

Introducing

# PAIRS TRADER



*Reactive control for automated trading*



# PAIRS TRADER

*Watches for hours, reacts in milliseconds*

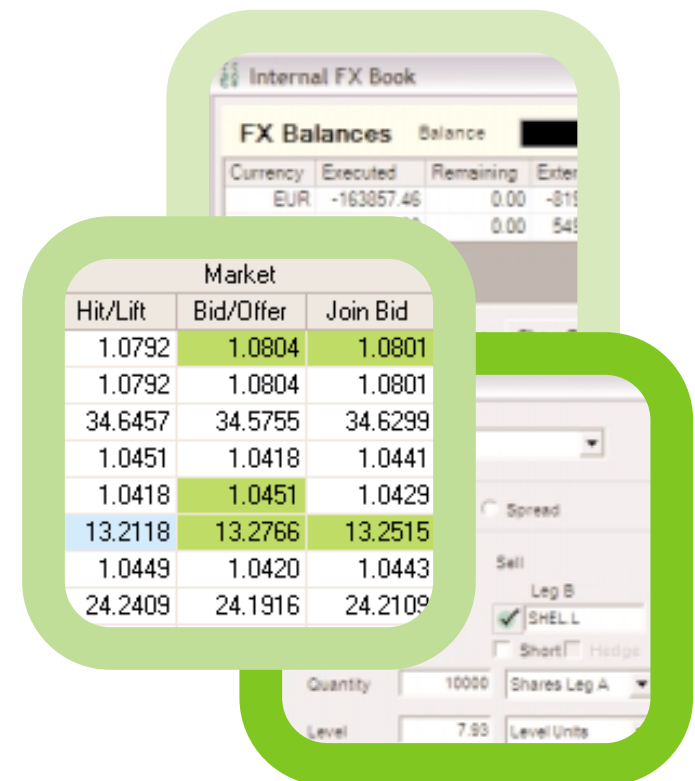
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## OVERVIEW

**PAIRS TRADER** is used by dedicated traders at brokers and hedge funds to allow them to handle pairs orders efficiently and achieve high quality executions.

The system uses order book information and state-of-the-art trading algorithms developed by Tick Logic to monitor and automate the execution of pairs orders.

**PAIRS TRADER** installs on the trader's workstation, taking prices from industry standard feeds, and executes orders by connecting to FIX gateways and market leading order management systems.



# PAIRS TRADER

*Looks at the depth to see the reality of the market*

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## HOW IT WORKS

**PAIRS** TRADER looks beyond the "bid and ask" to accurately assess where it should be in the market, reducing your impact and improving your execution, while leaving you in full control of the degree of risk you take.

When a pair reaches your level, the system reacts in milliseconds to place the right orders at the right levels to get you great executions. It also includes specific features to allow you to manage your foreign exchange exposures.

*"Running statistical arbitrage models at major investment banks made me appreciate the size of the gap between our strategies and the executions we could get from brokers or DMA. At Tick Logic we're closing that gap rapidly."*

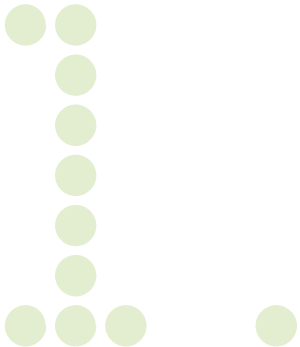
*NICK FREE, CHIEF ARCHITECT*

# PAIRS TRADER

Improves your productivity and your executions

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Proven software capable of simultaneously managing large numbers of pairs orders



- ✓ Trades global equity markets with inbuilt foreign exchange management
- ✓ Reacts to changes in the market in milliseconds, minimizing the risk of being legged and allowing you to execute greater volumes at better prices
- ✓ Improves trader productivity enabling traders to focus on adding real value to the trading process
- ✓ From single-order entry to monitoring entire portfolios of pairs orders, Tick Logic's Pairs Trader offers a flexible solution to your electronic trading requirements

