording. Breath Controller (Controller number 2) Status BnH 2nd byte 02H 3rd byte vH 0H - FH (ch. 1 - 16) 00H - 7FH (0 - 127) Pedal position: open to closed Head strike position: center to perimeter Rim strike position: deep to shallow n = MIDI channel number: vv = Control value: Polyphonic Key Pressure Status AnH 2nd byte kkH 3rd byte vH 0H - FH (ch.1 - ch.16) 00H - 7FH (0 - 127) 00H - 7FH (0 - 127) \*\*\* A channel which is assigned to the drum part will receive only the note numbers which are specified by the drum kit. For more on note numbers, refer to "Preset Percussion Set List" (p. 92) in the Owner's Manual. If the value is greater than 40H (64), the decay of the note sounded by the received note number will be shortened. (Used in choking) When recording, this is recorded in the sequencer data itself. n = MIDI channel number: kk = note number: vv = Value: \*\*\* Only the channel assigned to the drum part can be received. Setting [SETUP]-[MIDI]-[CTRL] Pedal CC to BREATH changes the hi-hat control pedal position. The strike position of the pad corresponding to the note number received changes immediately after [SETUP]-[MIDI]-[CTRL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms CC (for the TOM 1-3 and AUX 1-2 pad rims) is set to BREATH.

During recording, the sequencer data is recorded to the TD-12 in accordance with the above settings as "Pedal CC messages," "Snare CC messages," "Ride CC messages," and "Toms CC messages." Copyright © 2005 ROLAND CORPORATION All rights reserved. No part of this publication may be reproduced in any form without the written permission of ROLAND CORPORATION. 1 TD-12 MIDI Implementation Foot Controller (Controller number 4) Status BnH 2nd byte 04H 3rd byte vH 0H - FH (ch.1 - ch.16) 00H - 7FH (0 - 127) Pedal position: open to closed Head strike position: center to perimeter Rim strike position: deep to shallow Expression (Controller number 11) Status BnH 2nd byte 0BH 3rd byte vH 0H - FH (ch.1 - 16) 00H - 7FH (0 - 127) Pedal position: open to closed Head strike position: center to perimeter Rim strike position: deep to shallow n = MIDI channel number: vv = Control value: n = MIDI channel number: vv = Control value: \*\*\* Only the channel assigned to the drum part can be received. Setting [SETUP]-[MIDI]-[CTRL] Pedal CC to FOOT changes the hi-hat control pedal position. The strike position of the pad corresponding to the note number received changes immediately after [SETUP]-[MIDI]-[CTRL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms CC (for the TOM 1-3 and AUX 1-2 pad rims) is set to FOOT. During recording, the sequencer data is recorded to the TD-12 in accordance with the above settings as "Pedal CC messages," "Snare CC messages," "Ride CC messages," and "Toms CC messages."

\*\*\* Only the channel assigned to the drum part can be received. Setting [SETUP]-[MIDI]-[CTRL] Pedal CC to EXPRESSION changes the hi-hat control pedal position. The strike position of the pad corresponding to the note number received changes immediately after [SETUP]-[MIDI]-[CTRL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms CC (for the TOM 1-3 and AUX 1-2 pad rims) is set to EXPRESSION. During recording, the sequencer data is recorded to the TD-12 in accordance with the above settings as "Pedal CC messages," "Snare CC messages," "Ride CC messages," and "Toms CC messages." Data Entry (Controller number 6, 38) Status BnH BnH 2nd byte 06H 26H 3rd byte mmH llH General Purpose Controller 1 (Controller number 16) Status BnH 2nd byte 10H 3rd byte vH 0H - FH (ch. 1 - ch.16) 00H - 7FH (0 - 127) Pedal position: open to closed Head strike position: center to perimeter Rim strike position: deep to shallow n = MIDI channel number: 0H - FH (ch.1 - ch.16) mm, ll = the value of the parameter specified by RPN mm = MSB, ll = LSB \*\*\* Only the channels assigned to the backing part can be received. Refer to the RPN item.

