

Step into the new world of modelrailroading The modelrailroad of the future speaks mfx - ESU tells you why.

What you always wanted to know about mfx

With the introduction of Märklin® systems at the toyfare 2004, the long awaited third generation of Märklin® digital became reality. Märklin systems is not just a simple extension of an existing system, but a consequential, courageous step forward, offering not only unprecedented ease in the control of locos, turnouts and signals, but many more functions as well. The essential prerequisite for this „new world“ is the mfx-data format, on which Märklin systems is based. From now on the central station, the starter set „mobile station“ and the decoders speak mfx.

What you can do with mfx

Mfx is not just another sales pitch: Behind it lies nothing less than the completely new development of a revolutionary digital system. Besides a new data format with integrated feedback and new decoders, there are, of course, command centers like the mobile station. This combination results in fascinating possibilities for running your trains.

Address: No more

The most important news: Now the typing-in of loco addresses is, with mfx, a thing of the past: simply call up your locos by name. There are no addresses anymore in the mfx system, all locos with a mfx-decoder register themselves at the command station; right away you see the engine's name on the display. This is „plug & play“ at its very best. Of course, you can change the name anytime you wish and make „Ludmilla“ out of „BR 232,“ for example. Forget the old procedure of first searching for a new loco, address in the handbook!

Functions aplenty

Another thing of the past is the trial-and-error pushing of function buttons: „Gee, where is that Telex coupling again?“ On the mfx-station's display you see a symbol next to each key, corresponding to its function. The decoder also tells the station whether it's a non-latching function (i.e. a whistle), or an on-off function (i.e. a pantograph up or down). Each mfx-decoder handles up to 16 functions. That's why mfx stands for the utmost in play-value. Think of sound and light effects, control of couplings and pantographs and much, much more. At least 9 functions are usable, depending on your command station.

Ultra precise control

Each mfx-decoder incorporates 128 steps for smooth acceleration. The motor is powered safely and comfortably at 32 kHz (LokSound mfx) or 40 kHz (LokPilot mfx). This guarantees the quiet and smooth operation of your motors – ideal for even ironless-core motors.

Infinite number of locos

We are sure that the number of your engines will increase. That's why the mfx-system allows you to operate up to 16,384 locos, turnouts or signals – all at the same time. The total number is only limited by the

Simple operation

In spite of the high number of engines, you easily stay in control at all times. At the command station you can comfortably change all parameters of an mfx-decoder. Program the top-speed while you run the engine, and forget the times when you had to open it up to do so, or put it on a separate programming track. With mfx you can program your loco's decoder on the main, while running it, independently of all other locos. The built in feedback, which constitutes genuine duplex communication between station and decoder, makes this possible



How to operate your present locos

If you plan to switch to mfx, the question is, what to do with the engines you already own. Can you run them with the mfx-system? Of course you can continue to use your „old“ Märklin® locos! Mfx design is such, that mixed operation is possible with no problems. This means that all locos equipped with Märklin®- or ESU decoders will continue to function when controlled by a mfx-command station. Of course, mfx-decoders will not be bothered by other Märklin®- or ESU decoders. In fact, all mfx-command stations have multi-protocol capability. Naturally the mfx-center is neither a magician, nor is it a clairvoyant: As soon as a Motorola-

decoder equipped loco is asked to run, you sacrifice the mfx advantages. Since the loco wants to be spoken to by its address, you must again descend to that level. Furthermore, the command station has no way of knowing which functions the loco offers, and behind which function keys these might hide. And there are only 14 speed steps. Also, programming on the main is not possible: To input addresses you either need a screwdriver (to open the loco) and manipulate the micro switches, or else resort to old fashioned register programming. You see, through a mfx-center, it's possible to operate existing locos, equipped with Märklin®- or ESU decoders; the downside is you must do without the new features.

