

ACT S3D-Conversion System 2,4GHz



Now we are ready with our S3D-2,4GHz transmitter conversion system. Out of the best ideas, concepts and technologies we have created the best possible 2,4GHz system for radio controlled models. It's the most safe and the most practicable system ever.

All the S3D-transmitter systems can be re mounted from the transmitter, it can be used with 35MHz/40MHz/41MHz again.

Based on active communication we have learned from our customers what would be the best solution for the demand of a safe system with best use in practice. We say "thank you" for all hints and suggestions we got.

Even times are changing dramatically fast in some technological fields, we didn't want to be fast in the market, we didn't want to develop and test under time pressure. We must decide and design under a long term view for to make sure for our customers that they get the best and most reliable system for a long time. We didn't want to buy a system made for the US and for US rules. We wanted to design our own system especially for the European market, for European environments and for European rules, knowing that a system which will work in Europe also will work in the US or far east. The opposite way is not guaranteed.....

We feel responsible for our customers models, therefore we made all efforts and didn't save any expenses to get the most safe systems on 2,4GHz. Therefore our S3D-system works with hardware- and data-redundancy and with **three dimensional Diversity technology S3D**. We wanted to have the highest possible security on the transmission path on 2,4GHz. This means, production costs are higher than systems coming out of far east countries with only one (1) internal system in transmitter and receiver without any redundancy or diversity technology. Keep this in mind when prices are compared.

That some things are different using 2,4GHz doesn't mean these things are worse. Lots of things are **only different**, new and unknown. For example the maximum range of a system has nothing to do with the range under all circumstances ore has no relation to the security of a system. This is why we feel obliged to inform our customers about all aspects using a 2,4Ghz system, even about critical points or disadvantages. Knowing these critical points, a customer will be able to avoid problems.

For us, a 35MHz system is still actual for certain fields in the modelling, as we have now more than 40 years experience with this technology. At this stage of experiences with 2,4 GHz systems in Europe, all distributors, all producers are starting from the scratch at the same time. Nobody has an overall experience for all circumstances which can happen during the use of a 2,4GHz system. That is the reason why we say: Nobody can argue a 2,4GHz system is always better or more safe as a 35MHz system. Nobody, not today.....

We are producers, our thinking is technical oriented. That's why our designs are highly sophisticated with the best technologies we can get for our customers. Looking to the advertisements of some competitors which are only distributors of far east products without own technology background, we see that these competitors are using more aggressive and sales oriented arguments. We don't do that, knowing what is actually behind the technology. The market will decide what is better. With our S3D-2,4GHz-system we are sure that one day we don't need 35MHz systems anymore.

We don't beleive that all pilots will change to 2,4GHz from one day to the other. Therefore our transmitter conversion systems are not a one way solution, it always can be re installed and the transmitter can be used with its origin frequency. In addition we have the Maxx-system, which allows the use of 35MHz and 2,4Ghz simultaneously. Two receivers in the model, connected via the S3D-DSL-converter, are exchanging reception- and signal quality datas. If one frequency fails, its receiver gets the signals from the other receiver and all servos will work as programmed. The customer can use the advantages of both radio worlds - 35Mhz (40/41MHz) and 2,4 Ghz.

We will start sales in mid of march. Not with all components of the complete system, but as it is a modular system, all parts can be bought time by time.

We are very proud having our S3D 2,4GHz radio system

S3D-Systeme

For nearly all existing transmitters with trainer port we can offer a conversion system to 2,4GHz. All systems will have the optimal position of the transmitter antenna in front of the transmitter, which is one of the most important points for a safe transmission path.

2,4GHz



Version 1: S3D-2,4GHz , conversion set FIX



Set content 2,4GHz FIX

Duo-transmitter module JR or Futaba
2x Antenna leads 20cm
2x transmitter antenna

Advantages	Notes
Optimal antenna position	
Easy conversion, if optional spaces for switches available in the transmitter	2 option spaces are lost
RF modul 2,4GHz situated in the module space	Antenna are mounted fix in transmitter case
Re change to 35MHz by changing the module	

Version 2: S3D-2,4GHz transmitter conversion set Swap



Set content 2,4GHz Swap

Duo-transmitter module JR or Futaba
2x Antenna leads 20cm
Antenna fixing Swap
2x transmitter antenna