Order	Order	Market							
Id	Buy/Sell	Account	Quantity	Units	Limit	% Away	H/L/R	Bid/Offer	Join Bid
SRCE.2G52E	● KKBK.BR/ALMB	Exp	3,000	ALMB BR	≥ 1.08	0.1	1.0792	1.0804	1.0801
SRCE.2G52G	● KKBK.BR/ALMB	Exp	3,400	ALMB BR	≥ 1.0811	0.2	1.0792	1.0804	1.0801
SRCE.2G52J	● STN.PA/SPLM		607,000	EUR	≤ 34.45	0.6	34.6457	34.5795	34.6299
SRCE.2G56	● UNc.AS/ULVRL	COM4	1,695	UNc.AS	≤ 1.04	0.5	1.0451	1.0418	1.0441
SRCE.2G5A	● ULVR.L/UNc.AS	COM4	379,925	EUR	≥ 1.045	0.3	1.0418	1.0451	1.0429
SRCE.2G53	● INTB.BR/CARLb	KD	1,700	CARLb.CO	≥ 13.25	0.3	13.2118	13.2766	13.2515
SRCE.2G9R	● RELL/ELSN.AS	DOAK	1,000,000	EUR	≤ 1.035	0.9	1.0449	1.0420	1.0443
SRCE.2G51	● PSON.L/VNLRNA	Exp	54,000	PSON.L	≤ 24	1.0	24.2409	24.1916	24.2109
SRCE.2G27	● ASN.LAS/ASN.L	DOAK	500,000	EUR	≤ 1.07	1.3	1.0563	1.0584	1.0571
SRCE.2G54	● SHELL.RD.AS	COM4	720,000	SHELL	≤ 0.97	1.3	0.9824	0.9804	0.9818
SRCE.2G57	● UHR.V/UHRN.V	DOAK	1,000,000	CHF	≥ 1.01	1.1	1.0000	1.0036	1.0018
SRCE.2G55	● SHELL.RD.AS	DOAK	890,000	EUR	≤ 0.97	1.3	0.9827	0.9807	0.9821
SRCE.2G5T	● ULVR.L/UNc.AS	DOAK	890,000	EUR	≤ 0.95	1.1	0.9603	0.9573	0.9593
SRCE.2G59	● UHR.V/UHRN.V	COM4	1,000,000	CHF	≥ 1.015	1.6	1.0000	1.0036	1.0018
SRCE.2G5J	● VWAG.p.DE/VT	DOAK	500,000	EUR	≥ 1.95	2.0	1.9187	1.9232	1.9229
SRCE.2G5L	● DTEGn.DE/ITE	BO Cen	20,000	DTEGn.DE	≤ 0.62	1.9	0.6322	0.6315	0.6317
SRCE.2G514	● PSHG.p.DE/DO	BO Cen	600	SHG.p.DE	≤ 12.7	2.1	12.9765	12.9555	12.9627
SRCE.2G5F	● STAN.L/BNPP.F	BO Cen	18,800	STAN.L	≤ 18.370	2.4	18.8300	18.8041	18.8196
SRCE.2G55	● SDR.L/SDR.L	COM4	155,266	SDR.L	≤ 0.92	2.4	0.8981	0.9020	0.8988
SRCE.2G5J	● SSEL/SPW.L	BO Cen	26,500	SSEL	≤ 1.754	2.8	1.8049	1.8023	1.8035
SRCE.2G5K	● UPMIV.HE/STEF	BO Cen	10,950	UPMIV.HE	≤ 1.362	3.1	1.4049	1.4026	1.4040
SRCE.2G5V	● ANAFib.PA/ANAF	DOAK	25,000	ANAFib.PA	≤ -1.3	3.0	-0.7900	-0.9500	-0.9400
SRCE.2G5Q	● WPP.L/AGS.L	BO Cen	46,000	AGS.L	≥ 0.1844	3.7	0.1780	0.1793	0.1788
SRCE.2G5H	● RIO.L/VAL.L	BO Cen	11,950	RIO.L	≤ 1.1975	3.4	1.2394	1.2375	1.2386
SRCE.2G511	● ELSN.AS/RELL	DOAK	1,000,000	EUR	≥ 1.08	3.6	1.0420	1.0449	1.0431
SRCE.2G52	● SOGN.PA/CRDII	BO Cen	6,245	SOGN.PA	≤ 15.3	3.8	15.8912	15.8430	15.8796
SRCE.2G52	● KFI.L/ALII	COM4	798,901	ALII	≤ 1.1090	1.9	1.0920	1.0978	1.0977

# BUY 5500 @ 29.16 SELL 500 @ 38.25

## PAIRS TRADER

*Eliminates errors at order entry*

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**Easy-to-use software designed to be used by traders**

- ✓ No programming skills required by the users. Customizable trading strategies provided, with easy to change parameters
- ✓ Order entry screens designed to capture orders easily, giving feedback about trading levels, the pairs formula and leg quantities thus minimizing the potential for errors at trade entry