Not recorded in the sequencer. n = MIDI channel number: vv = Control value: \*\*\* Volume (Controller number 7) Status BnH 2nd byte 07H 3rd byte vH \* n = MIDI channel number: vv = Volume: \*\* 0H - FH (ch.1 - ch.16) 00H - 7FH (0 - 127) Only the channel assigned to the drum part can be received. Setting [SETUP]-[MIDI]-[CTRL] Pedal CC to GENERAL1 changes the hi-hat control pedal position. The strike position of the pad corresponding to the note number received changes immediately after [SETUP]-[MIDI]-[CTRL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms CC (for the TOM 1-3 and AUX 1-2 pad rims) is set to GENERAL1. During recording, the sequencer data is recorded to the TD-12 in accordance with the above settings as "Pedal CC messages," "Snare CC messages," "Ride CC messages," and "Toms CC messages."



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(00H - 0FH (ch.1 - ch.16)) Initial value is 0FH (ch.16) Color Control Rx MIDI Ch. (OFF) Note Message Enabled (ON) Checksum EOX (End of Exclusive)  
\*1: Except Device ID and LCD Contrast \*2: User Patterns U151 - U250 Setting [SETUP]-[V-LINK] V-LINK Switch to ON puts the unit in V-LINK mode. The [SETUP]-[V-LINK] V-LINK Device ID setting is used as the Device ID. The [SETUP]-[V-LINK] V-LINK MIDI Ch setting is used as the Clip Control Rx MIDI Ch.

Only the Clip Control Rx MIDI Ch address (10H 00H 01H) and data are transmitted when the [SETUP]-[V-LINK] V-LINK MIDI Ch setting is made in VLINK mode. V-LINK OFF Transmitted when exiting V-LINK mode. Status FOH Data byte 41H, dev, 00H, 51H, 12H, 10H, 00H, 00H, 00H, 70H Status F7H Byte FOH 41H dev 00H 51H 12H 10H 00H 00H 00H 70H F7H \*\* Explanation Exclusive status ID number (Roland) Device ID (00H - 1FH, 7FH (1 - 32, 128)) Initial value is 10H (17) Model ID #1 (V-LINK) Model ID #2 (V-LINK) Command ID (DT1) Address V-LINK OFF Checksum EOX (End of Exclusive) Setting [SETUP]-[V-LINK] V-LINK Switch to OFF causes the unit to exit VLINK mode. The [SETUP]-[V-LINK] V-LINK Device ID setting is used as the Device ID. 10 TD-12 MIDI Implementation 4. Supplementary material Decimal and Hexadecimal table In MIDI documentation, data values and addresses/sizes of exclusive messages etc. are expressed as hexadecimal values for each 7 bits. The following table shows how these correspond to decimal numbers. \* Hexadecimal numbers are indicated by 'H'. Examples of actual MIDI message <Example 1> 92 3E 5F 9n is the Note-on status, and n is the MIDI channel number.

Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95. <Example 2> C9 20 CnH is the Program Change status, and n is the MIDI channel number. @@@@ 7-bit byte can express data in the range of 128 steps. @@@@ In the case of two types, 00 00H = -8192, 40 00H = +0, and 7F 7FH = +8191. For example if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128 + bb - 64 x 128.

<Example 3> E1 00 28 EnH is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H=0) is the LSB and the 3rd byte (28H=40) is the MSB, but Pitch Bend Value is a signed number in which 40 00H (= 64 x 128 + 0 = 8192) is 0, so this Pitch Bend Value is 28 00H - 40 00H = 40 x 128 + 0 - (64 x 128 + 0) = 5120 - 8192 = -3072 If the Pitch Bend Sensitivity is set to 2 semitones, -8192 (00 00H) will cause the pitch to change -200 cents, so in this case -200 x (-3072) / (-8192) = -75 cents of Pitch Bend is being applied to MIDI channel 2. <Example 4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the control number, and the 3rd byte is the value. @@ Thus, the above messages have the following meaning.