Advantages	Notes
Optimal antenna position	
Easy conversion for every tray transmitter, swap in front of transmitter, fixed with antenna screw, easy re-mountable	A small hole must be drilled in back part of some transmitters
RF modul 2,4GHz situated in the module space	
No option spaces lost	
Transmitter can be carried in transmitter bag	
Re change to 35MHz by changing the module	

Version 3: S3D-2,4GHz, transmitter conversion set Clip

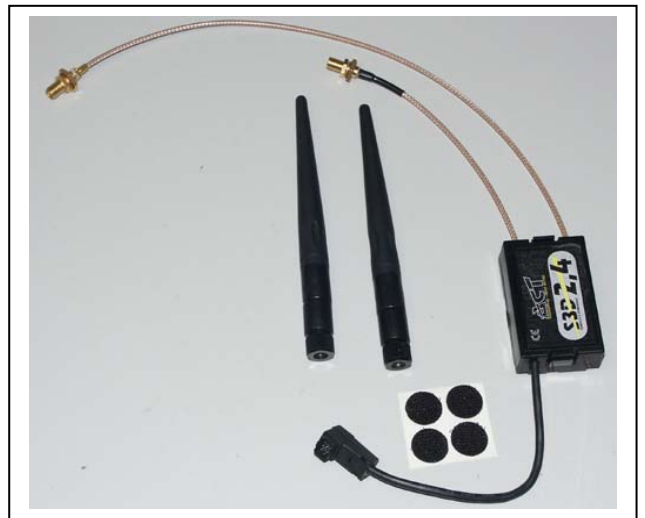
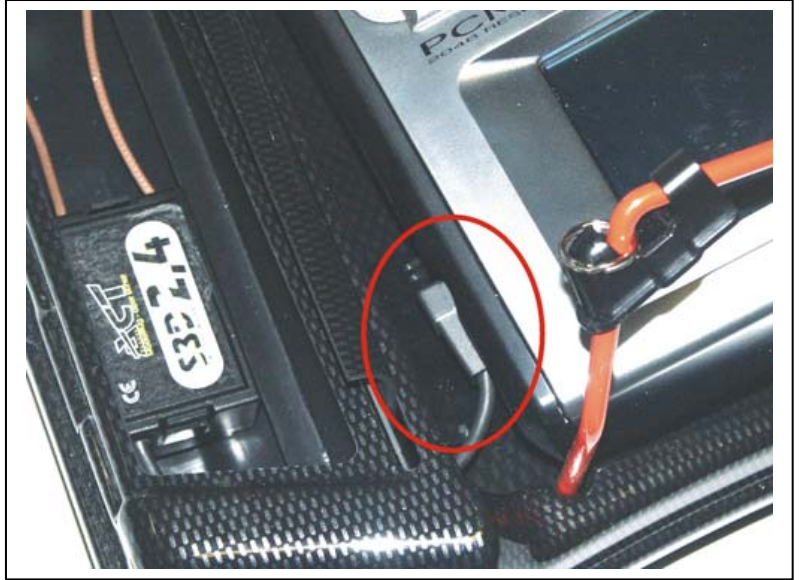


Set content 2,4GHz Clip

Duo-transmitter module JR or Futaba
2x Antenna leads 20cm
Antenna fixing Clip
2x transmitter antenna

Advantages	Notes
Optimal antenna position	
Easy conversion for every hand transmitters, clip mounted in front of transmitter, easy re mountable	A small whole must be drilled in back part of some transmitters
RF module 2,4GHz situated in the module space	
RF module 2,4GHz outside of the module space, then no re mounting at change of frequency	35MHz and 2,4GHz can be used at same time, receivers connected with S3D-DSL converter
Re change to 35MHz by changing the module	

Version 4: S3D-2,4GHz, transmitter conversion set for 2,4GHz or 35MHz without a change



Set content 2,4GHz Tray

Duo-transmitter module JR or Futaba
2x Antenna leads, 20cm + 40cm
Antenna fixing Clip
Trainer cord
2x transmitter antenna

