

# FUJIFILM

## FCR PROTECT ONE

FUJI COMPUTED RADIOGRAPHY

*A state-of-the-art single-stacker FCR Reader for mammography and pediatric images in high resolution.*

Image  
Intelligence™



<http://www.fujifilm.com/products/medical/>

FCR, the world's first CR to receive PMA<sup>\*1</sup> approval from FDA<sup>\*2</sup> for mammography.

\*1: PMA (Premarket Approval) \*2: FDA (U.S. Food and Drug Administration)

# Realization of high-resolution digital mammography and pediatric imaging.

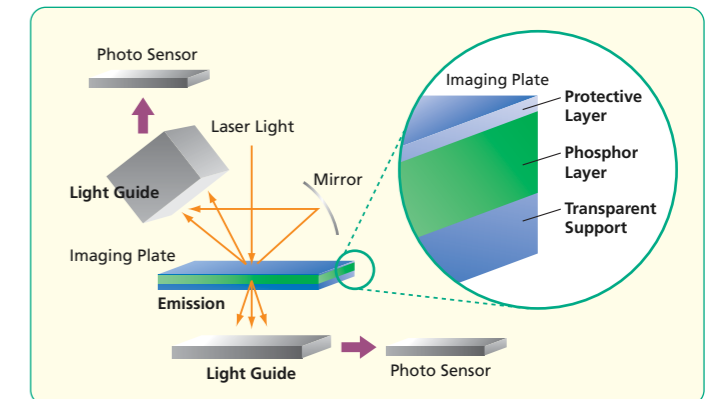
The FCR PROTECT ONE is a single-stacker X-ray image reader that follows the path of Fujifilm's high precision FCR PROTECT CS for superb digital mammography. One feature that separates the FCR PROTECT series from other models is Fujifilm's exclusive Dual-Side Reading Technology. The system supports Imaging Plate (IP) such as HR-BD<sup>\*1</sup> and ST-BD<sup>\*2</sup> for optimal mammography and pediatric/neonatal imaging in which higher detectability is demanded. Further, smooth and seamless workflow, as well as superior operability is maintained at all times with this equipment that is also an optional backup for the FCR PROTECT CS.

\*1. High-Resolution Dual-Side Imaging Plate \*2. Standard Dual-Side Imaging Plate



## Dual-Side Reading Technology

The Dual-Side Imaging Plate (IP) Reading technology allows the use of a thicker phosphor layer on the transparent base, thereby increasing DQE (Detective Quantum Efficiency) by collecting the emissions from both sides of the IP.

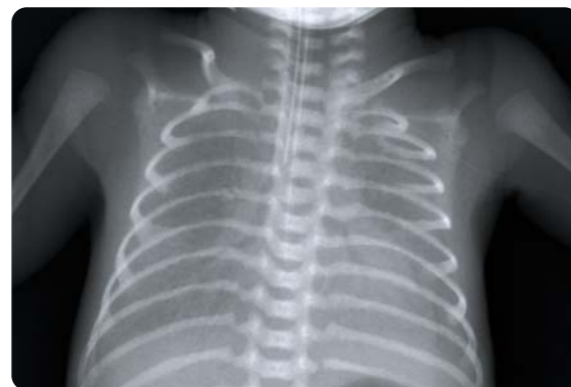


## High-precision Images For Various Needs



### Digital Mammographic Imaging

Image quality is consistently high with wide latitude and sharp definition, whether it is for digital mammogram or plain X-ray, and whether on print or on display. Optimized images are the result of up to 20- pixel/mm scanning pitch and combining image-processing algorithms.



### Digital Pediatric Imaging

Incredibly high-quality pediatric and neonatal imaging, as well as images of premature infants, are promised by using IP ST-BD. Image graininess is drastically reduced, for clearer and more detailed contrast. The system also delivers clearer images with less exposure dose, and therefore is gentle to the patient, even when the patient has to frequently take many X-rays.

## Enhanced Image Processing

"Image Intelligence™" – a set of sophisticated digital image-processing software technologies available through the CR Console – processes image data and optimizes final output.



### MFP Multi-frequency Processing\*

As an optional software applicable for all types of FCR imaging, MFP is an improved version which uses frequency enhancement to provide more diagnostic data from a single exposure image, using Fujifilm's renowned Dynamic Range Control (DRC). MFP improves visibility of both dense and peripheral tissue by simultaneously applying edge enhancement processing to small and large structures within an image.

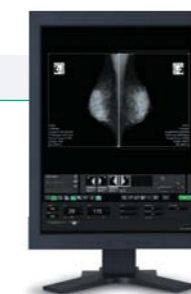
### PEM Pattern Enhancement Processing for Mammography\*

As an optional software specifically developed for mammographic imaging, PEM enhancement processing improves the conspicuity of micro-calcifications.

\* Image processing requires the use of FCR CR Console Plus

## Optimized Operation

The MAMMOASCENT AWS-c optimizes your mammography examinations with its advanced design and features.



## Digital Mammography System

A digital Mammography System is a system that links the FCR PROTECT ONE and/or the FCR PROTECT CS with the SYNAPSE Mammography Viewer via the MAMMOASCENT AWS-c and/or the CR Console to optimize the viewing of any body part that may be associated with breast cancer.