@@@@ This is the reason for the (B3) 64 7F (B3) 65 7F at the end. It is not desirable for performance data (such as Standard MIDI File data) to contain many events with running status as given in. This is because if playback is halted during the song and then rewound or fast-forwarded, the sequencer may not be able to transmit the correct status, and the sound generator will then misinterpret the data. Take care to give each event its own status. It is also necessary that the RPN parameter number setting and the value setting be done in the proper order. On some sequencers, events occurring in the same (or consecutive) clock may be transmitted in an order different than the order in which they were received. For this reason it is a good idea to slightly skew the time of each event (about 1 tick for TPQN=96, and about 5 ticks for TPQN=480). \* TPQN : Ticks Per Quarter Note <Example 1> What is the decimal expression of 5AH ? From the preceding table, 5AH = 90 <Example 2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits? From the preceding table, since 12H = 18 and 34H = 52 18 x 128 + 52 = 2356 11 TD-12 MIDI Implementation <Example 5> 99 2C 7F B9 04 7F 04 40 9n is the Note-on status, and n is the MIDI channel number. BnH is the Control Change status, and n is the MIDI channel number. Thus, the above messages have the following meaning.

99 B9 (B9) 2C 7F 04 7F 04 40 MIDI ch.10, NOte On message (MIDI ch.10) foot controller: (MIDI ch.10) foot controller: 7FH 40H In other words, with these messages a Note On message with a note number of 44 (G#2) and velocity of 127 is transmitted on MIDI Channel 10, and then the foot controller value is set from 127 to 64. According to the setting made at the factory, the drum part is assigned to MIDI Channel 10, Note Number 44 is assigned to the pedal hi-hat, and the foot controller is set to Pedal CC; in this case, the TD-12 plays a foot splash when the message is received. Calculation of the Checksum of Exclusive Messages Roland Exclusive messages (DT1) are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data of the transmitted exclusive message. How to calculate the checksum (hexadecimal numbers are indicated by 'H') The checksum is a value derived by adding the address, data and checksum itself and inverting the lower 7 bits. Here's an example of how the checksum is calculated. We will assume that in the exclusive message we are transmitting, the address is aa bb cc ddH and the data is ee ff gg hhH.  
 $aa + bb + cc + dd + ee + ff + gg + hh = \text{sum}$   
 $\text{sum} \div 128 = \text{quotient} \dots \text{remainder}$   
 $128 - \text{remainder} = \text{checksum}$  (However, the checksum will be 0 if the remainder is 0.) 12 PERCUSSION SOUND MODULE (SOUND GENERATOR SECTION) Model TD-12 Function.

.. Date : Dec. 17, 2004 Version : 1.00 Remarks Memorized MIDI Implementation Chart Transmitted 116, OFF 116, OFF Mode 3 X \*\*\*\*\* Recognized 116, OFF 116, OFF Mode 3 X \*\*\*\*\* Basic Channel Default Changed Default Messages Altered Mode Note Number : True Voice Velocity After Touch Pitch Bend 0, 32 1 2 4 6, 38 7 10 11 1619 64 91 100, 101 Note On Note Off Key's Channel's 0127 \*\*\*\*\* 0127 0127 O O O X O O O O O O O O O O O O 9nH, v = 1127 O 8nH, v = 64 O X X O O O X X X O O X X X \*3 \*4 \*3 \*4 \*4 \*1 \*2 \*3 \*1 \*2 \*3 \*1 \*2 \*3 \*4 \*4 \*1 \*2 \*3 \*1 \*2 \*3 \*4 \*4 Bank Select Modulation Breath Controller Foot Controller Data Entry Volume Panpot Expression General Purpose Controller 14 Hold 1 Effects 1 (Reverb Send Level) RPN LSB, MSB (Pad, Pedal) \*1 \*2 \*3 (Pad, Pedal) \*1 \*2 \*3 (Pad, Pedal) \*1 \*2 \*3 Control Change (Pad, Pedal) \*1 \*2 \*3 (Pad, Pedal) \*1 \*2 \*3 Program Change O 0127 : True Number \*\*\*\*\* \*5 O 0127 0127 O X X X O X \*5 Program No. 1128 System Exclusive : Song Position System : Song Select Common : Tune Request : Clock System Real Time : Commands O X X X X X X : All Sound Off : Reset All Controllers X Aux X : Local On/Off Messages : All Notes Off X O : Active Sensing X : System Reset Notes O (120, 126, 127) O X O (123127) O X \*4 Backing part only.



