

**ScanMaster**

# Train Rail Ultrasonic Inspection Systems

*SFB-100* SERIES RAIL INSPECTOR



*State-of-the-art ultrasonic inspection systems for high-speed flaw detection, evaluation and documentation for train rails*

## SYSTEMS HIGHLIGHTS

- *Fully integrated, multi-channel computerized rail inspection systems*
- *Testing speeds up to 100km/hr (60miles/hr) at full multi-channel performance*
- *Real-time longitudinal B-scan display by using multiple hardware gates*
- *Automatic, on-the-fly set-ups adjustment according to rail height variations*
- *Real-time flaw detection and marking*
- *Off-line analysis and processing of stored and archived data*
- *Full documentation of test results allows periodic monitoring of defect growth*
- *Rugged, controllable sled ensures reliable UT performance*



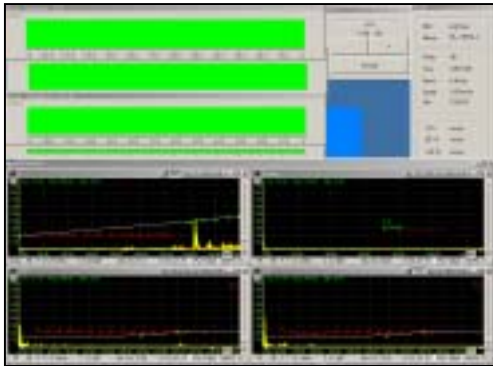
# SFB-100 SERIES RAIL INSPECTOR

## PRODUCT DESCRIPTION

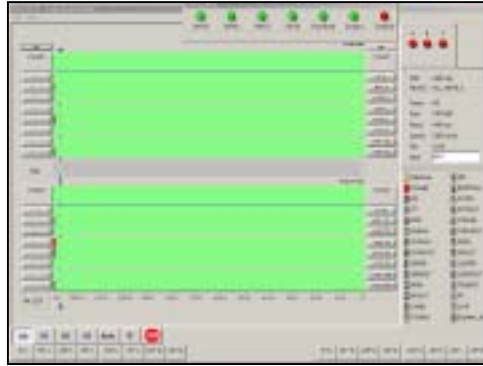
<b>Introducing the SFB-100 series</b>	The <b>SFB-100</b> is a modular rail inspection system with computerized ultrasonic data acquisition and evaluation, developed for high-volume digital data acquisition, imaging, and evaluation of flaws for in-service train rail.
<b>Ultrasonic instrumentation and software</b>	<b>SFB-100</b> combines the high-speed, multi-gate hardware capability of the <b>upi-100</b> ultrasonic instrument with parallel channels and application-specific <b>ScanMaster</b> software for data acquisition, imaging and evaluation.
<b>System architecture</b>	<b>ScanMaster</b> client-server network with multiple client <b>upi-100</b> ultrasonic instruments and <b>ScanMaster</b> server with integrated display, data storage and data evaluation tools.
<b>Data acquisition technique</b>	16 contiguous hardware gates per <b>upi-100</b> channel provide high-speed acquisition of peak amplitude and depth data over the volume of the inspected rail.
<b>Real-time B-scan display</b>	<b>ScanMaster</b> software-generated longitudinal B-scan of rail provides a real-time image of indications for each ultrasonic channel.
<b>Operator control console</b>	Includes TFT display monitor for system operation and ultrasonic signal display, keyboard and control mouse.
<b>Data storage and evaluation of indications</b>	On-line storage of scan data for each active channel. Data evaluation can be on- or off-line, based on pattern recognition of single or composite longitudinal B-scan images of indications. Fully documented inspection results with the capability for advanced flaw evaluation based on digital pattern recognition of longitudinal B-scan cross-sections.
<b>Real-time detection</b>	Real-time detection of defects and paint marking.
<b>Number of inspection channels</b>	Up to 12 ultrasonic channels per rail. Simultaneous firing of all channels.
<b>Maximum inspection speed</b>	Up to 100km/hr (60miles/hr), dependent on longitudinal resolution requirement and performance of ultrasonic coupling device.
<b>Inspection resolution along the track</b>	6mm per channel at 90km/hr (56miles/hr). Tighter resolution with decreasing inspection speed.
<b>Rail height monitoring</b>	Automatic height tracking and set-up loading.
<b>Position tracking</b>	Encoder-based measurement along the track. Automatic or manual adjustment of position at position markers.
<b>Transducers</b>	0°, ±35°, ±70, 55° transducers are typically used for detection of a variety of flaws. Protective shoes prevent transducer wear-out.
<b>Inspection documentation</b>	Comprehensive inspection report, including list of flaws, their type and location.
<b>System access control</b>	Three levels of programmable authorized access.



