

YAMAHA

TX816

TX216

FM TONE GENERATOR SYSTEM



A Digital Giant Eight Times the Power of a DX7



The TX816—One small black box containing the potential power of an entire orchestra. The TX816—The hearts of eight Yamaha DX7 synthesizers united into one enormously versatile digital music device. The TX816—A wall of sound condensed into less than a cubic foot, capable of storing 256 rich, expressive FM voices, each one featuring 145 voice parameters and 25 function parameters—all accessible for editing. The TX816—A giant in the world of digital music.

FM Digital Synthesis—Yamaha's unique sound generation technology—has totally revolutionized the world of digitally produced music, with its inimitable capacity for creating amazingly lifelike acoustic sounds, as well as "conventional" synthesizer tones. Many keyboard artists have found that the Yamaha DX7 Programmable Algorithm Synthesizer, featuring FM Digital Synthesis, is all they need—a single unit able to create all the sounds that previously required a large, unwieldy stack of keyboards. The new Yamaha TX816 FM Tone Generator System can only be described as a giant among digital music devices, for within the confines of this compact, deceptively simple unit lies the potential power of eight Yamaha DX7 synthesizers. Eight DX7-type TF1 tone modules, renowned for their expressivity, their warmth, their versatility, and their natural, dynamic sound quality. All of which can be controlled by a single DX7 or any MIDI compatible instrument. Each of the eight TF1 modules can store a set of 32 different FM voices, all of which may be re-programmed by modifying any or all of the parameters affecting each voice. The individual sounds are all 16-voice polyphonic, and the eight modules may be controlled independently, or simultaneously by a single MIDI signal. What's more, each module is actually more sophisticated than a DX7, because it can memorize a different set of "function data" for each voice—25 functions that include individual voice level and pitch bend/portamento/glissando effects. Whatever style of music you play, the TX816 gives you the power to create exactly what you hear in your head; it challenges you to test the limits of your imagination against its almost infinite resources; it enables you, at last, to have total control and immediate realization of your most ambitious musical ideas. The TX816—a digital giant.

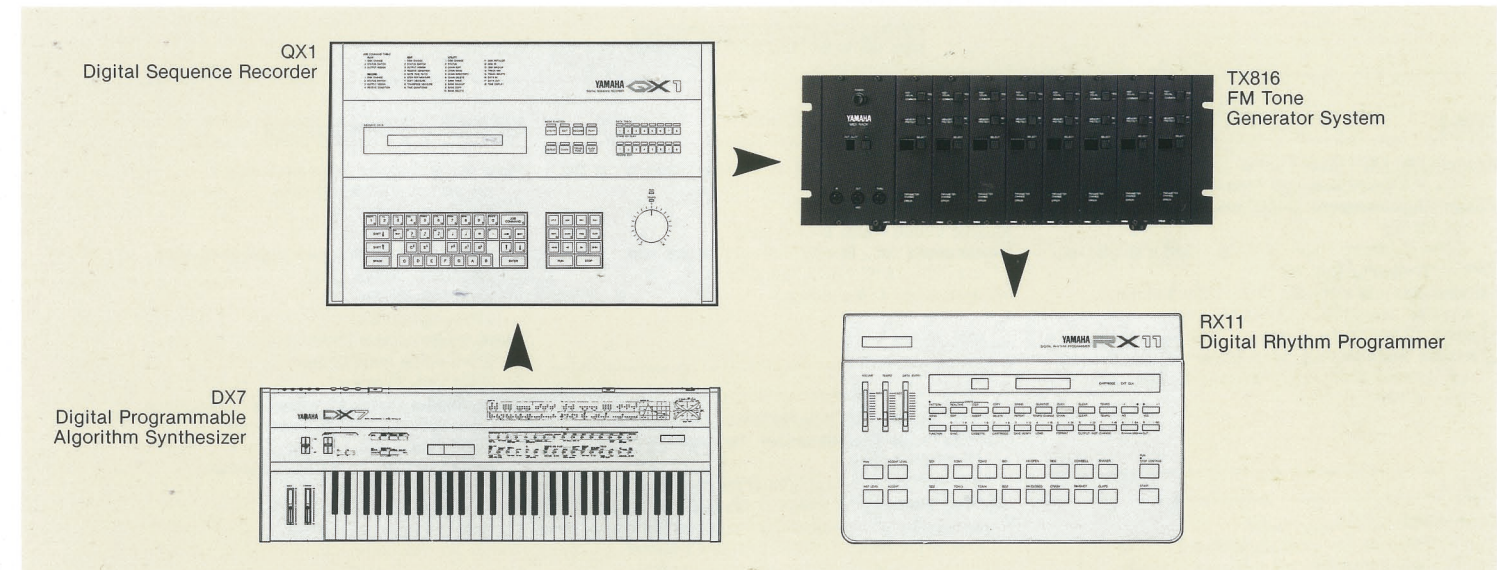
A COLOSSAL PERFORMER



In an age where it is becoming increasingly common for sophisticated recording studio technology to be utilized in live performances, the TX816, with its amazingly simple MIDI control configuration, is an awesome instrument for the performing