Advantages	Notes
Optimal transmitter antenna position	
Easy conversion for every tray transmitters, clip mounted in front of transmitter, easy re mountable	
System can be stored completely in the tray	
RF module 2,4GHz mounted in the tray, no re mounting at change of frequency	35MHz and 2,4GHz can be used at same time, receivers connected with S3D-DSL converter
Optimal antenna position with maximum 3D effects	
Re change to 35MHz not necessary	

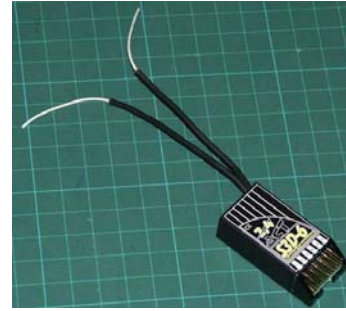
S3D receivers and accessories



DS3D-10 DSL



S3D-8 DSL



S3D-6 DSL



Dual-3D-Diversity use by connecting two S3D receivers



High current conector



Swap fixing



Clip fixing



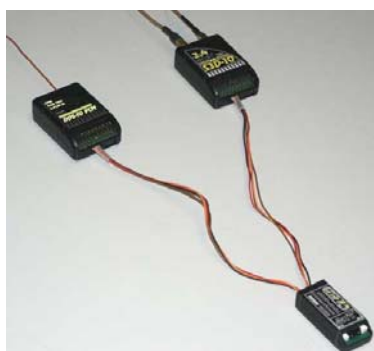
Antenna extensions 20cm, 40cm, 60cm



Transmitter antenna 2,4GHz



S3D-DSL-Converter, for use of 35MHz + 2,4GHz-receivers simultaneously



Antenna screws

Technical Data, technical description

S3D transmitter conversion system 2,4Ghz

- All existing transmitters convertible
- ETSI 2008 compatible, FHSS System
- Antenna always in front of the transmitter for best radiation performance
- Dual Frequency hopping system FHSS
- 2 independent working transmitter RF systems
- 2 separate data streams
- 2 transmitter antenna for 3-dimensional radiation, removable
- 2 x 100mW output power
- Antenna screw system, type SMA
- Bi polar transmitter- and receiver antenna
- Down link system for model and receiver data and external sensor data
- Easy and fast interchangeable between 35/40/41 MHz and 2,4 GHz and back.
- Additional, up to 16 proportional channels and 16 switching channels for multi model functions at boats or trucks
- Each transmitter, with PPM 5-12, PCM 1024 Futaba, S-PCM JR (PCM-10) can be used.
- Dual frequency band use with 2,4GHz and 35MHz at the same time
- High speed data transmission
- All transmitter trays and bags can be used
- Designed and produced in Germany

S3D DSL receiver system

- Two complete receiver systems in one case, working internally as 3D Diversity system
- Dual 3D Diversity system, when two S3D receivers are linked via DSL port
- Antenna screwing system, type SMA
- Bi polar transmitter and receiver antenna
- Down link system for model and receiver data and external sensors
- Different antenna length can be used for best installation in the model
- Antenna extension leads can be used
- Dual frequency band use with 2,4GHz and 35MHz at the same time
- ACT SPS system for servo programming in the receiver
- High current power supply connector type DSQ
- Designed and produced in Germany

These features are offering the following benefits:

- The complete system, receiver and transmitter, is working with hardware redundancy
- 3D radiation and 3D reception are resulting in smallest problems possible if barriers are in the line of sight
- Optimal position for the transmitter and receiver antenna increasing radiation and reception results
- With dual data transmission and dual frequency hopping the system can reach a perfect data stream even in a certain situation only 25% of the data can be received
- Dual 3D Diversity technology results in best reception and highest signal to noise ratio
- Easy installation for the receiver antenna, as the antenna can be used with different length in different directions, up to 4 positions on the model: left, right, below and on top of the model. Guaranteed sight at all times between transmitter and receiver antenna
- Using S3D technologies nearly no interruption of the line of sight is possible
- Dual frequency band use with 2,4GHz and 35MHz at the same time with a S3D-DSL converter system connecting both, a 2,4GHz S3D and a 35MHz DSL receiver. Both are working simultaneously, exchanging reception- and signal quality data. If one frequency or transmission path fails, its receiver gets the signals from the other receiver and all servos will work as programmed. The customer can use the advantages of both radio worlds - 35Mhz (40/41MHz) and 2,4 GHz together.
- The down link has a range up to 1000m, it can be used for all kind of data which can be created with sensors or with internal data in the receiver. These data can be shown with an external display or ear phone aso. Some receivers are offering sensor inputs for hight, speed, temperature, aso.
- The transmitter module can transmit up to 16 proportional channels which makes the module independent from the amount of the proportional channels in the transmitter, which shall be converted.
- Additional proportional channels can be connected to the transmitter module at its external channel port.
- 16 additional switch channels for multi function use in boats or trucks
- High speed data transmission, 20ms at 16 channels, (normal transmitters 12 channels with 24ms)
- High speed data transmission, 10 channels with 14ms
- Super high speed data transmission with 5 channels at 8ms. Double as fast as HRS
- The transmitter can be used with PPM-5-12, PCM-10 (S-PCM JR) and Futaba 1024 PCM. That means every existing model memory can be used without any change. No reduction in function channels when using PCM transmitters
- 4096 steps (12bit) resolution at servo outputs for maximum servo speed and precision at highest servo power