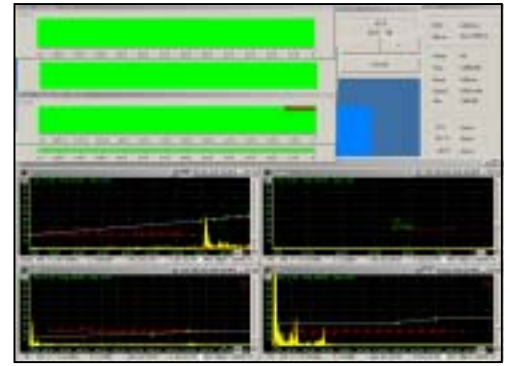
# SFB-100 SERIES RAIL INSPECTOR



UT display – left hand side rail



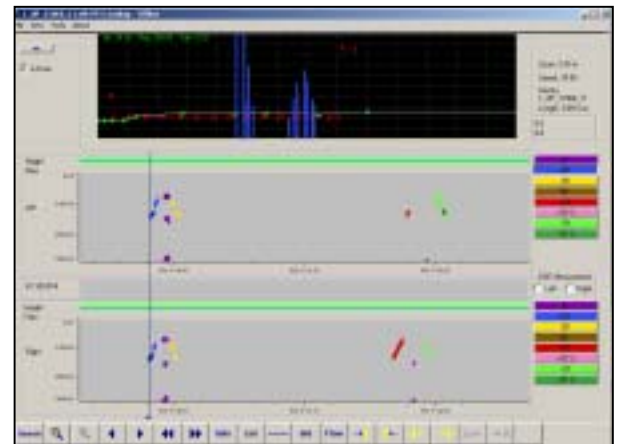
Running B-scan



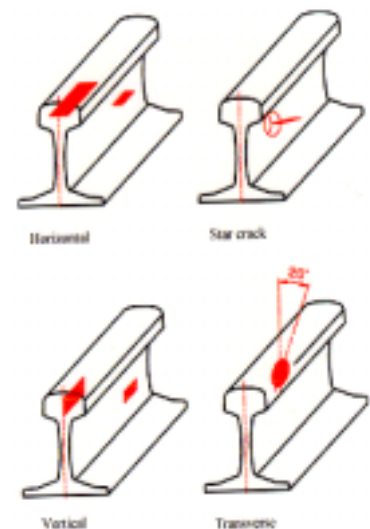
UT display – right hand side rail

TRACK DEFECTS												
Inspection Car No.:	Date of run:		Supervisor:									
Inspection Car No.:	7102	Date of run:	09/20/12 08:45	Supervisor:								
Railway:	section 1	Road:	LP	From:	61.080.000							
Division:	MAS	Route No.:	90	To:	61.081.739							
Section:	1	Clearing level:	Increase	Source:	Online							
Starting km:	68.180	Probe Array / On:	Left Rail	Track:	Bank							
Grid km:	61.081.739	Direction:	Forward	File Name:	1_LP_12088_11							
No.	km	Location	Height	TP	TP	Rail	Return depth (mm)	Return angle (mm)	Distance from track (mm)	Type	Filtered	Speed (km/h)
1	61	117.3	66.7	-	-	L	112.30	TP	-1107	DEFECT	Yes	37.3
2	61	117.4	37.3	-	-	R	125.37	TP	-1920	DEFECT	Yes	37.3
3	61	117.5	41.8	-	-	L	124.80	TP	-1198	DEFECT	Yes	37.3
4	61	117.3	36.8	-	-	R	14.78	TP	-1320	DEFECT	Yes	37.3
5	61	117.3	40.3	-	-	R	35.05	TP	-1520	DEFECT	Yes	37.3
6	61	117.1	40.8	-	-	R	126.41	TP	-1138	DEFECT	Yes	37.3
7	61	115.3	30.7	-	-	L	123.70	TP	-1520	DEFECT	Yes	37.3
8	61	117.2	41.8	-	-	L	115.17	TP	-1722	DEFECT	Yes	37.3
9	61	117.2	42.3	-	-	R	111.73	TP	-1718	DEFECT	Yes	37.3
10	61	117.5	38.2	-	-	R	31.79	TP	-1012	DEFECT	Yes	38.7
11	61	115.0	41.4	-	-	R	116.50	TP	-1404	DEFECT	Yes	38.7

Inspection report



Flaw evaluation



\* Specifications are subject to change without notice.

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