musician. It gives you the power and dimension of eight DX7's, in one compact unit occupying less than a cubic foot, packed with highly reliable state-of-the-art micro circuitry that only a few years ago would have taken up a large part of a studio. As well as the DX7, and the larger DX1 synthesizer, Yamaha's exciting KX1 and KX5 shoulder-strap remote keyboards may be used to control the TX816, for keyboard players who like to get "out front" with the guitarists. Simply connecting one MIDI cable between the remote keyboard and the TX816 FM Tone Generator System instantly creates an incredibly powerful musical setup, with full control of voices and effects controllers at your fingertips. You could also "share" the TX816's modules between two or more MIDI keyboards, so that each keyboard could control a different selection of FM tone modules. The FM voice generated by each of the eight TF1 modules in the TX816 may be assigned to any part of your MIDI keyboard—a multiple keyboard-splitting function that allows you to create an orchestra of digital sound from one light, portable keyboard.

SYSTEM EXAMPLE



The following example illustrates how the TX816 can function as the voice generator of an enormously potent digital music system, including the DX7 synthesizer, the RX11 Rhythm Programmer, and the extraordinary QX1 Digital Sequence Recorder. The DX7 sends musical data to the QX1, where up to 80,000 notes (an average album's worth) of musical data can be stored on eight tracks, with unlimited overdubbing. The QX1 then plays back this data to the TX816, driving the eight modules whose audio outputs are fed into a mixer. The MIDI THRU connector on module 8 of the TX816 is connected to the RX11 Rhythm

Programmer, which can then be driven by the MIDI clock signal transmitted from MIDI OUT 8 of the QX1. In this way a digital musical composition can be created on eight tracks and edited to any degree. Voices may be altered in the TX816 by the DX7, which is also capable of controlling the TX816 as a live performance instrument. This system clearly demonstrates the ease with which MIDI is used to set up and control an extremely creative composing/performing system, using the superbly realistic voices programmed into the TX816.

YOU CAN BUILD UP TO A TX816



For those who feel that the TX816 is perhaps out of their reach, Yamaha offers the TX216, an FM Tone Generator System with exactly the same features as the TX816, but featuring two TF1 tone modules, built into the same 19" rack-mountable MIDI frame. You may then, at any time, add single modules to build up the capability of your Tone Generator System. This is a simple procedure, requiring the removal and replacement of only four screws—a minute's work resulting in an immediate and significant expansion of your digital music possibilities.



FINGERTIP CONTROL

The vast resources of the TX816 are controlled by an astonishingly simple layout of innovative push-button controls. Instead of a front panel filled with a complicated array of switches, faders and knobs, the TX816 features a highly economical switching system. All four principal operating modes, and their fourteen sub-modes, are accessed by a single multi-purpose Select button on the front of each TF1 module. This is done by holding down the button until the LED Display shows the desired mode, then releasing it and pressing it briefly the appropriate number of times to call the sub-mode. Data is then entered using the other two buttons on each module. These act as multi-purpose keys that raise or lower numerical data, and they can also function as YES/ON and NO/OFF switches respectively. Three simple keys to activate nearly a score of powerful creative functions—another example of Yamaha's aim to make state-of-the-art computer technology available to all.

EDIT

All of the 256 voices that can be stored in the TX816 FM Tone Generator System may be edited to any degree, when a DX7 or DX1 synthesizer is connected to its MIDI IN and MIDI OUT terminals. You can even load in a voice from a DX7 and edit it, then store it in the TX816's internal memory. In the Select Program Number For Edit sub-mode, any voice may be selected, and its 145 parameters and 23 functions edited on the DX keyboard. A Parameter Change LED on each module flashes when any editing operation is carried out. The Attenuate Output Level sub-mode provides a means for setting the overall level of any voice. FM generated tones, with their almost limitless range of timbres, may have varying signal levels, and this is a way to match up the levels of different voices—particularly useful if you wish to switch voices during a performance.



PLAY

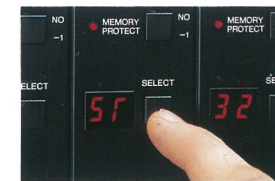
In the Play Mode, which is the basic mode the TX816 enters when first turned on, the Tone Generator System is immediately ready to be controlled by another MIDI compatible instrument. Each module features a set of 32 FM voices, which are controlled by the incoming MIDI signal. The Set Receive Basic Channel sub-mode (indicated by "CH" on the LED Display) permits switching between any of the sixteen MIDI transmission channels. The module may also be switched to "Omni", in which state it will receive MIDI data on all channels. An invaluable Tune Master Pitch sub-mode allows you to detune each module by about ± 75 cents, to create an amazingly rich, natural chorus effect (a cent = $1/100$ of a semitone).