Upgrade your locos to mfx-technology

You understand the advantages of mfx and now you ask yourself what's the simplest way to convert your present locos to mfx? ESU, as a leading manufacturer of mobile decoders, asked the same question and came up with two answers: The LokPilot mfx is an extremely small decoder for HO rolling stock. It offers, besides outputs for the motor and two lights, two additional, freely usable functions. For the sound enthusiast there is a variant of our highly successful loco sound-decoder. The LokSound mfx-decoder offers, other than the outputs for the motor, two lights and two additional functions, a fully-fledged sound-

module with all the original sounds of the prototype. In conjunction with the 16 possible mfx-functions, LokSound will bring life to your layout. Both decoders were designed especially for Märklin® engines. They are 100% mfx compatible-to ask for more is simply not possible. All ESU decoders are easily installed, and you can configure them using the LokProgrammer quite comfortably with your PC. Convince yourself of the virtues of the new ESU decoders and treat your locos to the freedom of the „new world.“



Sounds are always recorded from an original prototype loco, so you can be sure to get the real thing.



Sound from the market-leader

On the last page you'll find an extensive list of available sounds-no other manufacturer has access to a larger sound archive, or records more prototype locos.

The LokPilot mfx-the versatile talent

The LokPilot mfx was designed from scratch especially for the mfx-data format. It reflects years of accumulated experience, that ESU puts into the manufacturing of digital decoders. The LokPilot mfx is a genuine multi-protocol decoder. In addition to its main field of application in connection with mfx-centers, it can be utilized without problems with Motorola-centers (i.e. Märklin® 6021), as well as with analog layouts, powered by conventional AC transformers. The LokPilot mfx automatically recognizes the operating mode and reconfigures itself „on the fly“. Important for owners of older Märklin® centers: The LokPilot mfx permanently memorizes the active operations mode and also recognizes wrong way traffic. Braking blocks are easily negotiated. No decoder has ever been more Märklin®-compatible. The LokPilot mfx easily handles DC as well as ironcore-less motors. All-current motors can be

converted with HAMO-Magnets. The motor is driven extremely quietly and gently by a 40 kHz PWM (Pulse width modul.) frequency. In combination with the 128 mfx-speed steps and the 4th generation back EMF (torque compensation), an as yet unattainable performance is being realized. The LokPilot mfx can be matched to any loco or operations mode. Besides the known settings (see techn. data), you can adjust the back EMF parameters and the top speed even for analog operation (!). Lamp brightness is also separately adjustable. All in all there are 4 function outputs. With the LokPilot mfx, you can take for granted such features as overload protection for motor and function outputs, switching speed, and controllable acceleration- and deceleration-rates. It is also programmable with all Märklin® centers, or comfortably via the LokProgrammer on your PC. You will not have to open your precious engine.



Märklin® SVT137 mit LokSound mfx Umrüstsatz Nr. 61450

LokSound mfx really brings your locos to life

Model railroaders, who put emphasis on realistic operation, can't pass up the new LokSound mfx. It's based on the successful third generation of LokSound, and through its sound functions life is finally brought to your model railroad. Next to the convincing properties of the LokPilot mfx, the LokSound mfx can reproduce the loco-typical sounds. For this reason, it possesses a flash memory, with a recording capability of up to 65 seconds: more than enough to be able to reproduce not only the actual running noise, but also those special sounds generated by air or water pumps, compressors, gear switching, brake- or flange squealing, and other complex sounds. Integrated into our decoders are operational events, such as random shovelling coal. (even synchronized with a mini lamp in the firebox), station announcements, the squealing of a door, or the conductors whistle („all aboard!“). Naturally you can always call up whistles, horns, bells, or compressors by function keys.

Since LokSound mfx possesses 4 (!) independent sound channels, you can always play combined multiple sounds. In addition to the steady steam chuff, it is no problem to activate the bell before a crossing **and** sound the whistle in time. You can buy a LokSound mfx decoder for 2-, 3-, and 4-cylinder steam engines, as well as for various diesel engines (diesel hydraulically or diesel electrically driven) and electro locos. The latter with separate traction motor- and blower control. To polish it off, there is load dependent sound adjustment: The motor rpm decreases when the programmed speed is reached, and the volume increases under load or when accelerating. ESU offers LokSound mfx in many different variations for the prototype sound you desire. All parameters are factory pre-adjusted, so that your mfx-center's display not only shows the pertinent loco class, but also the correct symbols for the function keys.