# PROTECT ONE

# FUJIFILM FCR PROTECT ONE Specifications

## Standard Components:

- FCR PROTECT ONE Image Reader (Model: CR-IR 368)
- AC power cord

## Other System Components (sold separately):

- CR Console Plus, MAMMOASCENT AWS-c
- Image Recorder : DRYPIX 4000/7000
- ID Card Writer
- FCR Data Management System

## Supplies:

### Imaging Plate:

- ST-VI (Standard): 14" x 17", 14" x 14", 10" x 12", 8" x 10", 24 x 30cm, 18 x 24cm
- HR-V (High Resolution): 24 x 30cm, 18 x 24cm
- ST-BD (Standard Dual-Side Imaging): 24 x 30cm, 18 x 24cm
- HR-BD (Dual-Side Mammography): 24 x 30cm, 18 x 24cm

### IP Cassette:

- Type CC: 14" x 17", 14" x 14", 10" x 12", 8" x 10", 24 x 30cm, 18 x 24cm
- Type CH: 24 x 30cm, 18 x 24cm
- Type DS: 24 x 30cm, 18 x 24cm
- Type DM: 24 x 30cm, 18 x 24cm
- Type LC: 35.4 x 124.5cm, 35.4 x 101.7cm, 35.4 x 83.0cm, 25.2 x 58.0cm, 24.0 x 57.0cm

## Time Required for IP Feed/Load:

IP Type	IP Size	Required Time
ST-VI	14" x 17" (35 x 43cm)	Approx. 60 sec.
ST-VI	14" x 14" (35 x 35cm)	Approx. 54 sec.
ST-VI	10" x 12"	Approx. 50 sec.
ST-VI	8" x 10"	Approx. 40 sec.
ST-VI	24 x 30cm	Approx. 51 sec.
ST-VI	18 x 24cm	Approx. 42 sec.
HR-V	24 x 30cm	Approx. 65 sec.
HR-V	18 x 24cm	Approx. 55 sec.
ST-BD	24 x 30cm	Approx. 85 sec.
ST-BD	18 x 24cm	Approx. 75 sec.
HR-BD	24 x 30cm	Approx. 90 sec.
HR-BD	18 x 24cm	Approx. 80 sec.

## Processing Capacity

(in high-pixel density two-image output format):

IP Type	IP Size	When connected to DRYPIX 7000/CR Console Plus
ST-BD	24 x 30 cm	Approx. 42 IPs/hr.
ST-BD	18 x 24 cm	Approx. 48 IPs/hr.
HR-BD	24 x 30 cm	Approx. 40 IPs/hr.
HR-BD	18 x 24 cm	Approx. 45 IPs/hr.

## Time to Print on DRYPIX 7000 (18 x 24 HR-BD & ST-BD) :

Approx. 140 sec.

## Image Reading (Image output is via CR Console)

Reading Size	Standard Pixel-density		High Pixel-density	
	Pixels/mm	Number of Pixels	Pixels/mm	Number of Pixels
14" x 17" (35 x 43 cm)	5	1760 x 2140	10	3520 x 4280
14" x 14" (35 x 35 cm)	5	1760 x 1760	10	3520 x 3520
10" x 12"	6.7	1670 x 2010	10	2505 x 3015
8" x 10"	10	2000 x 2510	10	2000 x 2510
24 x 30cm (ST-VI & HR-V)	6.7	1576 x 1976	10	2364 x 2964
18 x 24cm (ST-VI & HR-V)	10	1770 x 2370	10	1770 x 2370
24 x 30cm (ST-BD & HR-BD)	10	2364 x 2964	20	4728 x 5928
18 x 24cm (ST-BD & HR-BD)	10	1770 x 2370	20	3540 x 4740

Number of Stackers: 1

Reading Gray Scale: 12 bits

Network: 10 Base T/100 Base TX

Dimensions (W x D x H): 655 x 740 x 1330mm (26" x 29" x 52")

Weight: 230kg (507lbs.)

## Power Supply Conditions:

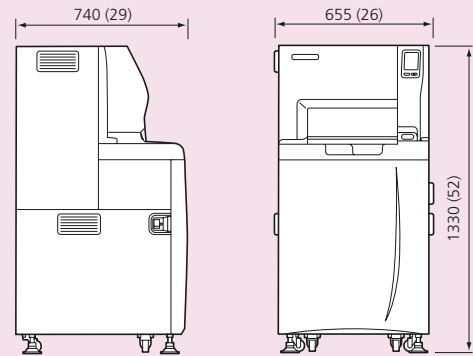
Single phase 50-60Hz  
AC 120-240V ±10%  
7A (max)

## Environmental Conditions:

- Operating Conditions:  
Temperature: 15-30°C  
Humidity: 40-80%RH (No dew condensation)
- Non-operating Conditions:  
Temperature: 0-45°C  
Humidity: 10-90%RH (No dew condensation)

## Dimensions

Unit: mm (in.)



## IP Cassette with Imaging Plate



DM Cassette with IP HR-BD for Dual-Side Mammography



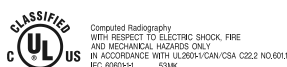
DS Cassette with IP ST-BD for Standard Dual-Side imaging

## Mammography QC Program



Fujifilm's Mammography QC Program is a dedicated quality control program applicable to FUJIFILM digital mammography systems. This program enables the system to keep a stable image quality for both screening and diagnosis.

This equipment is a Class 1 laser product (IEC60825).



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In some countries, regulatory approval may be required to import medical devices.  
For the availability of these products, please contact your local sales representatives.



FUJIFILM supports the Pink Ribbon Campaign for early detection of breast cancer

# FUJIFILM

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