The Limit Lowest Key, Limit Highest Key sub-modes allow you to allocate each voice to any part of your DX7 or MIDI compatible keyboard. With this function it is possible to divide the keyboard up into eight sections, each with a different voice, or combine voices in any combination. For instance, bass guitar at the bottom of the keyboard, piano and organ next, overlapping with a three piece brass section and finishing with flute and vibes at the top. Just one example of the infinite possibilities available to you with the TX816.

STORE

A newly edited FM voice is not permanent until stored into the internal memory of a module, which can store 32 voices. Each TF1 module in the TX816 has a built-in Memory Protect feature, with a battery back-up, so there is no danger of losing your stored voices, even during a power failure. However, when editing new voices you need to turn off this safety device and store your newly created voice. A new FM voice (or, for that matter, an existing voice) can be moved to any of the 32 program destinations in the module, for storage. And when you have selected the destination for your new voice, you can choose between storing the entire program data (voice data plus function data), or only the function data (a useful feature that allows you, for instance, to add the same portamento or pitch bend range to several different voices).



UTILITY

The Utility mode, as the name indicates, allows you to carry out various data-handling jobs apart from creating or editing voices. The Dump All Voices And Functions sub-mode gives you the opportunity to transmit the entire contents of any tone module from the common MIDI OUT terminal. The Utility mode also enables you to use the Audio Check function which generates a standard 440 Hz sine tone at -4 dBm. This is useful for setting monitor levels or adjusting the input sensitivity on your audio mixer. The voice memory of the TX816 has a back-up provided by a replaceable lithium battery, which lasts about five years. It is vital that this battery should not "go dead", and in the Utility mode you can check the voltage level of the battery at any time, for prior warning of a necessary battery change.



Rear Panel



MIDI COMPATIBILITY

MIDI stands for Musical Instrument Digital Interface. It is an internationally accepted standard for signal communications between digital music devices. The Yamaha TX816, and all of the Yamaha digital music instruments mentioned in this catalog have MIDI compatibility, as do more and more of the world's leading digital devices. In simple terms, the MIDI system enables musical information to be transferred from one digital device to another, in a universal language.

Digital systems reduce all information (data) to binary numbers, so that any number, however large, may be expressed by using two digits—0 and 1. If 0 represents OFF, and 1 means ON, it follows that all data can be sent by simply switching on and off a pulse signal. MIDI information may be sent on sixteen different channels down a single cable, so that it is possible to transmit information to sixteen different MIDI devices, each set to a different channel, with a minimum amount of connecting cables.

The TX816 stores digitally-synthesized voices. By itself it cannot perform. It requires musical information in the form of MIDI data. This data may come from a sequence recorder such as the Yamaha QX1, or from a keyboard, like the DX7, on which you are performing in real time. The data can be received in two different ways: (1) via a common MIDI IN connector, enabling a single MIDI signal to control all eight modules, and (2) via individual MIDI inputs on each module, permitting the performance of eight independent parts. Combinations of the two methods are also possible.

Each of the TF1 tone modules has a standard XLR connector for its audio output, and a MIDI THRU connector, so that data may be passed on to control other instruments, or you can connect up individual modules within the TX816 in hundreds of different "daisy-chain" configurations, for different performance situations.

The common MIDI OUT connector enables you to "dump" (transfer) the data of an entire set of 32 voices, either from one module to another, or into the Internal Memory of a DX7 synthesizer. You may then create a new set of 32 voices within a TX816 module without losing your original FM voice set. A DX7, DX1 or DX9 keyboard, when connected to the common MIDI IN terminal, may be used to directly edit any individual voice in the TX816, so that each of the 256 FM voices stored in the eight modules may be tailored exactly to your requirements. This can be considered as providing you with 32 banks of eight independent voices.

The MIDI digital language offers you total control combined with astonishing simplicity, and provides you with the means to fully exploit the enormous power of the TX816.