**New Order**

Account: ACC1

Pair Type:  Ratio  Spread

Buy: Leg A:  SHELL  
Sell: Leg B:  RDAS

Quantity: 10000 Shares Leg A:   
Level: 127 Level Units:

Trading Rule: RuleSet2

Parameter	Value
Completion	
RemoveBid	
LegAggressively	
MaxFloorShow	50000
LeadingLeg	False
Leg A	
Leg B	
ThresholdPULeg	0

Buttons: Test, Save, Clone Order, Cancel, New

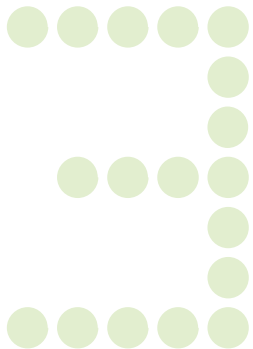
# PAIRS TRADER

*Trades global markets from your desktop*

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## Easy to implement

- ✓ Simple and fast implementation undertaken by Tick Logic
- ✓ Post-implementation support provided by Tick Logic
- ✓ Integrates with your existing market data price feeds, using depth of order book, directly on your workstation



SELL 3500 @

BUY 5500 @ 38.25



# PAIRS TRADER

*Less risk. More reward.*

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## **Resilient system with full audit trail**

- ✓ Exact status of orders continually monitored, so you know your position in the market, even when connections fail
- ✓ Enables workstation to be restarted and seamlessly continue from point of failure during the trading session
- ✓ Complete audit trail to meet compliance requirements

# PAIRS TRADER

*Efficiency through automation*

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## Technology design

- ✓ Built to work with Microsoft's .NET technology the software is based around Tick Logic's real-time reactive control engine and uses a high-speed lightweight transaction mechanism to offer persistence and resilience
- ✓ This engine offers connectivity to global equity markets via FIX and other trading gateways and integrates with industry standard price feeds. The plug-in architecture allows rapid and economical integration with existing order management systems
- ✓ FIX4.0, FIX4.2 and other communication protocols supported


The screenshot displays the 'SHELL vs RUSAR Execution Window' with various trading parameters and a data table. The table includes columns for 'Leg Name', 'Side', 'Line Quantity', 'Line Level', 'Pay up/down to', 'Can Leg Mt', 'Bid Quantity', 'Bid Price', 'Ask Price', 'Executed Quantity', 'Residual Level', 'Reported Qty', 'Reported Level', 'Ready To Book Quantity', 'Ready To Book Level', 'Held Quantity', 'Held Price', 'Held Reported Cash', 'Residual Quantity', 'Residual Level', 'Residual Residual Cash', 'Exposure (EUR)', and 'Status'.

Leg Name	Side	Line Quantity	Line Level	Pay up/down to	Can Leg Mt	Bid Quantity	Bid Price	Ask Price	Executed Quantity	Residual Level	Reported Qty	Reported Level	Ready To Book Quantity	Ready To Book Level	Held Quantity	Held Price	Held Reported Cash	Residual Quantity	Residual Level	Residual Residual Cash	Exposure (EUR)	Status
	Buy	0.07	711																			
		820.00	88.8800																			
		540.00	65.5500	0.67880																		
		0.1263	0.1264	0.1263																		
		800	18849																			
		540.50	64.7700	0.67870																		
		648.50	64.8300	0.67770																		
		140.60	480																			
		20000	-2511	-163857.46																		
		648.486	64.77269	0.67870																		
		0	0	0																		
		0.00	0.0000	0.00000																		
		20000	-2530	-163857.46																		
		540.50	64.7727	0.67870																		
		0	0	0																		
		0.00	0.0000	0.00000																		
		0	0	0																		
		-11																				
		540.50	64.7700	0.67880																		
		0	0	0																		
		0.00	62.15	0.00																		

# PAIRS TRADER

*Automating arbitrage*

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 **TICK LOGIC** develops leading edge systems for trading desks and hedge funds to automate pairs trading, volume-weighted average price trading and other arbitrage related trading strategies. Using our real-time reactive control trading system you can execute greater volumes at better prices.

Tick Logic together with its consulting partners, builds econometric models to identify statistical arbitrage opportunities.

**The Tick Logic design team draws together significant expertise and real-world experience of statistical arbitrage trading, computer science and quantitative research.**

# PAIRS TRADER

*Monitors, reacts, trades*

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