- Some receivers are offering an big internal data memory for data logging during use and read out after use
- All S3D receivers can be combined to a dual 3D diversity system with 4 antenna
- All receivers are offering the advantages of the ACT DSL-SPS system. Each servo output can be set up for each channel separately. Adjustments are: Servo throw, servo speed, servo limit, servo centre, servo offset, Fail Safe, Hold, battery Fail Safe, RSSI Fail Safe, and 4 level mixing for each servo output
- The S3D-10- and the S3D-8 receivers are offering an additional high current power supply connector for the power supply of high current servos in high amount, directly connected to the receiver outputs. Additional power supplies for the receivers are NOT necessary anymore, following the rule: Parts not installed can't fail.....

Please keep in mind if prices are compared that a 2,4GHz Dual System with hardware redundancy, produced in Germany, must be a bit more expensive as other systems without hardware redundancy out of the cheap producing countries in far east. The better overall concept and a „more“ in security is always more valuable.



Price list

2,4GHz Systems		
Order No	Transmitter modules	Euro, €
526002	Duo transmitter module JR 2,4GHz, up to 16 channels	169,00
52 6003	Duo transmitter module Futaba 2,4GHz, up to 16 channels	169,00
52 6004	Duo transmitter module MPX 2,4GHz, up to 16 channels	169,00
	Receivers	
52 6010	S3D-10 DSL	169,00
52 6011	S3D-8 DSL	149,00
52 6012	S3D-6 DSL	99,00
	Accessories	
52 6030	S3D-DSL-converter interface	99,95
52 6040	Receiver antenna 20cm	19,95
52 6041	Receiver antenna 40cm	22,95
52 6042	Receiver antenna 60cm	24,95
52 6043	Antenna extension lead 20cm	19,95
52 6044	Antenna extension lead 20cm 50cm	24,95
52 6045	Transmitter antenna 2,4Ghz	24,95
52 6050	Antenna fixing Swap, for tray transmitters	29,95
52 6051	Antenna fixing Clip, for hand transmitters	24,95
52 6055	Trainer cord MC24/Mc20/MC18/MX22/MX24	14,95
52 6056	Connection lead to charging socket Graupner transmitter with switch	14,95
52 6057	Trainer cord MC19/22	14,95
52 6058	Trainer cord FC-28/FC-18/FF-9/FF-7	14,95
52 6059	Trainer cord FX40/TM14/T12	14,95
52 6060	Trainer cord MPX Royal Evo, MC3030/MC4000	14,95
	Transmitter conversion sets	
52 6070	3-D-conversion system FIX , JR-module, antenna leads, 2xantenna	249,00
52 6071	3-D-conversion system FIX , Futaba module, antenna leads, 2xantenna	249,00
52 6072	3-D-conversion system FIX , MPX module, antenna leads, 2xantenna	249,00
52 6073	3-D-conversion system Swap , JR-module, swap, antenna leads, 2xantenna	259,00
52 6074	3-D-conversion system Swap , Futaba module, swap, antenna leads, 2xantenna	259,00
52 6075	3-D-conversion system Swap , MPX module, swap, antenna leads, 2xantenna	259,00
52 6076	3-D-conversion system Clip , JR-module, Clip, antenna leads, 2xantenna	259,00
52 6077	3-D-conversion system Clip , Futaba module, Clip, antenna leads, 2xantenna	259,00
52 6078	3-D-conversion system Clip , MPX module, Clip, antenna leads, 2xantenna	259,00
52 6079	3-D-conversion system Tray , JR-module, antenna leads, 2xantenna	259,00
52 6080	3-D-conversion system Tray , Futaba module, antenna leads, 2xantenna	259,00
52 6081	3-D-conversion system Tray , MPX module, antenna leads, 2xantenna	259,00
	Conversion sets with receiver	
52 6090	Conversion set Tray , all transmitter parts + S3D-10 DSL	369,00
52 6091	Conversion set Swap , all transmitter parts + S3D-10 DSL	399,00
52 6092	Conversion set Clip , all transmitter parts + S3D-10 DSL	399,00
52 6093	Conversion set FIX , all transmitter parts + S3D-10 DSL	369,00