VOICE ARRANGEMENTS

The TX816 has eight TF1 modules, each of which can store 32 voices. You can think of this as 32 banks of eight voices, with each bank of voices designed to suit a specific composition. So in a live performance, you could simply press a single voice select key on the DX7, to

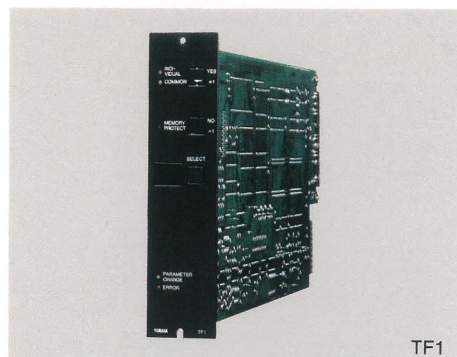
switch all eight modules from voice 1 (for your first song) to voice 2 (for your second song) and so on. The Owner's manual contains a 32×8 voice chart, so that you can keep a clear record of all the voices in your TX816, and update it as you edit or replace voices. This also exactly matches the voice format of the QX1 Digital Sequence Recorder, which features 32 banks (or songs) each of which contains eight tracks of music data.

YME8 MIDI Expander

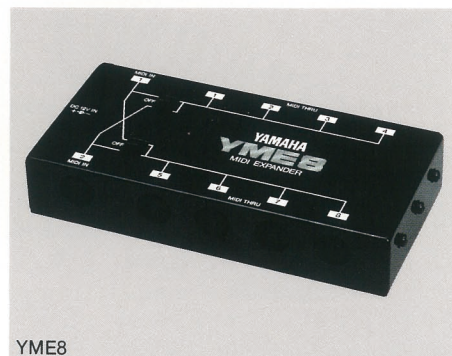
The YME8 MIDI Expander has two MIDI IN terminals and eight MIDI THROUGH terminals. Each MIDI IN can be switched to feed either group of four MIDI THROUGH (1, 2, 3, and 4; or 5, 6, 7 and 8) terminals, offering greatly expanded

MIDI system versatility.

The YME8 is powered by the Yamaha PA-1 AC adaptor (12 V DC).



TF1



YME8

SPECIFICATIONS

TX816

Equipment: MIDI Rack Frame
TF1 FM Tone Generator Module × 8
Power Requirements: U.S./Canadian models: 120 V (50/60 Hz)
General model: 100—120/220—240 V (50/60 Hz)
Power Consumption: 70 W
Dimensions (W × H × D): 480 × 176 × 346 mm (18-7/8" × 6-15/16" × 13-5/8")
Weight: 12 kg (26 lbs. 7 oz.)
Standard Accessories: MIDI Cable (1.5 m) × 8
MIDI Cable (5 m), 5.25" Voice Data Disk
Socket Wrench

TX216

Equipment: MIDI Rack Frame
TF1 FM Tone Generator Module × 2
Power Requirements: U.S./Canadian models: 120 V (50/60 Hz)
General model: 100—120/220—240 V (50/60 Hz)
Power Consumption: 22 W
Dimensions (W × H × D): 480 × 176 × 346 mm (18-7/8" × 6-15/16" × 13-5/8")
Weight: 10 kg (22 lbs. 0.64 oz.)
Standard Accessories: MIDI Cable (1.5 m) × 2
MIDI Cable (5 m)
Socket Wrench

MIDI RACK FRAME

Terminals: MIDI IN, MIDI OUT, MIDI THRU (5-pin DIN)
Controls: Power ON/OFF
MIDI Out Slot Select
Master Clock Rate: 9.4265 MHz
Dimensions (W × H × D): 480 × 176 × 346 mm (18-7/8" × 6-15/16" × 13-5/8")
Weight: 8 kg (17 lbs. 10 oz.)

TF1

Sound Source: FM Tone Generator—6 operators
Simultaneous Output Notes: Polyphonic—16 (first note priority),
Monophonic—1 (last note priority)
Internal Memory: 32 Program (32 Voice + 32 Function)
Panel Controls: Individual/Common or YES/ + 1, Memory Protect ON/OFF or NO— 1 Select
LED's: Individual; Common; Memory Protect; Parameter Change; Error
Numeric LED Display: Program number, numeric data, etc.
Terminals: MIDI IN, MIDI THRU (5-pin DIN)
Line Out (XLR-3-32 type)
Dimensions (W × H × D): 43 × 176 × 342 mm (1-11/16" × 6-15/16" × 13-7/16")
Weight: 600 g (1 lbs. 5 oz.)
Standard Accessories: MIDI Cable (1.5 m)
Socket Wrench

MODES and SUB-MODES

Play Mode: Display Program Number
Set Receive Basic Channel
Set Omni On/Off
Tune Master Pitch
Edit Mode: Select Program Number for Edit
Attenuate Output Level
Limit Lowest Key
Limit Highest Key
Store Mode: Select Destination
Store Voice and Function
Store Only Function
Utility Mode: Dump All Voices and Functions
Clear And Initialize All Functions
Audio Check 440 Hz; -4 dBm
Read Out Current Voltage of Battery

Specifications are subject to change without notice.

For details please contact:

SINCE 1887



YAMAHA

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