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\*5 O X is selectable. \*1 One is selected as the strike position. \*2 One is selected as the hi-hat control pedal. \*3 Drum part only. Mode 2 : OMNI ON, MONO Mode 4 : OMNI OFF, MONO Mode 1 : OMNI ON, POLY Mode 3 : OMNI OFF, POLY O : Yes X : No 13 PERCUSSION SOUND MODULE (SEQUENCER SECTION) Model TD-12 Function... Date : Dec. 17, 2004 Version : 1.

00 Remarks Memorized MIDI Implementation Chart Transmitted 116, OFF 116, OFF Mode 3 X \*\*\*\*\* Recognized 116, OFF 116, OFF Mode 3 X \*\*\*\*\* Basic Channel Default Changed Default Messages Altered Mode Note Number : True Voice Velocity After Touch Pitch Bend 0, 32 1 2 4 6, 38 7 10 11 1619 64 91 100, 101 Note On Note Off Key's Channel's 0127 \*\*\*\*\* 0127 0127 O O O X O X O O O X X X O O O X X \*3 O 9nH, v = 1-127 O 8nH, v = 64 O X O O O O O O O O O O O O O \*3 \*4 \*6 \*7 \*1 \*2 \*3 \*1 \*2 \*3 \*1 \*2 \*3 \*4 \*6 \*7 \*6 \*7 \*10 \*4 \*6 \*7 \*1 \*2 \*3 \*1 \*2 \*3 \*4 \*4 \*6 \*7 \*4 \*6 \*7 \*4 Bank Select Modulation Breath Controller Foot Controller Data Entry Volume Panpot Expression General Purpose Controller 14 Hold 1 Effects 1 (Reverb Send Level) RPN LSB, MSB \*1 \*2 \*3 \*1 \*2 \*3 \*1 \*2 \*3 Control Change \*1 \*2 \*3 \*1 \*2 \*3 \*4 Program Change O 0127 : True Number \*\*\*\*\* \*5 \*6 \*7 X Program No. 1128 Only reception/transmission of Bulk Data. System Exclusive : Song Position System : Song Select Common : Tune Request : Clock System Real Time : Commands O X X X O O O X X X O O O O X O (123127) X X \*8 \*9 X : All Sound Off : Reset All Controllers X Aux X : Local On/Off Messages : All Notes Off X X : Active Sensing X : System Reset Notes \*1 \*2 \*3 \*4 \*5 \*6 One is selected as the strike position. One is selected as the hi-hat control pedal. Drum part only. Backing part only. O X is selectable. Transmits when pattern is selected. \*7 Transmits when modified. \*8 Receives when Sync Mode setting is "EXTERNAL" or "AUTO". \*9 Receives when Sync Mode setting is "EXTERNAL," "AUTO," or "REMOTE." \*10 Except drum part. Mode 1 : OMNI ON, POLY Mode 3 : OMNI OFF, POLY Mode 2 : OMNI ON, MONO Mode 4 : OMNI OFF, MONO O : Yes X : No 14 1PS.



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