We will start to supply mid/end of march 2008

2.4GHz Spread Spectrum Comparison Guide

Product Feature / Description	Spektrum DSM	Spektrum DSM2	Futaba FASST	XPS XtremeLink™	ACT
Radio Speed (effective throughput) *	31.25Kbps	128Kbps	????	256Kbps	64Kbps
Frequency Hopping	No	No	Yes	yes ** (HoD)	yes
Specified range	~1000 feet	"line of sight"	"line of sight"	Up to 5 miles	>> line of sight
Resolution	256 (8 bits)	1024 (10 bits)	32768 (15 bits)	65536 (16 bits)	4096 (12bit) ***
Number of systems that can be in use simultaneously	39	39	????	120 (?)	80
Integrated single antenna	No	No	No	yes	no
Integrated Diversity-System	no	no	Yes, only antenna switching	no	YES, full duplex diversity
2 Receivers in one case	no	no	no	no	YES
2 transmitter system in 1 module	no	no	no	no	YES
ETSI compatible	yes	no	yes	???	YES
Output-power (ETSI)	10mW	???	90mW	100mW ???	2x100mW
Dual data transmission	no	no	no	no	YES
Dual Frequency hopping	no	no	no	no	YES
Dual Frequency band transmisssion (2,4GHz + 35/40/41/72) MHz at same time	no	no	no	no	YES
Extension leads for receiver antenna	no	no	no	no	YES
Dual antenna/locked (receiver)	yes	yes	yes	no	YES (certain receivers)
Antenna screw (receiver)	no	no	no	no	YES (certain receivers)
DSL-System (connecting 2 receivers for 3-D-Diversity)	no	yes	no	no	YES
Dual band reception (2,4GHz + 35/40/41/72) MHz at same time	no	no	no	no	YES
SPS receiver (servo programming system)	no	no	no	no	YES
Servo mapping atv receiver	no	no	no	yes	YES
Number of channels	6	8	8/14	9	20
Modulation transmitter	PPM	PPM	PPM8/G3	PPM9	PPM/1024/S-PCM
Additional extension channels	no	no	no	no	4 - 8
Additional Multi Switch channels	no	no	no	no	16
High current receiver connector	no	no	no	no	YES
Data logging receiver	no	no	no	no	YES
Real time, built in telemetry interface	No	No	No	yes	YES
Bi-directional communications	No	No	No	yes	YES
Receivers available or pending (# of channels)	6	06.07.2009	6/7/8+14	4/6/8/10/12/16	4/6/8/10 - 20
Latency (measured from stick input to receiver output)	Several frames	Up to 1 frame	Up to 1 frame	2ms to 1 frame	up to one frame
Failsafe programmable for each individual channel	No	No	No	yes	YES
Operating voltage range	4.7v-10v	4.5v-10v	3.2v-16v	3.5v-30v	3,5-10V
Support for all transmitters, regardless of age (requires trainer port)	No	No	No	yes	YES
Product warranty	????	????	????	LIFETIME	Lifetime

* the higher the radio speed, the less the signal quality, the less the range

** Only changes frequencies when potential interference is encountered (and back channel has contact ->added by ACT)

*** Best servo has about 1000steps (9bit)

Source: XPS internet side, added some lines

XPS = IFS